Northrup, C. J. M., *Jr.*, Editor. *Scientific Basis for Nuclear Waste Management:* Volume 2. New York and London (Plenum Press), 1980. xix + 936 pp., 309 figs. Price $65.00.

The proceedings of the second 'International Symposium on the Scientific Basis of Nuclear Waste Management' organized by the Materials Research Society of America, and held in Boston in 1979, are published in volume 2, and include 110 papers, listed in MA 81-1142. (For a review of volume 1, the proceedings of the first Symposium, see *Mineral. Mag.* **43**, 832.) Mankind would be the better served if debates on this unnecessarily divisive subject were based on facts drawn from the scientific literature rather than on the irrational and emotional issues which generally predominate. The papers in this volume go some way to bringing together results of research in many of the disciplines involved in the topic and the Society is to be congratulated on the public service it has undertaken by having made the Symposium an annual event.

Inevitably, the contents are heavily influenced by the massive R and D programmes being mounted in the USA by some 2000 professional staff and tend to reflect the general policies which motivate that effort. The first nine papers are reviews of general interest to the informed layman; thereafter the remainder are principally reference materials for specialists. The latter term is not to be taken in a narrow waste-management sense; there are, for example, within the section on Waste Forms, two sub-sections on Vitreous and Ceramic materials which each contain research results of interest to geochemists, mineralogists, and geologists in their own rights, as well as to those of their brethren involved professionally in nuclear-waste management. So also can material of general interest be found in each of the other three sections into which the List of Contents, but curiously not the text, is divided (Waste Isolation, Modelling and Safety Assessment, Processing of Nuclear Wastes).

From this volume the reader can obtain many insights into the question 'How is mankind to dispose of his nuclear wastes'. Regrettably, but understandably, he will not find the answer to the complementary question 'Where is he to dispose of them'. This is for answer elsewhere, although the contents of volumes 1 and 2 will undoubtedly bear on the solution.

D. A. GRAY

Haley, K. B. and Stone, L. D., Editors. *Search Theory and Applications.* New York and London (Plenum Press), 1980. x + 277 pp., 58 figs. Price $35.00.

The stated purpose of this NATO Advanced Research Institute of which this represents the Proceedings was to bring together workers in the field of search theory, and potential users concerned with 'civilian problems such as search and rescue, mineral exploration, surveillance, and fishing'. The papers are mainly tutorial, ranging from computer-aided search for ships, aircraft, and the COSMOS-954 satellite, to surveillance of moving targets such as submarines and caribou. The section on exploration is, unfortunately, the weakest. The papers are concerned with a general view of search as an exploration tool; searching for coal in the UK; and three on the search for manganese nodules. The manganese nodule papers contain a number of minor errors of fact, some rather outdated examples, and (with the exception of Wagner's more statistical study) are not of great interest.

The whole volume is marred by being produced in camera-ready typed format, so full full of misprints and even page transpositions (176/179), that it is hard to credit the volume with having been proof read. While the book will be of general interest to the statistically inclined, it cannot be recommended for its geological content.

R. J. HOWARTH

Kent, Sir Peter. *Minerals from the Marine Environment.* London (Edward Arnold), 1981. viii + 88 pp., 36 figs. Price (paper) £3·95.

The resource potential of the seas is becoming increasingly important as the natural wealth of the land areas is exhausted. In this slim book there are chapters on obtaining bulk and non-metallic minerals from the sea, detrital minerals from the shallow seas, chemical elements directly from sea water, and on the problems of mineral recovery from the deep ocean floor. The latter include the constant movement of the water, the continuous corrosive action of salt water and salt spray, the need to concentrate the minerals at sea before they are transported, and the practical absence of international law covering marine mineral exploitation. It is estimated that a viable twenty-year mining operation for manganese nodules (containing Cu, Co, Ni, and Mo in addition to Mn and Fe) would require a 50000 sq km concession with a nickel and copper content of 2.25% or better; based on samples from 2000 sites, only between 28 and 100 areas have this degree of richness.

This authoritative little book will be of particular value for students entering degree courses in the earth sciences with varying scientific background but its price should make it an attractive buy for all geology students.

R. A. HOWIE