ABSTRACTS OF MINERALOGIC LITERATURE.

THE STRUCTURE OF CRYSTALS. P. NIGGLI. *Z. anorg. allgem. Chem.*, **94**, 207–216, 1916; thru *J. Chem. Soc.*, **110**, ii, 300, 1916.

This author favors the same plan as Pfeiffer (abstracted in *Am. Min.*, **3** (6), 144, 1918), of using coördination numbers for the description of the relations of the atoms in crystals. In many cases, however, groups of atoms rather than single atoms occupy significant points. Thus in pyrite it is the center of gravity between each pair of sulfur atoms which must be considered, in calcite the CO_3 groups, etc. E. T. W.

NOTE ON THE FUNDAMENTAL POLYHEDRON OF THE DIAMOND LATTICE. ELLIOTT Q. ADAMS. *J. Wash. Acad. Sci.*, **8** (8), 240–241, 1918.

This article was referred to in a footnote in *Am. Min.*, **3** (6), 139, 1918, but not actually abstracted. The convex polyhedron corresponding to this lattice as worked out by the Braggs is shown to be a dodeca-tetrahedron (see figure in place above cited). When the atoms are all alike, as in diamond, the faces of the tetrahedron are truncated until their shape is that of a regular hexagon. Where they are different, as in the sulfides chalcopyrite and stannite, modifications of this figure are represented. E. T. W.

THE CRYSTALLINE SYSTEM AND AXIAL RATIO OF ICE. F. RINNE. *Ber. Sächs. Ges. Wiss.*, **69**, 57–62, 1917; thru *J. Chem. Soc.*, **114**, ii, 75, 1918.

By an elaborate photographic method, previously described (*ibid.*, **67**, 303, 1915) X-ray diagrams of the positions of the atoms in ice have been obtained, and worked out on the gnomonic-projection basis. The usual interpretation of ice is confirmed,—that is it hexagonal-hemimorphic with $c = 1.4$. According to the author's "law of isotypism," ice thus belongs to the magnesium type. E. T. W.

THE CRYSTAL STRUCTURE OF ICE. ANCEL ST. JOHN. *Proc. Nat. Acad. Sci.*, **4**, (7), 193–197, 1918.

Independent of the work described in the preceding abstract, ice was studied by the Bragg method. The oxygen atoms, with hydrogens on either side of them, appear to occupy the points in 4 interpenetrating triangular prism lattices, the basal layers of which are grouped in pairs. The spacings (all x 10^{-8} cm.) are: $d_{0001} = 3.32$, $d_{10\bar{1}0} = 2.37$, and $d_{11\bar{2}0} = 3.79$. E. T. W.

THE STRUCTURE OF THE CRYSTALLINE FORMS OF SILICA, IRON DISULFIDE, ZINC SULFIDE, AND CALCIUM CARBONATE. J. BECKENKAMP. *Centr. Min. Geol.*, **1917**, 353–365, 393–407; thru *J. Chem. Soc.*, **114**, ii, 9–10, 1918.

This author disagrees with the Braggs as to the structures of many of these minerals, considering them all to be essentially face-centered cubic or a structure derived therefrom. E. T. W.

THE ARRANGEMENT OF THE ATOMS IN TUNGSTEN. P. DEBYE. *Physik. Z.*, **18**, 483–488, 1917; thru *J. Chem. Soc.*, **112**, ii, 574–575, 1917.

The interference figures obtained by the Debye-Scherrer X-ray method show tungsten to be body-centered cubic, the edge of the cube being 3.10×10^{-8} cm. long. E. T. W.

THE CRYSTAL STRUCTURE OF IRON. A. W. HULL. *Phys. Rev.*, **9**, 84–87, 1917.

The results obtained with iron, already announced briefly (see abstract in *Am. Min.*, **3** (6), 146, 1918) are described in greater detail. The general structure is body-centered cubic, with $d_{100} = 1.43 \times 19^{-8}$ cm., altho certain irregularities observed in the intensities of the X-ray spectra require special assumptions as to the distribution and action of the electrons within the atoms. E. T. W.

THE CRYSTAL STRUCTURE OF ALUMINIUM AND SILICON. A. W. HULL. *Phys. Rev.*, **9**, 654–566, 1917.

X-ray examination of aluminium showed it to be tetragonal, the lattice being body-centered prismatic. Silicon in the same way was shown to have the same structure as diamond, the distance between nearest adjacent atoms being 2.35 as compared with 1.54 for diamond (units $= 10^{-8}$ cm.). E. T. W.

THE SPACE LATTICE OF ALUMINIUM. P. SCHERRER. *Physik. Z.*, **19**, 23–27, 1917; thru *J. Chem. Soc.*, **114**, ii, 113, 1918.

