

## NEW MINERAL NAMES

### Minguzzite

CARLO L. GARAVELLI, Un nuovo minerale tra i prodotti secondari del giacimento di Capo Calamita (Isola d'Elba). *Atti accad. nazl. Lincei, Rend. classe sci fis. mat. e nat.*, **18**, 392-402 (1955).

Small green to yellow-green tabular crystals were found associated with humboldtine,  $\text{FeC}_2\text{O}_4 \cdot 2\text{H}_2\text{O}$ , in limonite at Cape Calamita, Elba. Analysis (mean of 5 partial) gave:  $\text{Fe}_2\text{O}_3$  16.05,  $\text{K}_2\text{O}$  26.00,  $\text{C}_2\text{O}_3$  42.13,  $\text{H}_2\text{O}^+$  11.35,  $\text{H}_2\text{O}^-$  1.60,  $\text{Al}_2\text{O}_3$  0.10,  $\text{FeO}$  2.28,  $\text{MgO}$  0.10,  $\text{CaO}$  0.03, insol. in  $\text{HCl}$  0.10; sum 99.74%, which corresponds to  $\text{K}_3\text{Fe}^{III}(\text{C}_2\text{O}_4)_3 \cdot 3\text{H}_2\text{O}$  with 6% humboldtine, 1.7% goethite, and 1.6% excess  $\text{H}_2\text{O}$ . The mineral is readily soluble in water. The crystals are tenths to hundredth of a millimeter in size. The forms  $b$  {010},  $e$  {11 $\bar{1}$ },  $\sigma$  {111}, and  $m$  {110} were found. Goniometric measurements agreed well with those of Knaggs, *J. Chem. Soc. London*, **121**, 2069 (1922), on artificial crystals, which Knaggs reported to be monoclinic,  $a:b:c = 0.9916:1:0.3895$ ,  $\beta = 94^\circ 13\frac{1}{2}'$ . Cleavage perfect (010). Luster vitreous.  $G = 2.080$  (mineral), 2.092 (synthetic). Optically biaxial, negative, with  $n_s \alpha = 1.498$ ,  $\beta = 1.554$ ,  $\gamma = 1.594$ ,  $2V = 78^\circ$  (calcd.), pleochroic with X yellow-green, Z intense emerald-green. Crystal grown from solution had  $\alpha = 1.501$ ,  $\beta = 1.555$ ,  $\gamma = 1.597$ . X-ray powder data are given; they agree well with those in the *A.S.T.M.* file for potassium ferric oxalate trihydrate.

The name is for the late Carlo Minguzzi, professor of mineralogy at the University of Pavia.

MICHAEL FLEISCHER

### Limaite

J. M. COTELO NEIVA, Pegmatitos com cassiterite e tantalite—columbite de Cabaço (Ponte do Lima—Serra de Arga). *Pubs. Museu e Lab. Mineral. e Geol. e Centro Estudos Geol., Univ. Coimbra, Mem. e Noticias*, No. **36**, 59 pp. (1954)

J. M. COTELO NEIVA, A. RIMSKY, AND A. SANDRÉA, Sur une variété de gahnite stannifère de Cabanas (Portugal). *Bull. soc. franc. minéral. crist.*, **78**, 97-105 (1955).

Pegmatitic veins cutting mica schists contain quartz, albite, muscovite, cassiterite, topaz, and yellow-brown octahedra resembling pyrochlore, 0.5 to 2.7 mm.  $G = 4.47$ ,  $n = 1.81 \pm .003$ , birefringence 0.004-0.005. Analysis on 100 mg. gave  $\text{Al}_2\text{O}_3$  45,  $\text{ZnO}$  32,  $\text{SnO}_2$  13.5,  $\text{Fe}_2\text{O}_3$  3,  $\text{MgO}$  2,  $\text{MnO}$  0.1,  $\text{CaO}$  0.47,  $\text{SiO}_2$  3; sum 99.07%. Spectrographic analysis showed traces of Nb, Be, Sc, Ga, and Ge, no Ni, Cu, Cr, Co, Ti, P, and B. The x-ray powder data are similar to those of spinels, but indicate a superstructure,  $a$  32.20 kX. This unit cell contains  $(\text{Al}_{13}\text{Fe}_5\text{Si}_6)(\text{Zn}_{50}\text{Sn}_{12}\text{Mg}_6)\text{O}_{256}$ . Calcd. density 4.85 (measured 4.47). The mineral is considered to be intermediate between gahnite and nigerite.

