

## NEW MINERALS: DOUBTFUL SPECIES

CLASS: SULFIDES, ETC. DIVISION: R": R''': S=3:8:15?

## "Keeleyite"

SAMUEL G. GORDON: Keeleyite, a new lead sulfantimonite from Oruro, Bolivia. *Proc. Acad. Nat. Sci. Phila.*, 74, 101-103, 1922.

NAME: In honor of Mr. Frank J. Keeley, Curator of the William S. Vaux collection.

CHEMICAL PROPERTIES: *Formula*, considered to be  $2\text{PbS}\cdot 3\text{Sb}_2\text{S}_3$  or  $\text{Pb}_2\text{Sb}_6\text{S}_{11}$ . This is based on analysis by J. E. Whitfield of a rather impure specimen, which showed: Pb 25.80, Sb 43.46, Cu 2.25, Fe 2.77, S 24.54, quartz by difference 1.18%; (some Sn probably weighed with the Sb). From this 8.15% of "sulfides" (presumably calculated as chalcopyrite) were deducted, giving on recalculation Pb 28.43, Sb 47.88, S 23.69, sum 100.00%. This lies about equally distant between the theories for  $2\text{PbS}\cdot 3\text{Sb}_2\text{S}_3$  and  $3\text{PbS}\cdot 4\text{Sb}_2\text{S}_3$ . However, the uncertainty connected with the subtraction of the constituents of the indeterminate sulfides renders it impracticable to decide between these two formulas. In this connection it is noteworthy that some analyses of the mineral zinkenite (including that from the type locality) show more antimony and less lead than the usually assigned formula ( $\text{PbS}\cdot \text{Sb}_2\text{S}_3$ ) requires, and approach  $3\text{PbS}\cdot 4\text{Sb}_2\text{S}_3$ . The chemical data are therefore insufficient to distinguish "keeleyite" from zinkenite. Before the blowpipe gives the usual lead sulfantimonite reactions.

CRYSTALLOGRAPHIC AND PHYSICAL PROPERTIES: Form, radiating acicular crystals, probably orthorhombic. Color, dark gray; streak, grayish black.  $H = 2$ ; sp. gr. =  $5.21 \pm$ . No mineragraphic data given. These properties do not differentiate "keeleyite" from zinkenite.

OCCURRENCE: In cavernous quartz with pyrite, stannite, and other sulfides in the silver-tin mines at Oruro, Bolivia.

DISCUSSION: The data seem inadequate to establish this as a species distinct from zinkenite, altho the composition of the latter is not settled. Zinkenite may comprise two species, the original one having the same formula as "keeleyite," and another being  $\text{PbS}\cdot \text{Sb}_2\text{S}_3$  which would require a new name.

E. V. SHANNON

CLASS: PHOSPHATES, ETC. DIVISION: R": As : (H<sub>2</sub>O) = 5:2:6(?)

## "Acrochordite"

GUST. FLINK: Akrochordit, ett nytt mineral från Långbans Gruvor. (Acrochordite, one of the new minerals from the Långban Mines). *Geol. Fören. Förh.*, 44, No. 6-7, pp. 773-776, 1922. (Swedish, with partial English summary.)

NAME: From the Greek *akrochordon*, a wart, referring to the aspect of aggregates of the mineral.

CHEMICAL PROPERTIES: Formula  $5(\text{Mn}, \text{Mg})\text{O}\cdot \text{As}_2\text{O}_5\cdot 6\text{H}_2\text{O}$  or  $(\text{Mn}, \text{Mg})_5(\text{OH})_4(\text{AsO}_4)_2(\text{H}_2\text{O})_4$ . Theory, for Mn:Mg=4:1 (as approximately found), MnO 42.8, MgO 6.1, As<sub>2</sub>O<sub>5</sub> 34.7, H<sub>2</sub>O 16.4, sum 100.0%. Analysis by G. K. Almström gave: MnO 38.98, Mn<sub>2</sub>O<sub>3</sub> 0.50, FeO 0.46, CaO 0.99, MgO 6.94, K<sub>2</sub>O 0.55, Na<sub>2</sub>O 1.18, As<sub>2</sub>O<sub>5</sub> 33.51, P<sub>2</sub>O<sub>5</sub> 0.42, H<sub>2</sub>O 16.78, sum 100.31%. These figures were obtained on several small amounts of material.

