

ABSTRACTS—CRYSTALLOGRAPHY

DETERMINATION OF THE SYMMETRY AND THE ELEMENT P₀ OF MOLYBDOPHYLLITE BY MEANS OF ROENTGEN RAYS. G. AMINOFF. *Geol. För. Förh.*, 40, 923-38, 1918; *ibid.*, 41, 213-4, 1919; thru *Min. Abst.* 1, 182, 1921.

Molybdophyllite is probably ditrigonal-scalenohedral, isomorphous with friedelite, and has $a:c=1:0.549$, as determined from the Laue diagram thru the basal pinacoid. EDW. F. HOLDEN.

A NEW POLARIZATION MICROSCOPE AND A CRITICAL CONSIDERATION OF PREVIOUS CONSTRUCTIONS. E. A. WÜLFING. *Abh. Heidelberger Akad. Wiss., Stiftung, H. Lanz. Math.-nat. Kl.*, 1918, *abh.* 6; thru *Neues Jahrb. Min. Geol.*, 1919, Ref. 247-50.

This paper discusses fully previous types of polarization microscopes, and presents a new type for consideration. E. F. H.

THE OPTICAL BEHAVIOR OF WATER OF CRYSTALLIZATION. K. BRIEGER. *Ann. Phys.*, 57, 287-320, 1918; thru *Chem. Abst.* 13, 3076, 1919.

An examination of the reflecting power of a number of hydrated sulfates and selenates showed the H₂O group to be arranged in the space lattice. E. F. H.

THE DETERMINATION OF ATOMIC WEIGHTS BY MEANS OF X-RAYS. C. W. KANOLT. *Science*, 47, 123-4, 1918.

This is a proposal to calculate the atomic weights from the density and an X-ray study of the crystalline structure of the elements. C. B. S.

THE DERIVATION OF THE CRYSTAL LATTICE STRUCTURE FROM THE ROENTGEN-LAUE EFFECT. H. TERTSCH. *Min. petr. Mitt.*, 34, 1, 1917; thru *Neues Jahrb. Min. Geol.*, 1919, Ref. 123-5.

This is a discussion of the several alternative interpretations of crystal structure often possible from the results of the X-ray method. E. F. H.

CRYSTAL STRUCTURE AND CHEMISM. P. NIGGLI. *Vierteljahrsschrift Naturf. Ges.*, 62, 242-74, 1917; thru *Neues Jahrb. Min. Geol.*, 1919, Ref. 257-8.

A number of problems and relationships in the study of crystal structure are discussed in this very theoretical paper. E. F. H.

COHESION, CONDUCTIVITY, AND CRYSTAL STRUCTURE. A. JOHNSEN. *Sitzungsb. bayr. Akad. Wiss., Math.-phys. Kl.*, 1917, 75-82; thru *Neues Jahrb. Min. Geol.*, 1919, Ref. 13-5.

According to J. cleavage does not always take place along the planes of maximum density of the units of crystal structure, and to explain these cases he uses another hypothesis, supporting the theoretical conclusions with references to the directions of maximum conductivity in crystals. E. F. H.

DATOLITE FROM RODELLA NEAR CAMPITELLO. R. KOEHLIN. *Ann. Naturhist. Hofmuseums Wien*, 31, 139-46, 1917; thru *Min. Abst.*, 1, 153, 1921. Datolite crystals from this locality in the Fassathal showed nine new forms; $\frac{1}{2}$ (243), $x\epsilon$ (816), x_g (725), M_2 (153), (3.13.7), (423), (543), (365) and (485) (Goldschmidt's orientation). E. F. H.

ANISOTROPIC COLLOIDAL SOLUTIONS. W. REINDERS. *Koll. Z.*, **21**, 161-5, 1917; thru *Neues Jahrb. Min. Geol.*, **1919**, Ref. 2.

The anisotropism of colloidal solutions of vanadium pentoxide is due to the presence of extremely small crystals of the oxide, held in suspension with the colloidal particles. E. F. H.

THE ADSORPTION OF SULFURIC ACID BY IRON HYDROXIDE AND THE FORMATION OF COLLOIDAL SULFUR FROM SULFIDES. E. DITTLER. *Z. Chem. Ind. Koll.*, **21**, 27-8, 1917; thru *Neues Jahrb. Min. Geol.*, **1919**, Ref. 135-6.

Weathered pyrite and marcasite have been observed to contain some free sulfur. E. F. H.

THE STRUCTURE OF UNHOMOGENEOUS LIQUID-CRYSTALLINE LAYERS. O. LEHMANN. *Ann. Phys.*, (4) **52**, 445-77, 1917; thru *Neues Jahrb. Min. Geol.*, **1918**, Ref. 255.

Unhomogeneous liquid-crystalline layers occur when the liquid crystals are in contact with differently oriented anisotropic solid surfaces. E. F. H.

THE STRUCTURE OF CRYSTAL PLANES AND EDGES. A. JOHNSEN. *Neues Jahrb. Min. Geol.*, **1918**, 49-74.

