REVIEWS.

Mining Engineers' Handbook. Edited by ROBERT PEELE. Pp. x + 2375, illustrated. First edition. (New York: John Wiley & Sons, Inc.; London: Chapman & Hall, Ltd., 1918. Price 23*s.* net.)

THIS useful book of reference—a veritable mine of information—consists of a series of forty-four sections written by several authors, many of whom are colleagues of the editor in the School of Mines of Columbia University. It is modelled on much the same lines as the several existing handbooks for engineers, such as the well-known 'Trautwine' and 'Molesworth'. It covers a very wide field, and its scope can be best indicated by quoting the headings of the several sections:

Mineralogy—Geology and Mineral Deposits—Earth Excavation—Explosives—Rock Excavation—Tunneling—Shaft-sinking in Rock—Shaft-sinking in Soft, Water-bearing Soils—Boring—Prospecting, Development and Exploitation of Mineral Deposits—Underground Transport—Hoisting Plant, Shaft Pockets and Ore Bins—Drainage of Mines—Mine Ventilation—Compressed-air Plant—Electric Power for Mine Service—Surveying—Underground Surveying—Mine Geologic Maps and Models—Mine Organization and Accounts—Cost of Mining—Wages and Welfare—Mine Air, Hygiene, Explosions, and Accidents—Mining Laws—Mine Examinations, Valuations and Reports—Aerial Tramways and Cableways—Mechanical Conveyors—Ore Dressing—Ore Sampling—Assaying—Testing of Ores—Notes on Selling, Purchasing, and Treatment of Ores—Gold Amalgamation and Cyanidation—Preparation and Storage of Anthracite Coal—Preparation and Coking of Bituminous Coal—Mathematics and Mechanics—Chemical Notes and Tables—Elements of Hydraulics—Engineering Thermodynamics—Steam Engines, Boilers, Pumps, Turbines, Gas Engines—Mechanical Engineering Miscellany—Electrical Engineering—Elements of Structural Design—Engineers' Tables.

The section on Mineralogy, by Professor A. J. Moses, extends to 72 pages, a large part of which is occupied by descriptive and determinative tables dealing with some two hundred mineral species. There are also useful lists giving information as to the occurrence, associations,

and uses of minerals. The section on Geology and Mineral Deposits, by Professor J. F. Kemp, gives still further details, here arranged under the different metals and under the heading non-metallic minerals. To each section useful bibliographies are appended. The book is well printed on thin paper of good quality, and is neatly bound with gilt edges in flexible leather. It is provided with a good index and is moderate in price.

Introduction to the Rarer Elements. By PHILIP E. BROWNING. Pp. x + 250, with coloured plate of spectra. Fourth edition. (New York: John Wiley & Sons, Inc.; London: Chapman & Hall, Ltd., 1917. Price 7*s.* net.)

THE first edition of this work appeared in 1903, and was based on a course of lectures at Yale University. Owing to the rapid advances in this branch of chemistry, more especially for the radio-elements, the later editions have had to be thoroughly revised and added to. It is intended primarily as a textbook for advanced students, and does not attempt to treat the subject exhaustively. In the main it is, of course, purely chemical, with set experiments, separation tables, spectroscopic tables, a series of questions, &c. But under each element is given a useful list of minerals together with the percentage amounts of the element contained in them. There are also interesting historical details respecting the discovery of each element in various minerals. The technical applications are briefly mentioned in a separate chapter. A new kind of index, tabulated in columns, gives alphabetically only the names of the chemical elements: so unfortunately the book cannot be used for reference on the mineral side.

A Manual of Geometrical Crystallography treating solely of those portions of the subject useful in the identification of minerals. By G. MONTAGUE BUTLER. Pp. viii + 155, with 107 text-figures. First edition. (New York: John Wiley & Sons, Inc.; London: Chapman & Hall, Ltd., 1918. Price $1·50 = 7*s.* net.)

THIS small but expensive book forms a companion volume to the same author's 'Pocket Handbook of Minerals', noticed in this volume, p. 150. It is intended for beginners, and proceeds only so far as may be helpful in the 'sight recognition' of crystallized hand-specimens of minerals. The text is rather of the nature of a string of definitions, and, without the help of a teacher, would probably be somewhat confusing to a beginner. The prominence given to definitions is shown in the short

index of 109 entries, in which the word 'defined' is repeated no less than 62 times. On p. 109 there is a strange confusion between the tetragonal system, hemimorphism, and 'holohedral orthorhombic crystals' of hemimorphite. The several text-figures are small, but with bold outlines; many of them are not set straight on the page. There is a curious error—'Chrystallography'—in the name of the book on the cloth cover.

The author's three works 'A Pocket Handbook of Minerals' (1911), 'Pocket Handbook of Blowpipe Analysis' (1916, 80 pp.), and the present one on crystallography are also issued together in one binding with the same paginations as before, but with a fresh title-page 'Handbook of Mineralogy, Blowpipe Analysis and Geometrical Crystallography' (1918); the price of this larger volume is 16*s.* 6*d.*

Practical Instructions in the search for, and in the determination of, the useful minerals, including the rare ores. By ALEXANDER MCLEOD. Pp. xxvii + 254. Second edition. (New York: John Wiley & Sons, Inc.; London: Chapman & Hall, Ltd., 1917. Price 8*s.* 6*d.* net.)

THIS is quite an attractive-looking little volume, neatly bound and well printed. The printers have done their part of the work well. On looking more closely into the subject-matter, however, we find that the author has been less fortunate. Head-lines are plentiful and are well set out, but at times the text seems to bear little or no relation to them; and an attentive study of them has failed to reveal any definite plan in the volume. There is a good deal of needless repetition, and mistakes and misprints are to be found on almost every page. The index and table of contents also look quite good at first glance, but they will not bear close inspection. The few quite useful hints of an old prospector which the book contains are therefore unfortunately lost.