Dissolves readily in dilute H<sub>2</sub>SO<sub>4</sub>, the solution showing a purple color owing to

the presence of manganic Mn, which indicates moreover that the As must be in the arsenic state. On heating the mineral loses water and becomes grayish black.

**CRYSTALLOGRAPHIC AND OPTICAL PROPERTIES** (determined by P. Quensel): System monoclinic, altho the angles are not measurable with sufficient accuracy to yield the constants. Optic axial plane perpendicular to the symmetry plane, with  $X=b$  and  $Y:c=40^\circ$ ; dispersion, red less than violet. Nearly colorless in thin section, without pleochroism. [Unfortunately the refractive indices are not recorded.]

**PHYSICAL PROPERTIES:** Color red brown with a peculiar yellowish tint; sub-translucent. Form, aggregates of minute sub-parallel crystals.  $H.=4.5$ , sp. gr.=3.194.

**OCCURRENCE:** In small amount in druses lined with unusually stable pyrochroite crystals and barite crystals. Found several years ago in the "Japan" workings of the Långban mines, at a depth of about 100 meters.

**DISCUSSION:** This analysis is rather close to those recorded for "chondrasenite" and "xantharsenite"; the former of these was later found to be identical with sarkinite, but the latter has not been studied by modern methods. In the absence of a chemical analysis made on adequate material, of definite crystallographic data and of refractive index determinations, the distinctness of the present mineral can hardly be regarded as satisfactorily established. E. T. W.

#### Acrochordite

G. KARL ALMSTRÖM: Om akrochorditens kemiska sammansättning. (The chemical composition of acrochordite.) *Geol. För. Förh.*, 45, 117-118, 1923.

**CHEMICAL PROPERTIES:** It is believed that the material analyzed by Flink in announcing this new species (see abstract above) was impure, containing central nuclei of pyrochroite. The formula is accordingly probably simply  $Mn_4Mg(AsO_3)_2 \cdot 6H_2O$ . It appears to be analogous to tyrolite and other copper arsenates, which have the same base-acid ratios but range widely in water content. E. T. W.

CLASS: SILICATES. DIVISION:  $R'':R''':SiO_2:(F,OH)=1:1:2:X$ .

#### Mansjoeite

HARRY VON ECKERMANN: The rocks and contact minerals of the Mansjö Mountain. *Geol. För. Förh.*, 44, (3-4), 203-410; this mineral, 355-358, 1922.

**NAME:** From the locality, *Mansjö*. [The English equivalent should be spelled mansjoeite.]

**CHEMICAL PROPERTIES:** Analysis by Sahlbom gave:  $SiO_2$  50.14,  $TiO_2$  none,  $Al_2O_3$  0.95,  $Fe_2O_3$  0.91,  $FeO$  7.45,  $MnO$  0.08,  $CaO$  21.26,  $MgO$  17.10,  $K_2O$  0.07,  $Na_2O$  0.24,  $P_2O_5$  0.03,  $F$  0.63,  $H_2O$  + 0.76, sum 99.62 or less  $O=F$  0.26, sum 99.46%. Recalculation according to the usual plan shows about 58% diopside, 26 hedenbergite, 2 each "acmite" and "augite" (Tschermak) and a remainder of 12% with the approximate ratios of chondrodite. [The simplest formula which can be written for it is  $Ca(Mg, Fe)(SiO_3)_2 + xMg(OH, F)_2$  with  $x$  = about  $\frac{1}{8}$ ; the evidence that a chondrodite molecule is present is not considered, by the abstractor to be adequate, because the rôle of the Al,  $Fe'''$ , etc. is not really known].

