

The population of Miami increased from less than 2,000 to nearly 250,000 between 1900 and 1950, when 30 to 50 million gallons per day of its domestic sewage were being discharged into the Miami River or directly into the northern part of Biscayne Bay, which contains the port of Miami and separates it from Miami Beach. At the river mouth, coliform bacteria exceeded 100,000 per 100 ml. The impact of this pollution on the tourist industry eventually stimulated public demand for a treatment works. When plans were announced in the early 1950s, a series of surveys were made; the works began operating in 1956 and the surveys were repeated in 1960-61.

Benthic communities showed the greatest changes. At the periphery of a zone of organic pollution, such as existed in the mouth of the river, the food supply is abundant. Oxygen, which might otherwise have been limiting, was supplied by strong tidal currents, but most predators were excluded by conditions which were nevertheless abnormal. Dense populations of tolerant amphipods, polychaetes and lamellibranchs therefore developed. When the pollution was abated, diversity returned and the abundance of these tolerant forms was rapidly reduced. A marked reduction was also observed in the red algae typical of this community, but evidence from adjacent areas suggests that extensive dredging and perhaps hurricane damage may account for this. In the shallow and poorly flushed parts of the estuary, the concentration of inorganic phosphate and plankton volume both declined considerably, but elsewhere plankton showed little change between the two surveys. Changes in fouling organisms were generally unrelated to pollution, although there was a reduction in the numbers of tube-building amphipods. The unusual concentration of potential bottom food was not utilized by fish of commercial or sporting value, so the discharge had no fertilizing effect on the fisheries.

The volume is bound in thick boards and is well documented with tables and diagrams but, excluding these, there are only some 26 pages of actual text. The title pages, contents and prefatory material are well spaced and are not excluded from the pagination, so that the introduction (reviewing much of the previous work on estuarine pollution and eutrophication problems) begins on p. 19; a bibliography of 155 references extends over 15 pages. It might thus be considered an expensive item for a general library, but will prove useful to the specialist, particularly as little has yet been published about the effects of pollution in tropical waters.

A. NELSON-SMITH

ADVANCES IN POLLUTION CONTROL

Advances in Environmental Sciences

Edited by J. N. Pitts jun. and R. L. Metcalf. Vol. 1. Pp. 356. (Wiley (Interscience): New York and London, March 1970.) 150s.

THE recent explosion of interest in pollution has produced many new popular and scientific journals, as well as a host of books. In most branches of science we have "Annual Reviews" or "Recent Advances", and the volume considered here indicates that pollution will also have its multi-volume series. There is no indication, however, of the frequency with which new volumes will appear. If this means that publication will only take place when enough new material is available, the series will be welcomed by scientists if not by librarians, who may find it difficult to budget for an irregularly appearing and rather expensive periodical.

The editors are well chosen for their task. Professor Pitts is an authority on air pollution, with particular experience of photochemical smog. Professor Metcalf is an entomologist, with an international reputation in insect control. Unfortunately, they do not seem to have decided exactly for whom their series is intended. They themselves have contributed, as an introduction to their first

volume, an "Outline of Environmental Sciences" which is a useful summary which might have appeared, with little modification, in one of the British quality Sunday newspapers.

The other papers are of an uneven standard, and will appeal to readers with very different backgrounds. Thus the paper on the role of the American federal authorities in pollution control, by John Tunney, a member of congress, is purely administrative, though it sketches in the background against which scientists will have to work. Professor Kruse of Johns Hopkins University gives an account of the problems relating to American water supplies. This contains information which might be difficult to extract quickly from the literature, but there is little information which has not been described before, though the account could be valuable to non-scientists.

On the other hand, other articles assume that the reader has considerable chemical knowledge. Dr Edgar R. Stephens deals in detail with the peroxyacyl nitrates (PANs) in photochemical smog, and one of the longest papers, by Dr James N. Pitts, considers the importance of singlet molecular oxygen as an environmental oxidant, perhaps explaining some of the anomalies considered by Stephens. This latter paper contains much that will be incomprehensible to any except a specialist in the author's own field.

Not all the articles are particularly relevant to present-day conditions. Thus Dr Theodore E. Brenner of the Soap and Detergent Association devotes 50 pages to an account of biodegradable detergents. None of the data included is less than four years old. Most countries solved the "detergent swan" problem some years ago, and the facts are already included in standard textbooks. It is disappointing to note that there is no mention here of the current worry about eutrophication, particularly by phosphates, from modern, biodegradable, detergents.

Future volumes in this series may serve a useful purpose. Volume one suggests that the title "Advances in Environmental Sciences" is well chosen, instead of the alternative "Recent Advances" used in some comparable publications.

K. MELLANBY

PESTICIDE JOURNAL

Pesticide Science

Vol. 1, Nos. 1 and 2. Two-monthly. (Society of Chemical Industry: London, 1970.) Members 80s; non-members 160s per volume. (Per issue, 27s 6d.)

WITH sources of scientific information proliferating rapidly, the principal justification for the appearance of any new journal is that it will enable work to appear under one cover which hitherto has been distributed widely but thinly in numerous other journals. The more interdisciplinary a subject, the greater the tendency for this fragmentation to occur. The problems so created are well illustrated by those of workers in the highly topical and important subject of pesticides, for a balanced approach to this broad-spectrum discipline requires the cooperation of chemists, biochemists, soil scientists, mathematicians and biologists, as well as the special skills of industrialists familiar with practical and financial aspects of the manufacture, field application and commercial formulation of pesticidal substances.

Pesticide Science is published by the Society of Chemical Industry, a society which, by the establishment several years ago of a Pesticides Group, has already done much to encourage an integrated approach to the study of pesticides. The society is also well known for the *Journal of the Science of Food and Agriculture* (which often contains articles on crop protection chemicals) and for the pesticide sections of the *Reports on the Progress of Applied Chemistry*. Its experience is reflected in the quality of the editorial board of the new journal—D. Woodcock, J. K. Eaton,