A general theoretical discussion is followed by an application to the structure of certain faces and edges in fluorite. E. F. H.

A NEW METHOD FOR MEASURING THE VELOCITY OF CRYSTALLIZATION OF METALS. J. CZOHRALSKI. *Z. phys. Chem.*, **92**, 219-21, 1917; thru *Neues Jahrb. Min. Geol.*, **1919**, Ref. 122.

In opaque fusions it is possible to measure the velocity of crystallization by withdrawing thin threads of the substance, and finding the highest velocity at which it is possible to accomplish this without breaking the thread. E. F. H.

ANOMALOUS MOLECULAR ARRANGEMENT IN MIXED CRYSTALS AS A CAUSE OF THEIR ANOMALOUS DOUBLE REFRACTION. G. TAMANN. *Nachr. Ges. Wiss. Göttingen, Math.-phys. Kl.*, **1917**, (2) 226-35; thru *Neues Jahrb. Min. Geol.*, **1919**, Ref. 262-3.

T. regards optically anomalous mixed crystals as isomers of the normal mixed crystals, the cause being a different distribution of the molecules in a similar space lattice. E. F. H.

THE CRYSTALLOGRAPHIC AND OPTICAL PROPERTIES OF AMYROLIN. HERMANN ROSE. *Neues Jahrb. Min. Geol.*, **1918**, 1-18.

Sp. gr. 1.3506 at 18° (pycnometer). Monoclinic, $a:b:c=0.7583:1:1.1106$; $\beta=76^{\circ}55'$. Double refraction and dispersion very high; for sodium light, $a=1.46447$, $\beta=1.74798$, $\gamma=1.94579$, $\gamma-a=0.48132$; for light of 690.7μ $\gamma=1.91379$, for 404.7μ $\gamma=2.19889$. Composition $C_{14}H_{12}O_8$. E. F. H.

CHUBUTITE AND THE SIGNIFICANCE OF ITS DISCOVERY. E. RIMANN. *Anales Soc. Quim. Argentina*, **6**, 323-8, 1918; thru *Min. Abst.*, **1**, 121, 1921. R. suggests that the dimorphism of PbO persists in the series of lead oxychlorides. E. F. H.

THE CRYSTALLOGRAPHY AND OPTICAL PROPERTIES OF THE PHOTOSENSITIZING DYE PINAVERDOL. EDGAR T. WHERRY AND ELIOT Q. ADAMS. *J. Wash. Acad. Sci.*, **9** (14), 397-405, 1919.

The crystallization is monoclinic, but so near other systems that it is best described as "lepto-monoclinic, but peri-rhombic"; it may also be classed as hypo-tetragonal. This substance is one of the few which shows reflection pleochroism, or reflection of light of different colors from the several crystal forms. The prism zone is brass yellow, the base and forms near it violet, and forms in intermediate positions show varying green colors, the yellower the greater the ρ angle. When studied by the immersion method under the microscope striking absorption phenomena were observed. By means of crystallographic measurement it was possible to demonstrate the identity of samples from widely different sources, which looked in mass to be of various colors, depending on which forms were dominant in each case.

E. T. W.

THE CRYSTALLOGRAPHY OF MORPHINE AND CERTAIN OF ITS DERIVATIVES. EDGAR T. WHERRY AND ELIAS YANOVSKY. *J. Wash. Acad. Sci.*, **9** (17), 505-513, 1919.

Measurements of the crystallography and optical properties are given in detail for morphine monohydrate, codeine, codeine monohydrate, codethyline monohydrate, and heroine. The last two, never having been measured previously, are figured; both are orthorhombic, the first probably and the second strikingly sphenoidal. The topic axial ratios are calculated, and it is shown that it is possible thereby to determine in which crystallographic directions substitutions of elements or groups occur, and where water of crystallization enters the crystal.

E. T. W.

A CRYSTALLOGRAPHIC INVESTIGATION OF BRANDTITE. G. AMINOFF. *Geol. Fören. Förh.*, **41**, 161-174, 1919; thru *Chem. Abstr.*, **14** (8) 1098, 1919.

Brandtite, $\text{Ca}_2\text{MnAs}_2\text{O}_8 \cdot 2\text{H}_2\text{O}$, is monoclinic, $a:b:c = 0.8720:1:0.4475$, $\beta = 99^\circ 37'$. Eleven forms were noted. Twinning plane (100), good cleav. parallel to (010). Plane of optic axes is (010) and a max. extinction angle of 8° was noted. Optically +; $\alpha = 1.707$, $\gamma = 1.729$.

W. F. H.

ORTHOCLASE CRYSTALS FROM ZARZALEJO, MADRID. NAVARRO L. FERNÁNDEZ. *Bol. Soc. Españ. Hist. Nat.*, **19**, 137-143, 1919; thru *Min. Abstr.* **1**, 13, 1920.

Simple crystals possess a square prismatic habit or are flattened parallel to b . Twins according to the Carlsbad, Mannebach and Baveno laws are described. The crystals are found detached on the surface having been derived from a coarse, porphyritic dike, 50 m. north of Madrid.

W. F. H.