**PHYSICAL PROPERTIES:** Color grayish green; in thin section colorless. Luster vitreous; structure granular; cleavage prismatic; sp. gr. 3.236. Shows some gas-filled inclusions.

OPTICAL PROPERTIES: Biaxial, +;  $\alpha=1.675$ ,  $\beta=1.682$ ,  $\gamma=1.704$ ,  $\gamma-\alpha=0.029$ ;  $2V=58^{\circ} 20'$ . Dispersion strong. The orientation shows the crystallization to be monoclinic, the maximum extinction angle  $c : \gamma$  being  $35^{\circ}$ .

OCCURRENCE: In contact metamorphic limestone, probably formed by the action of fluorine-bearing residual solutions from the magma. Many so-called coccolites are probably similar in origin, and may also contain fluorine or chlorine which have been overlooked. The mineral associates are: calcite, pargasite, prehnite, phlogopite, titanite, and apatite.

DISCUSSION: Whether this mineral deserves a species name is doubtful; the abstractor would prefer to call it *fluoriferous diopside*, until further data are obtained.

E. T. W.

#### REDEFINITION OF SPECIES

CLASS: SILICATES. DIVISION: ACID ZEOLITES

"Flokite" (Callisen, 1917) = **Mordenite** (How, 1864).

**Ptilolite** (Cross and Eakins, 1886) is distinct from **Mordenite**.

**Clinoptilolite**, new name for "crystallized mordenite."

O. B. BØGGILD: Re-examination of some zeolites. *Kgl. Danske Vidensk. Selsk., Math.-fys. Medd.*, 4, No. 8, 42 pp., 1922; these minerals, p. 19. T. L. WALKER and A. L. PARSONS: The zeolites of Nova Scotia. *Univ. Toronto Studies, Geol. Series*, No. 14, 13-73, 1922; these minerals (by T. L. W.), p. 61. W. T. SCHALLER: Ptilolite and related zeolites. Paper presented before Mineralogical Society of Washington, Feb. 23rd, 1923; (see page 93 of this journal).

DISCUSSION: Disregarding the inclined extinction and differences in composition, Bøggild considers "flokite" identical with ptilolite; Schaller finds it to agree in composition and optics with mordenite. Walker suggests that ptilolite is "probably identical with mordenite"; the new data cited by Schaller do not bear this out. Schaller shows clearly that on chemical and optical grounds three species are comprised in this group: Mordenite, ptilolite and clinoptilolite.

E. T. W.

#### ABSTRACTS: CRYSTALLOGRAPHY

ON THE OCCURRENCE OF PHENACITE AND SCHEELITE AT WHEAL COCK, ST. JUST, CORNWALL. ARTHUR RUSSELL. *Mineral. Mag.*, 19, [88], 19-22, 1920.

The phenacite crystals occur either attached to iron-stained quartz prisms or are embedded in a partially altered chlorite, associated with crystals of scheelite, cassiterite and orthoclase. The following forms were observed on the phenacite:  $(11\bar{2}0)$ ,  $(10\bar{1}0)$ ,  $(10\bar{1}1)$ ,  $(01\bar{1}2)$ ,  $(11\bar{2}3)$ ,  $(3\bar{1}21)$ ,  $(\bar{1}3\bar{2}2)$ . In an early British Mineralogy (J. Sowerby, 1809, Vol. 4, pp. 53-54) phenacite crystals from this locality were erroneously described as "white tourmaline." The crystals of scheelite occurring with the phenacite measure at times  $1\frac{1}{2}$  cm in length and are of the simple bipyramidal habit, consisting of but two forms,  $(101)$  and  $(001)$ .

W. F. H.

NEW CRYSTAL FORMS ON PYRITE, CALCITE, AND EPIDOTE. L. J. SPENCER. *Mineral. Mag.*, 19, [88] 1-9, 1920.

The identity of the dyakisdodecahedron,  $(641)$ , on pyrite, observed on only two previous occasions, is now firmly established by measurements on three addi-