NEW MINERALS: NEW SPECIES

CLASS: SULFATES. DIVISION: R′ : R‴ : (SO_4) : H_2O = 1:3:2:3

Argentojarosite

WALDEMAR T. SCHALLER: Argentojarosite, a new silver mineral. Preliminary note. *J. Wash. Acad. Sci.*, **13**, (11), 233, (1923).

NAME: From the composition, a *jarosite* containing silver (*argentum*).

CHEMICAL PROPERTIES: *Formula*, $Ag_2O.3Fe_2O_3.4SO_3.6H_2O$ or $AgFe_3(SO_4)_2(H_2O)_3$. Mean of several analyses approximates to: Ag_2O 18, Fe_2O_3 43, SO_3 28, H_2O 10%; some K_2O and PbO also present.

CRYSTALLOGRAPHIC PROPERTIES: Hexagonal; in small scales.

PHYSICAL AND OPTICAL PROPERTIES: Color, yellow to brown; uniaxial, negative; closely resembles jarosite.

OCCURRENCE: From the Titanic Standard mine, Dividend, Utah. Apparently sufficiently abundant to be mined as an ore.

DISCUSSION: The first silver mineral recorded containing oxygen.

E. T. W.

CLASS: PHOSPHATES, ETC. DIVISION: ARSENITES

Finnemanite

G. AMINOFF: Finnemanit, ett nytt blyarsenit från Långban. (Finnemanite, a new lead arsenite from Långban). *Geol. För. Förh.*, **45**, (1-2), 160-163, (1923).

NAME: After K. J. *Finneman* of Långban, who first observed it.

CHEMICAL PROPERTIES: *Formula*, $Pb_5Cl(AsO_3)_3$.

Theory: PbO 77.5, As_2O_3 20.6, Cl 2.5, less O = Cl 0.6, sum 100.0%. Analysis by Dr. G. Karl Almström gave: PbO 76.83, As_2O_3 20.54, Sb_2O_3 trace, CaO 0.39, FeO trace, Na_2O 0.24, K_2O 0.44, Cl 2.42, less O for Cl 0.55, sum 100.31%. All the arsenic is arsenious; fluorine is absent.

CRYSTALLOGRAPHIC PROPERTIES: Hexagonal; $c = 0.6880$, or in alternate position 1.1917. Forms *c*, *m*, and *p*; also vicinal prism and pyramids. $\rho_p = 38° 28'$, and $p_o = 0.7945$. Habit, prismatic, terminated by large pyramid and small base, showing considerable form-distortion, but apparently holohedral. Cleavage distinct, pyramidal.

OPTICAL PROPERTIES: Sign—; $\omega = 2.295$, $\epsilon = 2.285$ (for D).

PHYSICAL PROPERTIES: Color gray to black, in thin flakes somewhat olive green. Luster high, almost adamantine. Hardness 2.3; sp. gr., Almström obtained 7.08; Flink 7.265.

OCCURRENCE: As a crystalline crust on the walls of crevices in granular hematite ore, in the Hindenburg shaft at Långban.

DISCUSSION: A well described species.

E. T. W.

CLASS: COLUMBATES. DIVISION: R″ : R′ ″ : Cb = 5 : 1 : 6 (?)

Ishikawaite

YUJI SHIBATA and KENJIRO KIMURA: Ishikawaite, a new mineral from Ishikawa, Iwaki province. *J. Chem. Soc. Japan*, **43**, 648-649, (1922); thru *Chem. Abstr.* **17**, 252, 1923.

This is the "unnamed" mineral already abstracted in *Am. Min.*, **7**, (11), 197, 1922; the chemical and physical properties are there recorded.

NAME: From the locality, *Ishikawa*.

CRYSTALLOGRAPHIC PROPERTIES: System orthorhombic; $a:b:c=0.9451:1:1.1470$. Forms: *c* (001), *a* (100), *g* (210), *h* (320), *m* (110), *n* (140), *b* (010), *r* (144) and *d* (101). The angles of these forms are quite distinct from those of any of the known columbates approaching this in composition.

DISCUSSION: May be accepted as a new columbate.

E. T. W.

BOOK REVIEW

THE ANALYTICAL EXPRESSION OF THE RESULTS OF THE THEORY OF SPACE-GROUPS. RALPH W. G. WYCKOFF. 180 pages, 1922. Carnegie Institution of Washington, D. C. Publication No. 318.

This book is a contribution to crystallography, altho that would hardly be the impression from a casual glance at any but the first or last 10 pages. It begins with a 3-page historical introduction, in which the development of modern ideas of crystal structure is very briefly outlined. (Fedorov's name is consistently misspelled Federov.) In Chapter 2 the nature of space-groups is discussed. The conceptions of axis, plane, and center of symmetry, "screw-axis" and "glide-plane" of symmetry are first defined. Under the heading of "point-groups" the 32 classes of symmetry are then treated, symbols for them being derived. Table 1 is one to which crystallographers will often refer to find out what these symbols mean as it gives a list of the names applied to the 32 classes by Schoenflies, Dana and Groth, with the corresponding symbol in the new plan. The names and numbers used by Miers, Tutton, and other English crystallographers might well have been added for completeness, but the numbers at least can be written in. The analytical expression of the point-groups is then taken up, and the derivation from them of space-lattices and space-groups is outlined.

Chapter 3, but 8 pages in length, covers the whole subject of the application of the theory of space-groups to crystals. It seems hardly adequate to give anyone unacquainted with the subject much of an idea as to how to use the method or even what it is all about. Chapter 4, the complete analytical expression of the space-groups, forms the bulk of the book. This is, of course, of great reference value. The book closes with 10 pages of tables assigning the various space-groups to the 32 classes of the 6 (7) crystal systems.

From the mathematical point of view the preparation of such a book is of the greatest value, and the author is certainly to be congratulated on his courage and industry in undertaking such a laborious piece of work. Crystallographers are likely to be a bit disappointed that detailed and practical directions are not given so that they can readily apply the method to their problems. For they are less interested in whether the space-group of a given substance is C_{4v}^{12} or C_{4v}^{11} than in the question whether the internal structure of the crystal agrees in symmetry class with its external form or not.

W.