

source stopped, the source became distributed among Brazil, India, Ghana, South Africa, and Mexico.

Under the heading 'How should we think about Minerals' there is a forward look at potential reserves, a consideration of the technological changes, particularly in discovery, with the advent of geochemical and geophysical methods. The changing economic scene is discussed, and finally, the author looks forward to a closer union of the peoples of the world and the elimination of danger from mineral shortages.

The book refers particularly to the American scene: it is well worth reading.

BRIAN SIMPSON

MERO (J. L.). *The mineral resources of the sea*. Amsterdam (Elsevier), 1965, 312 pp., 73 figs., 43 tables. Price: 60s.

This well-illustrated book is a generalized account of the mineral resources associated with beaches, the continental shelves, and sea-water itself, with a rather more specialized account of the resources of the ocean floor (manganese in particular). The approach to the subject is both practical and constructive. The author does not only describe the possible methods of mining the deposits and sampling them, but also estimates the costs of production and compares them with the costs of more conventional mining methods.

The book is well supplied with factual information in the form of tables: there are 65 pages of analyses of manganese nodules alone, perhaps too many for the type of reader the book is directed at. It is rounded off with a chapter on the legal and economic aspects of ocean mining, a chapter suggesting that there may be international disputes over mining rights that will make the disputes over fishing grounds appear petty squabbles.

This book is well worth reading by everyone concerned with mineral resources, both from the purely commercial and from the technical sides of the mineral industry.

J. W. BARNES

PARRISH (W.), editor. *X-Ray analysis papers*. Eindhoven (Centrex Pub. Co.), 1965, xi + 310 pp. Price: 44s.

The book contains 24 papers, which are reprints selected for use in the Philips X-Ray schools. It is an expansion of the first edition of 'Advances in X-Ray Diffractometry and X-Ray Spectrography' (Philips, Eindhoven; 1962), but includes 13 of the same papers (Nos. 3, 4, 5, 6, 7, 8, 9, 10, 12, 13, 16, 19, and 23). The extended section on X-Ray spectrography reflects the increasing interest and volume of data that is accumulating in this field. The last section of the book includes a silicon

powder reflection angle-table, which lists and illustrates characteristic peaks for given operating parameters on the Philips PW 1010 generator and recording diffractometer.

Section I—(X-Ray Powder Diffractometry): 1. 'X-Rays'. J. W. M. DuMond, W. Parrish, and A. R. Bleich. 2. 'Filter and crystal monochromator techniques'. W. Parrish and B. W. Roberts. 3. 'Comparison of X-Ray wavelengths for powder diffractometry'. W. Parrish and T. R. Kohler. 4. 'Determination of spectral contamination of X-Ray tubes'. J. Ladell and W. Parrish. 5. 'The "Norelco" X-Ray diffractometer'. W. Parrish, E. A. Hamacher, and K. Lowitzsch. 6. 'Geometry, alignment and angular calibration of X-Ray diffractometers'. W. Parrish and K. Lowitzsch. 7. 'Advances in X-Ray diffractometry of clay minerals'. W. Parrish. 8. 'Experimental study of effect of crystallite size statistics on X-Ray diffractometer intensities'. P. M. de Wolff, J. Taylor, and W. Parrish. 9. 'Factors in the detection of low concentrations in X-Ray diffractometry'. W. Parrish and J. Taylor. 10. 'Precision measurement of lattice parameters of polycrystalline specimens'. W. Parrish and A. J. C. Wilson. 11. 'Dependence of lattice parameters on various angular measures of diffractometer line profiles'. W. Parrish, J. Taylor, and M. Mack.

Section II—(X-Ray Spectrometry): 12. 'X-Ray spectrochemical analysis'. W. Parrish. 13. 'Geometry of the non-focusing X-Ray fluorescence spectrograph'. N. Spielberg, W. Parrish, and K. Lowitzsch. 14. 'Tube target and inherent filtration as factors in the fluorescence excitation of X-Rays'. N. Spielberg. 15. 'Instrumental factors and figure of merit in the detection of low concentrations by X-Ray spectrochemical analysis'. N. Spielberg and M. Brandenstein. 16. 'Crystallographic aspects of extra reflections in X-Ray spectrochemical analysis'. N. Spielberg and J. Ladell. 17. 'Laue spectrometer for multichannel X-Ray spectrochemical analysis'. J. Ladell and N. Spielberg. 18. 'Scanning single-crystal multichannel X-Ray spectrometer'. N. Spielberg and J. Ladell.

Section III—(Counter Detectors): 19. 'Use of counter tubes in X-Ray analysis'. W. Parrish and T. R. Kohler. 20. 'Absorption and counting-efficiency data for X-Ray detectors'. J. Taylor and W. Parrish. 21. 'X-Ray diffractometry of radioactive samples'. T. R. Kohler and W. Parrish. 22. 'Conversion of quantum counting rate to roentgens'. T. R. Kohler and W. Parrish. 23. 'X-Ray intensity measurements with counter tubes'. W. Parrish. 24. 'Statistical factors in X-Ray intensity measurements'. M. Mack and N. Spielberg.

Section IV—(Silicon reflection angle table).

T. W. B.