but by and large they are minor. The major weakness is that, while the author by no means ignores work and examples from outside the Americas, his concentration on matters American (no doubt deliberate) amounts to a regrettable bias, not only for his readership outside America, but also for his domestic readers, who would benefit from broader horizons. As I scan my own bookshelves, I see that the great majority of books on ecology in English produced in the last 20 years or so are American, so it is a particular pleasure to welcome Hermann Remmert's *Ecology: A Textbook*, in which many European and some African examples are found alongside the American ones.

Remmert's book is only a third of the size of Ricklefs', so the treatment of the subject is bound to differ. Remmert has decided to concentrate on autecology, population ecology and ecosystems, and this approach is largely successful. The style of the book is also very different. You will find no jargon here, and very few equations, only plain and most readable English (the translation from the German by Dr Marguerite Biederman-Thorson is excellent). The result is a first-rate exposition of many of the basic concepts of ecology which can be read with profit by biologist and non-biologist alike. Professor Remmert is very concerned that the magnitude of the task of understanding complex ecosystems should not be underestimated, and he is sceptical of the value of mathematical models. He also has some harsh words for what he calls "ecological quacks" who offer advice on how to improve mankind's lot, and he points out that the need is to maintain in good condition the environment to which we are so well adapted, and that improvement in this context is a meaningless concept.

For this reason, presumably, he has included no section on applied ecology, unlike Richard Brewer, whose *Principles of Ecology* is otherwise similar in size and coverage, though with the expected American bias. Brewer, from his comments on Spaceship Earth, is equally concerned to conserve essentials, and his sections on the ways in which the ecologist can go about offering sensible advice seem to me not unreasonable, though I doubt if they would satisfy Professor Remmert. □

I. J. Linn is a Senior Lecturer in the Department of Biological Sciences of the University of Exeter.

Aquatic biology, past and future

C. M. Yonge

Fundamentals of Aquatic Ecosystems. Edited by R. S. K. Barnes and K. H. Mann. Pp.229. (Blackwell Scientific: 1980.) Flexi £7.80, $22.50. *The Ecology of Streams and Rivers. Studies in Biology*, 122. By Colin R. Townsend. Pp.68. (Edward Arnold: 1980.) Flexi £2.10.

WHEN I was on the staff of the Plymouth Laboratory the basic methods for the quantitative determination of phosphates and nitrates in the sea were being elaborated, while, at the same time, a descriptive shore ecology was being supported by experiments revealing such unsurprising facts as that organisms highest on the shore are most resistant to the effects of desiccation. Certain of us were making tentative advances in comparative physiology.

These two admirably presented and illustrated books are almost entirely concerned with the results of half-a-century of subsequent progress. The properties of the ecosystem emerge as no less significant than those of the organism or even populations of organisms. Energy flow is revealed as all-important.

The more comprehensive *Fundamentals of Aquatic Ecosystems* is the ably edited work of ten authors, each highly qualified to deal with some aspect of the subject which includes the increasing human exploitation, by aquaculture, of the products of marine and fresh waters. No better introductory survey of these highly significant aspects of modern biology could be desired, one certain to fire the imagination of senior pupils and first-year undergraduates. How rewarding, surely, to teach students already so well informed.

Relevance to the future arises out of comment in the book on the recent discovery near the Galapagos Islands of unique animal communities around submarine volcanic vents at depths below the penetration of light. Consequent description of the sulphur cycle, on which this life depends, involves mention of the industrial production of sulphur dioxide and its influence on the basic chemistry of the Earth. Such effects on the biosphere emerge as among the major hazards of coming decades.

The smaller *Ecology of Streams and Rivers* serves almost as a supplement, concerned as it is with the maintenance of populations within running waters with the constant danger of being carried seaward to destruction. It is an excellent addition to the *Studies in Biology* produced by the Institute of Biology. □

Sir Maurice Yonge is an Honorary Fellow in Zoology at the University of Edinburgh.