

## NEW MINERAL NAMES

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## Four unnamed palladium minerals

O. E. YUSHKO-ZAKHAROVA AND L. A. CHERNYAEV (1967) On the form of entry of palladium into the composition of the Talnakh copper-nickel ores. *Zap. Vses. Mineralog. Obshch.* 96, 432-434 (in Russian).

Four new minerals were found as intergrowths 10-50 microns in size in cubic chalcopyrite associated with native Ag and ferroplatinum. Electron probe analyses were made, but no X-ray data are given.

$Pd_3Ni_4As_3$ . Analyses gave Pd 41, Ni 30, As 29, sum 100%. Color rose-lilac, microhardness 229-386 kg/mm<sup>2</sup>. Reflectivity lower than that of ferroplatinum. Distinctly anisotropic.

$Pd_4Pb_3$ . Analysis gave Pd 40, Pb 55, Sn 4, Cu 0.7, sum 99.7%. This differs in composition from the known alloys of composition Pd<sub>3</sub>Pb, PdPb<sub>3</sub>, Pd<sub>6</sub>Pb<sub>5</sub>, and PdPb, but their optical properties are not known. Color variable from rose-brown to lilac-gray. Reflectivity increases with wavelength (about 41 at 440 nm, 53 at 700 nm). Microhardness 125-142, average 133 kg/mm<sup>2</sup>. Strongly anisotropic, birefringence noticeable in air.

$Pd_2Pb_3Bi$ . Analysis gave Pd 27, Pb 55, Bi 19, sum 101%. Color dark gray with a rose tint. Isotropic. The reflectivity increases with wavelength (about 51 at 440 nm, 60 at 700 nm). Microhardness 47-68 kg/mm<sup>2</sup>.

$Pd_6Cu_2(Sn,Sb)$ . Analysis gave Pd 65, Cu 14, Sn 16, Sb 5, Pt 1, Fe 0.1, sum 101.1%. Color rose. Reflectivity much higher than that of chalcopyrite and higher than that of Pd<sub>4</sub>Pb<sub>3</sub>. Distinctly anisotropic. Microhardness 258 kg/mm<sup>2</sup>.

## Wickmanite

P. B. MOORE AND J. V. SMITH (1967) Wickmanite, Mn<sup>+2</sup>[Sn<sup>+1</sup>(OH)<sub>6</sub>], a new mineral from Långban. *Arkiv Min. Geol.* 4, 395-399.

Wickmanite is a late-stage, low temperature mineral found as brownish-yellow octahedra on specimens from three different stopes in the western part of the Långban workings. They had been listed by Gustav Flink, *Geol. Fören Förh.* 45, 442 (1923); 45, 706 (1924); and 48, 92 (1926) as No. 161, 234 and 374. The latter is the type specimen and is preserved in the Swedish Natural History Museum, Stockholm under the number NRMS 532405.

Electron microprobe analysis and similarity to the ideal synthetic compound, Mn[Sn(OH)<sub>6</sub>], reported by Strunz and Contag [*Acta Crystallogr.* 13, 601-603. (1960)] lead to the formula (Mn<sub>0.95</sub>Mg<sub>0.03</sub>Ca<sub>0.02</sub>)[Sn(OH)<sub>6</sub>]. The space group is *Pn3m*, *a* = 7.873 ± 0.004 Å, density (obs.) is 3.89 ± 0.05, (calc.) 3.82, *Z* = 4. The index of refraction in white light is 1.705 ± 0.003. Indexed powder patterns for wickmanite from the three specimens are nearly identical. The strongest lines in the powder pattern of the type specimen are: 3.931 (10), 2.778 (6), 1.7618 (7), 1.6080 (5).

The mineral is named in honor of Professor Franz-Erik Wickman who has made many contributions to the study of Långban minerals. The mineral was approved as a new species before publication by the IMA Commission on New Minerals and New Mineral Names.

## Gabrielsonite

P. B. MOORE (1967) Gabrielsonite, PbFe(AsO<sub>4</sub>)(OH), a new member of the descloizite-pyrobolomite group, from Långban. *Arkiv Min. Geol.* 4, 401-405.

