

is primarily intended for students and administrators concerned with this subject, although it can also be recommended to the more studious members of the wider public who are often so vocal about environmental problems.

Dr Saunders defines pollution as "the introduction by man of waste matter or surplus energy into the environment which directly or indirectly causes damage to man and his environment, other than himself, his household, those in his employment or those with whom he has a direct trading relationship". I am unable to understand why self-inflicted, domestic and occupational exposures are excluded except where they interact with other types of pollution. It may be more difficult to evaluate this type of damage in cash terms but they

are equally serious and equally necessary to control.

The amount of information condensed into this small book is quite remarkable. The whole field of air, water, soil and of estuaries, and the specific problems caused by persistent pollutants is summarised in under 20 pages. Global problems are dealt with in about the same space. The remainder of the text describes the many techniques involved in estimating and measuring pollution, with a number of well-chosen practical examples. The extreme compression does not make for easy reading, which may discourage less-informed readers. Students who often only receive a superficial introduction to this subject will benefit most from its content.

Kenneth Mellanby

## Changing spectrum for crop plants

*Evolution of Crop Plants*. Edited by N. W. Simmonds. Pp. xii+339. (Longman: London and New York, 1976.) £14.00.

THIS is an excellent book in which the title is used in its widest sense to convey the whole spectrum of a crop's development from origin to modern varieties, and its present and future potential role in the changing demands of world agriculture. Not since De Candolle has a book attempted to cover all the major and many minor crop plants grown in the world today; this book should therefore prove invaluable to all those involved internationally in crop improvement programmes.

The book is multi-authored, with 86 chapters detailing individual crops, arranged alphabetically by family, with the last two covering timber trees and minor crops. Each has an introduction and four sections on cytotoxic background, early and recent history and prospects, ending with a bibliography listing key and source references. Chapters range from 2,000–6,000 words depending on agricultural importance and depth of evolutionary understanding.

The absolute merit of individual chapters must be judged by the relevant crop specialist. All combine a range of scientific disciplines in framing a crop's history in a concise and comprehensive manner. In some instances emphasis on the former has produced some formidable terminology in the cytotoxic section (for example, Papaya, ch 8, and Fig, ch 59) and early history section (in

describing early plant migrations); and simplification or additional explanation would be helpful, although in both the regular use of diagrams aids presentation. The recent history and prospects sections detail the application of modern breeding methods in variety development, and attempt to identify the inherent problems for the future. In some cases, however, little mention is made of the local importance of a crop outside its main production area, where different though equally important problems may occur—two examples being cotton and groundnuts in Africa (south of the Sahara).

Of particular note for the future is the recurring theme in many chapters, on crops with a long breeding history, of the poor management in the past of crop genetic resources, resulting in depletion of available genetic variability, which may limit future advances. That this should not be repeated is stressed by a number of authors describing crops which have recently received attention and which, although only now grown in subsistence agriculture, are likely to play a key role in the future in improving living standards in developing countries. It is also evident that there are crops, such as cucurbits and edible aroids, whose potential for production in marginal tropical areas is recognised but as yet little exploited.

I can only agree with the editor's words that the book "concentrates on the particular and, in doing so reveals . . . , how insecure our knowledge often is, how much more work is needed and how often, even now, the right questions have not yet been asked".

H. E. Gridley

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## Foraminifera

*Recent Foraminifera*. By Esteban Boltovskoy and Ramil Wright. 515 pp. (Junk, The Hague, 1976.) 125 DF1.

A THOROUGH revision and updating of Boltovskoy's original *Los Foraminiferos Recientes* (Buenos Aires, 1965) has resulted in a comprehensive new text, furnished with well chosen and clearly reproduced figures, a carefully compiled bibliography and a good index, the whole being attractively printed on good paper and sturdily bound. The authors deserve high praise for so successfully summarising such a wide range of information, for always emphasising the significance and practical value of each aspect of the subject, and in producing such a readable book. It can be read from cover to cover with pleasure, or simply dipped into with profit.

No previous knowledge of the foraminifera is assumed, yet the authors quickly introduce the reader to the results of research which were very new when their manuscript was completed (January, 1975). Foraminiferal morphology and biology are clearly and concisely described, the scientific significance of foraminiferal studies is made plain, and the distribution and ecology of the foraminifera are described and discussed in their oceanographic, biostratigraphic and palaeo-oceanographic contexts. Taxonomy, systematics and problems of synonymy are dealt with concisely and realistically. There are most useful chapters covering techniques of collection, preparation, culture and storage, which the authors have tried and tested.

This book is no mere library compilation of other scientists' publications: rather, it is the result of long experience of practical work with foraminifera by the authors themselves. The book is intended for workers of all kinds, from the beginning student to the academic and industrial researcher, for those who have access to large research budgets and to those who can lay hands on only the most simple equipment and most modest resources. The authors succeed admirably.

Of course, there are the inevitable minor errors (a dreadfully confused Fig. 117 is, perhaps, the worst). The book should, however, be compulsory reading for all students of the foraminifera, be they protozoologists or micropalaeontologists, biological oceanographers or biogeographers.

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