Urban environmental management

Urban Environmental Management. By Brian J. L. Berry and Frank E. Horton. Pp. xv+425. (Prentice-Hall: Englewood Cliffs, 1974.) $14.95.

BRIAN BERRY and Frank Horton have discovered a new way to produce large text books—the 'text with integrated readings'. They now follow their *Geographical Perspectives on Urban Systems* with a new text on urban environmental management. They produce a cross between a reader and a traditional textbook by using contributors' papers, as in the former, but integrating them with judicious introductory and linking texts of their own. This makes it possible to be the first in the field with a new book. But does it work?

Although many of the contributing authors are first class, the present book is very uneven. Many of the articles used first appeared in that excellent journal *Science* and serve as thorough introductions. Most of the rest are either university discussion papers or government papers. These often contain masses of information, ranging in content, for example, from 'Generation of Solid Wastes from Five Major Sources in 1967' (covering the whole of the USA with no reference cited) to 'Licensed Swine Feeders in Northeastern Illinois' (reference given this time). Not surprisingly, it is very difficult for the reader to get all this into perspective. Absolute figures for 1967 do not say whether the problem is getting worse and if so at what rate.

Successive groups of chapters are concerned with environmental beliefs, environmental impacts of urbanisation, air, water, solid wastes, noise, the relationship between environmental pollution and health, and government programmes. Quite an agenda. The student is introduced to most of the basic elements of the various sectors, but he will sometimes, one suspects, have to be wary of the arguments put. For example, it is argued that particulate concentration increases with city size on the basis of a regression of the geometric mean of the pollutant against the log of the population, January temperature and the number of iron and steel production workers. Presumably, these were the best of the variables tried; the R^2 was 0.26. There are other examples of feeble analysis.

So the student gets his text a couple of years before he can have a 'proper' one, and lots of research workers who need a quick introduction to an important new field, can get it. But the price is fairly high. The quality of what is on offer varies tremendously, and the authors/editors have not always helped. They do indicate where a new reading starts, roughly, but not where it finishes, so it is not always clear who is responsible for a piece of text—a bad principle to introduce. Many, if not most, of the entries in a long list of references are not actually cited in the text, and so the reader is not provided with an adequate guide to the literature. All in all, it may have been better for Berry and Horton to have been more patient before using their obvious skills in producing a conventional text.

A. G. Wilson

A fishspear from the Lipari Islands, off the coast of Sicily, probably used for tunny fish. Taken from *Beachcombing for Beginners* by Norman Hicklin. Pp. v+128. (David and Charles: London, 1975.) £3.50.

Insect muscle

Insect Muscle. Edited by P. N. R. Usherwood. Pp. xi+621. (Academic: London and New York, May 1975.) £14.50; $38.25.

PHYSIOLOGISTS disagree as to whether diversity is a subject worthy of study in its own right but none would dissent from the view that a correct choice of experimental material is important for the investigation of basic biological phenomena. It has been amply demonstrated that insect muscle can provide many such opportunities. By contrast, it cannot be claimed that the study of insect muscles has yet made any important contributions to applied entomology. Workers who are interested in practical control measures can omit this book from their reading for the time being. It might become important introductory material for them in 10 years time when other aspects of insect physiology are better understood. Otherwise, however, this is a useful and timely book which should be read by all general physiologists interested in the problem of muscular contractility.

Elder starts with a good review of all the significant, fine structural aspects of insects muscles. Finlayson deals with the difficult subject of development and degeneration, but in a book of this sort the articles should be more than a catalogue of original sources of information and should bring out points of significance. In fact, many of the articles meet this criterion.

On neuromuscular physiology, Osborne gives a good discussion of ultrastructural aspects and Usherwood and Cull-Candy provide a review of the difficult field of the identity of transmitters; their summary tables on the action of various chemical substances will be much used for reference. Piek, dealing with ionic and electrical properties, suggests that a highly active Na–K exchange pump operates in the extensive transverse tubular membrane, that this membrane is permeable to chloride and that this leads to a concentration of NaCl in the transverse tubular space which is high enough to produce a significant liquid junctional potential at its opening.

Aidley gives a short review of excitation–contraction coupling and mechanical properties, which is adequate in view of the fact that few significant differences have been discovered between insect and vertebrate muscles. Tregear presents a major review of the use made of a fibrillar muscle preparation for the elucidation of basic mechanisms of mechanochemical transduction; insect muscle had made important contributions to this general problem. Crabtree and Newsholme, on metabolism, return to an emphasis on diversity. Whereas the basic molecular mechanism for contraction seems to be the same for all muscles, differences in the type of fuel used for metabolic generation of ATP reflect the adaptation of the tissue to the needs of the whole animal, which are different for different insects. The article contains a lot of information and an interesting discussion of regulatory mechanisms and the nature and role of reversible mitochondrial shuttles. Hoyle, on neural control, is concerned with the programming of the output of motor neurones. Insect movement provides several well defined patterns of coordination, the analysis of which offers hope for a better understanding of the organisation of the central nervous system. This is an active and significant area of research. The last chapter, by Miller on visceral muscles, is a tasty *hors d'oeuvre* which, I hope, will stimulate the appetite of comparative physiologists for a field that cannot fail to integrate several aspects of insect biology.

The book is well produced and Professor Usherwood deserves our gratitude for undertaking the editorial tasks.

J. W. S. Pringle