Gabrielsonite is No. 35 of the incompletely studied minerals of Gustav Flink, *Geol.*

*Fören. Förh.* **41**, 433–447 (1919). It is present in centimeter-size lumps associated with roméite, nadorite, calcite and barite in specimens collected from the “Hindenburg” stope.

Gabrielsonite occurs in adamantine, black, aggregates and masses of crude, rounded, crystals of indeterminate morphology. Small fragments are transparent greenish-brown, the streak is pale chocolate brown.  $H = 3\frac{1}{2}$ , very brittle, no cleavage.  $G = 6.67$  (meas.), 6.69 (calc.); easily soluble in cold 1:1 HCl.

Wet chemical analysis by Dr. Alexander Parwel gave FeO 18.47%, Fe<sub>2</sub>O<sub>3</sub> nil, PbO 50.09, As<sub>2</sub>O<sub>5</sub> 28.54, H<sub>2</sub>O 1.21, sum 98.31.

Gabrielsonite has been examined by single crystal and powder x-ray diffraction. The space group is given as  $P2_1ma$ ,  $Z = 4$ . The cell dimensions, obtained from an indexed powder pattern, are  $a$  7.86 Å,  $b$  5.98,  $c$  8.62, all  $\pm 0.01$ . The strongest lines of the powder pattern are 3.192 (10), 3.074 (10), 2.706 (4), 2.651 (4), 1.622 (4), 1.4380 (4).

The name is for Dr. Olof Gabrielson, mineralogist at the Swedish Natural History Museum. The type specimen is NRMS 254857, filed in the collection of this museum. The name was approved before publication by the Commission on New Minerals and Mineral Names, IMA.

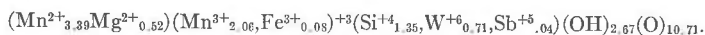
### Welinite

P. B. MOORE (1967) Welinite, a new mineral from Långban. *Arkiv Min. Geol.* **4**, 407–411.

Welinite corresponds to Nr. 100 of the unknown or incompletely studied minerals of Gustav Flink, *Geol. Fören. Förh.*, **44**, 536 (1922). It occurs in small amount embedded in calcite, barite, sarkinite and adelite, fillings fissure in compact hausmannite ore. It also occurs at the Sjö mine, Grythyttan, in association only with hausmannite and dolomite.

Welinite occurs as resinous, deep red-brown to reddish-black up to 2 cm crystal sections. The cleavage is poor to distinct {00.1};  $H = 4$ , brittle;  $G = 4.47$ .

Microprobe analysis by J. V. Smith and C. R. Knowles gave Mn 40.1%, Fe 0.6, Mg 1.7, Sb 0.7, W 17.6, and Si 5.1. H<sub>2</sub>O 3.2% and oxidation state of Mn, Mn<sup>+4</sup> 7.6, were determined by Dr. Alexander Parwel. These data lead to the formula



for the cell content.

Welinite is uniaxial+, but some grains show small 2V and some are almost isotropic.  $\omega = 1.864 \pm .004$ ,  $\epsilon = 1.88 \pm .01$ , often somewhat variable.

Welinite was examined by single crystal and powder X-ray diffraction. The space group is probably  $P6_3$ ,  $a$  8.155  $\pm$  .007,  $c$  4.785  $\pm$  .005 Å. The five strongest lines of the powder pattern are 4.07 (6), 3.102 (8), 2.332 (8), 1.782 (10), 1.5438 (6).

The mineral is named after Dr. Eric Welin, mineralogist and geochronologist. The type specimen is NRMS 532157 in the Swedish Natural History Museum. The mineral was approved before publication by the Commission on New Minerals and Mineral Names, IMA.

### Manganbabingtonite, Ferrobabingtonite

R. A. VINOGRADOVA, V. A. SYCHKOVA, AND YU. K. KABALOV (1966) Manganiferous babingtonite from the Rudnyi Kaskad deposit, Eastern Sayan. *Dokl. Akad. Nauk SSSR*, **169**, 434–437 [in Russian].

R. A. VINOGRADOVA AND I. N. PLYUSINNA (1967) Composition, properties, and crystallochemical features of minerals of the isomorphous series ferrobabingtonite-manganbabingtonite: *Vestn. Moskov. Univ. Ser. IV, Geol.* **1967**, 54–67. [in Russian].

