

though the book is described as the Proceedings of a meeting "... held to enable a group ... to discuss past and future developments ..." of their subject, little or no discussion among the participants is included, and a major factor linking the disparate parts of the book is its subject index, which is good.

H. MCILWAIN

Battelle Bombast

Science in the Service of Mankind: The Battelle Story. By G. A. W. Boehm and A. Groner. Pp. xiii+132. (Lexington Books, D. C. Heath and Company: Lexington, Massachusetts, and London, 1972.) \$10.

THE title of this book correctly suggests the contents—that is, not so much a history as a house or public relations job. This might not be unusual or blameworthy. It is disturbing, however, that although the Battelle Memorial Institute and its various subsidiary organizations are dedicated to the application of academic standards to practical problems, their president seems not to realize the requirements of professional history. He determined, he tells us, to have "a formal written history" of Battelle and he believes the authors have done "an excellent job". The authors themselves in their foreword are grateful for the opportunity to study the Institute "in depth". Yet the result of so deep a study of "the biggest single operator in American industrial research" is a book of 109 pages (excluding the potted biographies), some of them blank, with wide margins and including drawings. There is not even an index.

In the book, the same president is said to be confident that Battelle will import to its new ventures in contemporary problems a special character derived from its skill in the hard sciences—that is, the quantitative approach which the physicist or engineer applies to everything he does. This approach is singularly lacking in this book; a few figures are indeed scattered about but there is not a single systematic table or systematic quantitative analysis of budgets whether by time, by function, by industrial groupings or by type of customer. The authors claim that they could not fully understand Battelle without also developing a greater comprehension of the interplay of "science, society and the human condition". Alas, they have not conveyed it to the reader. Moreover, it is difficult to have any confidence in factual statements after reading that during the period of expansion in Europe in the 1950s a plan for a laboratory in England was developed "which won the active support of Ramsay MacDonald, then Chancellor of the Exchequer".

The inadequacies of this book are sad,

for there is a great fund of experience in Battelle which is relevant to other organizations trying to perform similar tasks. "As an array of industrial laboratories with more than 5,500 people", we are told, "it is larger than any except the Bell Telephone Laboratories. As a center of science and engineering discovery, it is as active as the University of Illinois. . . . As an independent not-for-profit research institute . . . it is almost as big and as busy as the next ten combined". Apart from its size Battelle's functions are important. Central to its activities has been contract research, work undertaken for a specific sponsor under a kind of cost-plus arrangement—an idea which seems so eminently sensible when worthwhile separate research departments are so frighteningly expensive, yet one which is so difficult to get off the ground in Britain. Later, Battelle formed a Development Corporation to take ideas nobody else wanted to sponsor and carry them through their high risk period to the point where industry would take them over. The idea is familiar in Britain in the National Research and Development Corporation. The Battelle Corporation hit the jackpot with Xerox which poured cash into its coffers; but this success story is the only real case-study in the book. In all these areas, careful evaluation of all the operations—their costs, results and organization, with the lessons of successes and of the failures—would be most valuable. This unsatisfactory "starter" should be followed by a proper history.

MARGARET GOWING

Fish Farming

Textbook of Fish Culture, Breeding and Cultivation of Fish. By Marcel Huet, in collaboration with J. A. Timmermans. Translated by Henry Kahn. Pp. 436. (Fishing News (Books): London, 1973.) £12.50.

THE fourth edition of Professor Huet's book now appears in an English edition, and is much to be welcomed, though the translation could have been better. The especial merit of the book is in the illustrations, 503 of them, in good half-tone, which may account for the high price asked for the book. But these photographs will convey to an enquirer, who may still have difficulty in finding a going fish farm, though fish culture is expanding, an excellent idea of the layout and equipment of farms for salmonid and cyprinid fish. The scope of this book is wide; and since nowadays fish culture to produce fish for the restocking of angling waters is hardly less profitable than raising fish for food, attention is here given also to the breeding of the pike, pike-perch, walleye, black bass, and many of the so-called

coarse fish, as well as to the many species of trout and salmon of sporting as well as commercial interest.

C. F. HICKLING

Shore Ecology

Life Between Tidemarks on Rocky Shores. By T. A. Stephenson and Anne Stephenson. Pp. xiii+425. (W. H. Freeman: San Francisco, April 1973.) £7.20 cloth; £2.95 paper.

WHEN he died, Professor T. A. Stephenson left the two introductory and the final chapters of a book in which he intended to integrate an unparalleled experience of life on the rocky shores of the world. The present work is largely the result of many subsequent years labour by his widow, Anne, towards this end.

Mrs Stephenson calls the book a salvage operation, and it is for no fault of her own that it falls, perhaps inevitably, between a number of stools. As a contribution to the subject, little new information emerges, although the Stephensons's own work is made more accessible. As a substitute for the unwritten work it lacks the continuity of a single authorship. Its general readability is reduced by a catalogue format, especially since few will recognize personally all the organisms mentioned. Particularly unfortunate is the implication in the title and the earlier part of the text of static zonation caused by tidal phenomena, although the last chapter clearly demolishes such a simplistic assumption. Recent intensive researches in America and Britain have shown that shores are intensely dynamic systems. Distributions change.

The book reiterates a personal view of shore ecology that was unique. T. A. Stephenson was a descriptive naturalist in the old tradition. Here was beauty, magic; the aesthetic too readily dismissed by current objectivism. His descriptions are models of fluency as are his illustrations a delight to the eye.

The publishers have done a great disservice by including so many proof errors, necessitating so large a list of errata. Errors remain: thus on page 274 Garrett should read Gorvett and on page 388 *Balanus tintinnabulum* should read *B. tintinnabulum*. Otherwise the book is neatly produced. Some of the photographs are of indifferent quality, but the book retails at what must be considered today a reasonable price.

Perhaps a commemorative volume contributed by workers presently in the field would have been a more vital memorial, thereby acknowledging our debt to the Stephensons whilst reminding readers that times have changed. The definitive work on shore ecology still remains unwritten.

P. G. MOORE