

the two works in one volume is the "continuing interest in both of them by modern workers". But experts on euphausiids tend to deal with plankton, whereas students of mysids tend to be specialists on the benthos — few zoologists (Mauchline apart) have demonstrated a competence in both groups. Thus many students of mysids who will need Mauchline's indispensable work will have to purchase the euphausiid part, which may be of only marginal interest to them, and vice versa. Could not the two parts have been issued separately at more reasonable prices?

Part I, "The Biology of Mysids", is a major contribution which will be an invaluable aid to mysid biology. The taxonomic sections are especially useful. Chapter 2 contains an illustrated key to the world genera, not heretofore available. Some of the line illustrations suffer from muddy printing of crowded spines and setae, and instead of the traditional couplets the key sometimes requires the reader to choose among as many as seven items. Nevertheless, with its aid one should have little difficulty in identifying the genus of an unknown mysid. Keys to species are not provided, but Appendix I updates the 1977 World List of Mauchline and Murano, listing all known species, and Appendix II guides the reader to the most useful references for each genus.

Chapters 3–13 concisely summarize various aspects of the structure, behaviour and life history of mysids. Mauchline reviews and comments on the literature, and does not hesitate to add new material or to re-work published data. When space limitations preclude detailed discussion of a subject, pertinent references are cited.

A reviewer traditionally takes note of some flaw or error in the book under discussion. This has proven difficult, but I will fulfil the requirement by pointing out that within the suborder Mysida statocysts are lacking in *Spelaeomysis* and *Stygiomysis*, not only in the Petalophthalmidae.

Part II, "The Biology of Euphausiids", is a supplement to the 1969 volume of the same title in the same series by Mauchline and Fisher. The earlier book, summarizing information available up to 1968, is the standard primary reference work on the 85 species of Euphausiacea, major constituents of the marine zooplankton. The present volume reviews the progress made since that time.

Both parts are followed by addenda covering the most recent research, and each part contains an extensive bibliography. Taxonomic and subject indexes conclude the volume.

Many of us will use this book frequently in the years ahead, and Dr Mauchline deserves our gratitude for making such a useful tool available. □

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## Reactions in the biggest retort of all

Geoffrey Eglinton

*Marine Organic Chemistry: Evolution, Composition, Interactions and Chemistry of Organic Matter in Seawater.* Elsevier Oceanography Series, 31. Edited by E.K. Duursma and R. Dawson. Pp.521. ISBN 0-444-41892-X. (Elsevier Scientific: 1981.) \$105, Dfl. 215.

THE oceans have been with us for most of the history of this planet and certainly over the last 4,000 million years. In this time, life has appeared, burgeoned, evolved and become the major factor in determining our present planetary environment. Continents have come and gone, wandered and pirouetted around the world's surface, all the time with erosion contributing chemically to that vast, dilute, low-temperature reaction medium — the waters of the world's oceans.

The chemistry of the seas is a matter of great wonder. Such a vast volume of water and an almost unimaginably complex dilute soup of organic compounds of largely unknown composition, constantly being contributed to, consumed, decomposed and recycled by marine organisms — a daunting prospect for researchers, even with modern chromatographic and spectrometric techniques, but progress is being made.

Duursma and Dawson have brought together in this book some 16 chapters, covering a wide range of topics, including the organic compounds present in marine organisms, non-living dissolved and particulate matter, the decomposition of organic matter, organometallic interactions, and the intriguing "skin" of the sea where organic compounds concentrate and photochemical processes occur. Most of the chapters are informative reviews rather than critical assessments. Indeed, it would have been useful to have had listings of important areas of lack of knowledge.

Another criticism is that most of the chapter topics are somewhat unconnected, even though the treatments given are excellent in their own right. Of course, it is always a difficult task to persuade busy people to write detailed and informative review essays but it is especially difficult to get over the next hurdle, that of coaxing the authors to integrate their chapters with one another. Again, the depth of coverage given to topics is uneven in this volume. Thus, the chapter on natural, halogenated, organic compounds by William Fenical is a detailed review of what has so far been found in marine organisms and of the distribution processes — liberation, transport, biodegradation and so on. Organic sulphur compounds are also given particular consideration (by Wolfgang Balzar) but the only other group of compounds to receive special attention are the hydrocarbons, in a chapter written by Alain Salot.

I recommend this book: there is much of considerable value for marine chemists, as both basic analytical data and the processes taking place are reported in some detail. However, it whets the appetite rather than satisfying as a complete meal — probably the right thing to do at this stage in our understanding of the subject. □

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## Models in the sand

M.J. Chadwick

*Arid-Land Ecosystems: Structure, Functioning and Management, Vol. 2.* International Biological Programme, 17. Edited by D.W. Goodall. Pp.605. ISBN 0-521-22988-X. (Cambridge University Press: 1981.) £50, \$110.

THIS volume completes the IBP study of arid ecosystems. The first volume (for review see *Nature* 280, 522) described the climate, soils, geomorphology, hydrology and the biotic components of arid zone ecosystems, mainly from a structural point of view, and then went on to deal with the processes controlling ecosystem functioning. Consideration of this latter component is expanded in the work under review, but to it are added ecosystem dynamics and a section on the management of arid lands. This allows the development of models to be pursued, and in many ways it is these chapters that form the most interesting part of the book. The International Biological Programme provided the stimulus for considerable advances in ecosystem modelling and, to a large extent, arid ecosystems benefited perhaps more than others from this, due to the rather fragmentary and somewhat primitive conceptual framework of knowledge of this biome when the programme began. The task is far from complete, but the stage is now set for the testing of such models against field data. It is to be hoped that the extent of arid land degradation will not be too great to prevent the successful application of such validated models to problems of arid land management.

There is a sense in which this volume is a disappointment, but not because of any inherent deficiencies in the studies it describes, the data it produces or the overall presentation of the work. It is because much of the work has appeared in various forms already, over the years that have elapsed since the termination of the