Analysis by VAS gave SiO<sub>2</sub> 51.85, TiO<sub>2</sub> 0.15, Al<sub>2</sub>O<sub>3</sub> 0.56, Fe<sub>2</sub>O<sub>3</sub> 12.26, FeO 4.52, MgO 0.60, MnO 7.91, CaO 19.00, Na<sub>2</sub>O 0.25, K<sub>2</sub>O 0.09, H<sub>2</sub>O<sup>+</sup> 1.95, H<sub>2</sub>O<sup>-</sup> 0.26, F 0.1, Cl 0.06,

CO<sub>2</sub> 0.13, sum 99.71 (O=F<sub>2</sub>, Cl<sub>2</sub>) 0.06, 99.65%, a babingtonite with Mn:Fe=1.78, therefore named manganbabingtonite.  $G=3.452$ ,  $ns$   $\alpha=1.716$ ,  $\beta=1.730$ ,  $\gamma=1.746$ ,  $2V=78=82$ , dispersion strong  $r>v$ , pleochroic  $X$  green,  $Y$  faint rose, nearly colorless,  $Z$  rose-brown. Triclinic with  $a=6.88$ ,  $b=11.80$ ,  $c=6.77$  Å.,  $\alpha=90^{\circ}30'$ ,  $\beta=93^{\circ}30'$ ,  $\gamma=104^{\circ}54'$ , X-ray powder data are given.

Most analyses of babingtonite show less than 2% MnO. The series is discussed in the second paper, which refers to normal babingtonite as ferrobabingtonite.

DISCUSSION.—The name ferrobabingtonite is superfluous.

## NEW DATA

### Meymacite

R. PIERROT AND R. VAN TASSEL (1965) Nouvelle definition de la meymacite et nomenclature des "acides tungstiques" naturels. *Bull. Soc. Franc. Mineral. Cristallogr.*, **88**, 613–617.

Meymacite was described by Carnot (1874) as probably WO<sub>3</sub>·2H<sub>2</sub>O, although the analyses showed 6.0–6.25% Fe<sub>2</sub>O<sub>3</sub>. X-ray study of type material now shows that the X-ray pattern is identical with that of ferritungstite. The latter name is retained and the name meymacite is transferred to amorphous WO<sub>3</sub>·2H<sub>2</sub>O, described by R. Van Tassel, *Bull. Soc. Belge Geol.* **70**, 376 (1961). This material contained WO<sub>3</sub> 84.1, CaO 2.0, H<sub>2</sub>O<sup>-</sup> 6.6, H<sub>2</sub>O<sup>+</sup> 6.5, sum 99.2%,  $G$ , 3.94–4.10. Yellow-brown, resinous to vitreous, conchoidal fracture. The X-ray pattern shows only one diffuse line at 3.81Å. Isotropic, with  $n>2$ .

DISCUSSION.—This nomenclature has been approved by the Commission on New Minerals and Mineral Names, IMA.

### Slavikite

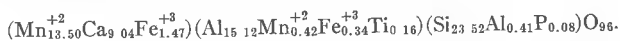
EMIL MAKOVICKÝ AND VLADIMIR STREŠKO (1967) Slavikite from Medzev near Košice, Czechoslovakia. *Tschermaks Mineral. Petogr. Mitt.* (3) **12**, 100–107.

Two new analyses of slavikite support the formula, MgFe<sub>3</sub><sup>3+</sup>(OH)<sub>3</sub>(SO<sub>4</sub>)<sub>4</sub>·18H<sub>2</sub>O, proposed by Gordon [*Amer. Mineral.* **27**, 144 (1941)] and by van Tassel [*Amer. Mineral.* **35**, 136 (1949)] and do not agree with those proposed by Rost (1940) and given by Strunz (*Tabellen*, 4th ed., 1966). An unindexed X-ray powder diffraction pattern is tabulated, but van Tassel (1949) had reported single crystal X-ray data and cell dimensions. He found the lattice to be rhombohedral,  $a_r=13.6$  Å,  $\alpha=53^{\circ}24'$ , this cell containing two units of the Gordon formula. The dimensions of the corresponding hexagonal cell are  $c$  34.86,  $a$  12.22 Å.  $c/a=2.85$ , approximately double the value, 1.389, given by Gordon.

