

BOOK REVIEWS

WHITE (J. E.). *Seismic Waves*. London (McGraw-Hill), 1965, xv+302 pp. Price: 116s.

The aim of the book, which is successfully achieved, is a full treatment of a number of topics hitherto covered only inadequately in the literature; it therefore forms a complementary text to existing books on seismic wave propagation.

The book can be considered in three parts. The first, dealing with wave attenuation and mechanisms of energy loss, reviews both experimental data and the theoretical models they have given rise to. Sound waves in fluid-filled boreholes form the subject of the second part, which provides a valuable account of a subject having a direct bearing on many applications in both prospecting and seismology. The book ends with a discussion and a useful review of methods for carrying out controlled experiments on seismic waves. The inherent unity of these topics is clearly argued at the start of the book, which also contains a useful account of plane wave theory. Mathematical formulation is sparing and fairly straightforward.

M. BROOKES

WINCHELL (H.). *Optical properties of minerals*. New York (Academic Press), 1965, ix+91 pp. Price: 40s.

The book contains a series of determinative charts based on selected optical characters of minerals arranged in order of increasing refractive index. The charts are based on the earlier classification of A. N. Winchell (1939) who used two optical parameters. The present system employs three parameters (n or n_y (i.e. β), birefringence, and optic sign) and the charts take the form of 180° 'protractors', the centre of the diameter representing refractive index and also 'zero birefringence' which increases to 0.40 at the ends of the diameter. The circumference of the 'protractor' is divided into two quadrants; the upper representing $2V_\gamma$ (0–90°) and the lower $2V_\alpha$ (0–90°).

There are sixty charts covering the range n or n_y 1.300 to 2.500 and above. The positions of the minerals are plotted on the charts and characteristic d -spacings and A.S.T.M. card-index numbers are listed on the facing pages. Page reference numbers for the minerals described in Winchell and Winchell, vol. II (1951) are also provided.

Hence the charts represent a series of horizontal planes cut across

a half-cylinder, the vertical axis of which is the refractive index, the diameter birefringence and the circumference $2V$. Methods for the determination of refractive index, birefringence, and $2V$ are discussed; the latter based on Kamb's (1958) equations. T.W.B.

Book Notices

BRANCAZIO (P. J.) and CAMERON (A. G. W.), editors. *The origin and evolution of atmospheres and oceans*. New York (Wiley), 1965, ix+314 pp. Price: 94s.

OSBORNE (F. Fitz), editor. *Geochronology in Canada*. Toronto (Univ. Toronto Press), 1965, 156 pp. Price: 48s.

RAGUIN (E.). *Geology of granite*. London (Interscience), 1965, xxi+314 pp. Price: 68s.

WINKLER (H. G. F.). *Die Genese der metamorphen Gesteine*. Berlin (Springer-Verlag), 1965, viii+218 pp. Price: DM 19,80.

MEGAW (H. D.), editor. *Crystallographic book list*. Utrecht (Oosthoek's Uitgevers Mij, Domstraat 11-13, Utrecht), 1965, xii+83 pp. Price: 20s.

VARLEY (E. R.). *Sillimanite*. London (H.M.S.O.), 1965, v+165 pp. Price: 15s.

This publication is the latest in the series on economic minerals and metals prepared by the Mineral Resources Division of the Overseas Geological Surveys. The first part of the book (38 pp.) provides a general description of the minerals, origin, mode of occurrence, mining, calcination, commercial uses, and prices. Later parts of the book deal with production in 19 Commonwealth and 27 foreign countries. There is a comprehensive bibliography (29 pp.) and an index.

IMBRIE (J.) and NEWELL (N.), editors. *Approaches to palaeoecology*. New York (Wiley), 1964, viii+432 pp. Price: 94s.

While intended primarily for palaeontologists, the latter part of the book (from p. 238) consists of contributions on the subjects of sedimentary petrology, structure, diagenesis, geochemistry of sediments, and fossil shell material. The book presents ecology and palaeoecology as an interdisciplinary subject and attempts to co-ordinate overlapping geological and geochemical fields of interest.

RICH (C. I.) and KUNZE (G. W.), editors. *Soil clay mineralogy, a symposium*. North Carolina (Univ. of North Carolina Press), 1965, xvi+330 pp. Price: 64s. T.W.B.