

## Marine science

*An Introduction to Marine Science.* By P. S. Meadows and J. I. Campbell. Pp. 176. (Blackie: Glasgow and London, 1978.) Paperback £5.25.

THIS is the latest addition to Blackie's *Tertiary Level Biology* series of textbooks designed for course options at advanced undergraduate level in universities and polytechnics. The word *Introduction* in the title should be interpreted in this context: the book assumes that its readers possess a good biological knowledge and a reasonable background in physical science. Advanced school students, first-year undergraduates and interested non-specialists would find R. V. Tait's *Elements of Marine Ecology* (Butterworths: London, second edition, 1972) an easier and more congenial first book on marine science.

Meadows and Campbell's book covers a wide field, both geographically and scientifically. Consideration of the marine environment ranges from the poles to the tropics and from abyssal depths to mangrove swamps. There is a very short introduction indicating the extent and characteristics of the oceans and of the ecological zones (with their associated biotic communities) that are described in later chapters. This is followed by a description of water circulation and movement, and the more important physical and chemical processes that occur in the sea. Intertidal regions, estuaries, the sea floor and tropical inshore regions are then treated in some detail with respect to geomorphology, ecological significance and interactions between the plants and animals that live there. Collecting gear and methods of investigation are described and illustrated. There is a special chapter on "Productivity, Plankton and the Pelagic Environment" and another on fisheries and farming. A good bibliography has been classified into reference books, popular books, marine review journals, abstracts, and research journals concerned with marine science. There is a comprehensive index with useful cross references.

The style of the book is very terse. A great deal of information has been packed into a short space by making the text and illustrations interdependent rather than complementary; imaginatively conceived diagrammatic presentation of facts and concepts is used to save more lengthy explanations. In consequence both text and illustrations require close attention from the student. Some unwelcome

effects of compression are evident: the book is rather uneven, physiological considerations receive scant attention and some sections—for example, that on fisheries—are too short to give a representative view.

I believe that this textbook will be a valuable adjunct to taught courses in marine science; it will give serious

students a good follow-up to lectures, and guide and encourage further reading. It deserves a place in libraries and on student bookshelves in many countries.

A. B. Bowers

*A. B. Bowers is Senior Lecturer in the Department of Marine Biology, University of Liverpool, UK.*

## Freshwater biology

*Biology of Fresh Waters.* By P. S. Maitland. (Blackie: Glasgow and London, 1978.) Hardback £11.50; paperback £5.75.

*Biology of Fresh Waters* is one of a number of titles in a series called *Tertiary Level Biology*, which covers selected areas of biology at advanced undergraduate level. Although designed specifically for course options at this level within universities and polytechnics, the series will be of great value to specialists and research workers in other fields who require a knowledge of the essentials of a subject.

There are few, if any, books dealing with this subject in a comprehensive manner for undergraduates; this book is therefore a welcome addition to the list of available textbooks for biology students. The author has had considerable experience in both teaching and research in this field and has put this to good use in compiling this work.

After dealing with the physical, chemical and biological characteristics of the freshwater environment he introduces the reader to the plant and animal kingdom in a most thorough and concise manner, which is of great value to the student of both biology and ecology. In these days of early specialisation few students get the necessary basic grounding in plant and animal taxonomy and morphology, and the author has appreciated this in providing a 35-page summary on this topic.

Having provided the foundation to the subject Dr Maitland goes on to consider standing and running waters; here, there is inevitable repetition from

chapter 1. In this respect it is difficult to know whether or not the book has necessarily been produced with the chapters in a sequence to avoid repetition and produce a smooth continuity. The remaining chapters are: field studies; adaptation to environment; communities and energy flow; and freshwater and man—all admirable topics but not necessarily introduced to the reader in the right order.

Although freshwater biology has been the subject of many books designed for various levels of readership, quite often the same illustrations appear with a monotonous regularity. It is therefore refreshing to see new, and in some cases original, figures, diagrams and tables, and the author has used some of the results of his own research on the River Endrick and Loch Leven with good effect. The drawings of plants and animals are particularly good but those illustrating various types of equipment are poor (Fig. 5.3, 5.4, and 8.2) and in some cases naive (Fig. 5.15) or unnecessary (Fig. 8.5).

Man's influence on the freshwater environment has been given a wide, though uneven, coverage. Although this subject must necessarily be brief, a few more references to further reading could have been given to the reader who had an interest in any of the subjects covered, which include fish-farming, hydro-electricity, navigation, pollution, recreation and agriculture.

Dr Maitland should be congratulated on producing a very valuable student handbook on freshwater biology which will be of use to students both in the British Isles and abroad.

Derek Mills

*Derek Mills is Senior Lecturer in freshwater ecology and fisheries management at the University of Edinburgh, UK.*

## The complete biologist

EVEN within a course the best teachers do not rigidly adhere to a recommended textbook. Although such bibliolatry would be an anathema, the choice of student texts is an important, even crucial process. What are the criteria?

Factual content, conceptual approach, readability, layout, production and cost rank among the more important. And for the general biology college teacher, the balance is particularly difficult to find. The three books reviewed here cover much of the same ground at a similar academic level; they are all well written; and they are all intended for a primarily American audience (although Hardin