### Johnstonotite (= spessartine-grossular garnet)

R. J. FORD (1967) A re-appraisal of johnstonotite. *Pap. Proc. Roy. Soc. Tasmania* **101**, 11–12

Re-analysis of type material gave very different results from those of McLeod and White (*Pap. Royal Soc. Tasmania* 1898–1899, p. 74–76). The new analysis gives the formula



X-ray powder data are given;  $a=11.690$  Å,  $G=3.910$ ,  $n=1.779$ . This is therefore a spessartine-grossular garnet and Ford recommends that the name johnstonotite be dropped. The garnet occurs in a dense, fine-grained dike about 50 cm. wide with sanidine, crystals of pyrite up to 5 mm. in diameter, and smaller crystals of galena and arsenopyrite. Epidote and prehnite are also present.

DISCUSSION.—I agree that the name should be dropped.

**Idrialite**

T. A. GEISSMAN, K. Y. SIM, AND J. MURDOCH (1967) Organic minerals. Picene and chrysene as constituents of the mineral curtisite (idrialite). *Experientia* **23**, 793-794.

Curtisite, described from Skaggs Springs, Cal. (*Amer. Mineral.* **11**, 67; **15**, 169-173), had been shown to be identical with idrialite (*Amer. Mineral.* **41**, 168). Re-examination of idrialite by Strunz and Contag (*Amer. Mineral.* **50**, 2109-2110) showed it to be a mixture of picene (C<sub>22</sub>H<sub>14</sub>) with other hydrocarbons.

The present paper reports studies of curtisite from Skaggs Springs by solvent and chromatographic separations. Analyses, X-ray powder data, and ultra-violet spectra proved the presence of predominant picene and chrysene (C<sub>18</sub>H<sub>12</sub>). In addition, the spectra indicated that smaller amounts of the methyl homologues of picene and chrysene were present.

**Bergamaskite**

ANNIBALE MOTTANA (1967) Riesame della "Bergamaschite". *Rend. Ist. Lombardo Accad. Sci. Lett., Classe Sci.* **101**, 159-167.

Bergamaskite was described by Lucchetti (1881) as a variety of amphibole, nearly free of Mg. Type material is not available, but re-examination has been made of material from Gaverina, Italy, that corresponds closely to his. X-ray study shows it to be a mixture of hornblende, calcite, and chlorite-vermiculite. Analysis of the hornblende gave SiO<sub>2</sub> 44.36, TiO<sub>2</sub> 1.45, Al<sub>2</sub>O<sub>3</sub> 12.50, Fe<sub>2</sub>O<sub>3</sub> 1.81, FeO 14.16, MnO 0.58, MgO 12.11, CaO 9.14, Na<sub>2</sub>O 1.48, K<sub>2</sub>O 0.15, P<sub>2</sub>O<sub>5</sub> absent, H<sub>2</sub>O<sup>+</sup> 2.56, sum 100.30%; *a* 9.801, *b* 18.309, *c* 5.312 Å.

The name should therefore be dropped.

## DISCREDITED MINERALS

**Raphisiderite (= Hematite)**

M. FEDERICO (1967) Sulla natura della raphisiderite. *Period. Mineral.* **36**, 649-655.

Raphisiderite (orthorhombic Fe<sub>2</sub>O<sub>3</sub>?) was named by Scacchi (1889). Zambonini (1919) thought it to be ilvaite. X-ray study shows the mineral to be hematite in acicular crystals, elongated [ $\bar{1}211$ ].

**Epidesmine (= Stilbite)**

R. C. ERD, G. D. EBERLEIN, AND ADOLF PABST (1967) Stellerite, a valid orthorhombic end member of a continuous series with monoclinic stilbite (abstr.). *Geol. Soc. Amer. Program Ann. Meet.* **1967**, 58-59.

X-ray oriented epidesmine from the type locality at Gelbe Birke, Schwarzenberg, Germany, was found to have its optic axial plane parallel to {010}, rather than to {100}, as originally described. Because its other properties are also identical with those of monoclinic stilbite, the name should be dropped.