Examination of aluminium powder by the Debye-Scherrer method gave results believed to show its structure to be face-centered cubic. The side of the elementary cube is 4.07×10^{-8} cm., identical with that of gold. The discrepancy between this result and that obtained independently by Hull (preceding abstract) remains to be explained. E. T. W.

A FUMAROLE YIELDING TENORITE AND ALKALI CHLORIDES IN THE LAVA OF STROMBOLI. G. PONTE. *Atti accad. Lincei*, **26**, I, 641–646, 1917; thru *Chem. Abstr.*, **12**, 461, 1918.

Mixtures of halite and sylvite colored gray by the presence of 2–3 per cent. of tenorite are described, and their paragenesis discussed. E. T. W.

CYANOTRICHITE AND DIOPTASE FROM TRAVERSELLA. LUIGI COLOMBA. *Atti accad. Lincei*, **26**, I, 487–491, 1917; thru *Chem. Abstr.*, **12**, 462, 1918.

Analysis of blue-green stalactites showed them to have approximately the composition of cyanotrichite, with low Al and high H_2O. Minute emerald-green prismatic crystals in the stalactites are regarded as dioptase. E. T. W.

PRECIOUS STONES. GEORGE F. KUNZ. *Mineral Industry*, **25**, 608–637, 1916.

Includes notes on diamonds, emeralds, garnets, jadeite, opal, pearls, rubellite, rubies, sapphires and staurolite. E. T. W.

MEASUREMENTS OF THE RADIOACTIVITY OF METEORITES. T. T. QUIRKE AND L. FINKELSTEIN. *Am. J. Sci.* [4] **44**, 237–242, 1917.

The average activity of stone meteorites shows 7.39×10^{-13}g. of radium per gram, of iron-stone ones 6.88, and iron meteorites practically none. The stone meteorites are thus only one fourth as active as granite. E. T. W.

THE COMPOSITION OF PYROXENES. C. Doelter. *Centr. Min. Geol.*, **1917**, 185–191; thru *J. Chem. Soc.* **112**, ii, 378, 1917.

The author criticizes recent work on this subject, and urges that more experimental work be done before hypothetical compounds are assumed to be present. E. T. W.

A MINERALOGICAL CLASSIFICATION OF IGNEOUS ROCKS. Arthur Holmes. *Geol. Mag.*, [6] **4**, 115–129, 1917.

It is urged that mineral composition is more important than texture and mode of occurrence in the classification of rocks, and a system based on this view is worked out. E. T. W.

THE ALTERATION OF DOLOMITE NEAR POTGIETERSRUST. R. B. Young. *Trans. Geol. Soc. S. Africa*, **19**, 57–61, 1916.

In working out the geochemical changes which have occurred in this rock, the author used the following method for distinguishing calcite from dolomite: Place specimen in ferric chloride solution until stained pale yellow, wash, dry, and expose to hydrogen sulfide; a black stain is formed where calcite is present. E. T. W.

A METHOD OF DETERMINING THE REFRACTIVE INDEX OF TRANSPARENT SOLIDS AND LIQUIDS. Reginald S. Clay. *Engineering*, **102**, 621, 1916; **103**, 60, 1917.

For solids a 45° prism is used, the polished surface of the specimen being placed against its hypotenuse. For liquids two equal prisms with higher index are joined to form a square. The light falls on one prism, and the critical angle is read thru the other. E. T. W.

THE DISPERSION AND OTHER OPTICAL PROPERTIES OF CARBORUNDUM. H. E. Merwin. Geophys. Lab. *J. Wash. Acad. Sci.*, **7**, 445–447, 1917.

Measurements of refractive indices for different wave-lengths of light are tabulated. For D, $\omega = 2.654$ and $\epsilon = 2.697$. E. T. W.

THE GENESIS OF PLEOCHROIC HALOES. J. Joly. *Trans. Royal Soc.*, **217**, 51–79, 1917.

A mica containing good haloes around thorium minerals having been obtained, the features of these and other haloes are discussed in detail. The haloes are due to the ionizing effect of the alpha rays, and by considering the variation to be expected in this effect with distance from the source, most of of the concentric bands of the haloes can be explained. Certain abnormal bands appear to be due to a reversal, analogous to that produced by light acting for long periods on photographic plates. Views of the several types of haloes in various stages are included. E. T. W.

THE FORMATION OF DIAMONDS. Otto Ruff. *Z. anorg. allgem. Chem.*, **99**, 73–104, 1917; thru *J. Chem. Soc.*, **112**, ii, 369, 1917.

Various methods alleged to produce diamonds have been tried, and in some cases crystals too minute for certain identification have been obtained. In two methods, however, the product showed fluorescence with ultraviolet light like that of diamond. E. T. W.