The name is for the locality, which is near Ponte do Lima, Portugal. The name is not used in the second paper.

M. F.

### Stillwellite

J. McANDREW AND T. R. SCOTT, Stillwellite, a new rare-earth mineral from Queensland. *Nature* **176**, No. 4480, 509-510 (1955).

Stillwellite occurs in quantity in crystals up to 5 mm. in diameter as a major constituent of radioactive ore from the Mary Kathleen Lease, 34 miles east of Mt. Isa, northwest Queensland, Australia. It is associated with much allanite and with garnet as a metasomatic replacement of metamorphosed calcareous sediments. Uraninite is dispersed in allanite and stillwellite.

Analysis of a concentrate containing 96–98% stillwellite gave as major constituents  $R_2O_3$  58.4 (R=lanthanons),  $B_2O_3$  11.5,  $SiO_2$  20.1, CaO 3.96,  $P_2O_5$  2.58%. (This gives a sum of 96.54%, but the analysis is said to total 100.3%. M.F.)  $Ce_2O_3$  constitutes 51% of the total lanthanon oxide, which contains not more than 5% of heavy lanthanons. Allowing for the presence of a small amount of a phosphate mineral, this leads to the formula (R, Ca)  $B_2SiO_6$ .

Stillwellite is colorless in thin section. Optically uniaxial positive to biaxial positive with  $2V$  up to  $6^\circ$ . Zoning was noted in thin section;  $\omega$  (Na)  $1.775 \pm .003$  to  $1.784 \pm .003$ , birefringence 0.018–0.020.  $G_c = 4.57$ . X-ray study showed stillwellite to be hexagonal rhombohedral, space group  $C 3 m$ ,  $C 32$ , or  $C\bar{3}m$ ; the unit cell has  $a = 6.85$ ,  $c = 6.64 \text{ \AA}$ ,  $Z = 3$ .

The name is for Frank Leslie Stillwell, Australian mineralogist.

### Väyrynenite

A. VOLBORTH, Phosphatminerale aus dem Lithiumpegmatit von Viitaniemi, Eräjärvi, Zentral-Finnland. *Ann. Acad. sci. Fennicae*, Ser. A, III Geol.-Geogr. No. 39, 90 pp. (1954).

A preliminary announcement was abstracted in this journal, 39, 848 (1954). The following additional data are given. The mineral occurs with herderite, hurlbutite, beryllonite, microcline, and muscovite (gilbertite), also in morinite. Color rose-red, transparent, luster vitreous.  $H_c = 5$ . Cleavage (001). Analysis on 275 mg. gave FeO 4.59, MnO 30.57, CaO 1.82,  $Li_2O$  trace,  $Na_2O$  1.42,  $K_2O$  1.18, BeO 12.10,  $Al_2O_3$  2.45,  $P_2O_5$  40.36,  $H_2O^-$  0.08, insol. 0.78,  $H_2O^+$  (by difference) 5.00, F present, sum 100.35%, corresponding to  $BeMnPO_4(OH, F)$ . X-ray powder data are given; the strongest lines are for two samples in kX 3.41, 3.44 10; 2.83, 2.86 10; 2.62, 2.66 9, 8; 4.39, 4.43 5, 6.

M. F.

### Gearksite

I. F. GRIGOR'EV AND I. DOLOMANOVA, Gearksite, a new water-containing calcium-aluminum fluoride mineral. *Trudy Mineralog. Muzeya Ada. Nauk. S.S.S.R.*, No. 3, 93–96 (1951); from an abstract by Wilhelm Eitel in *Chem. Abstracts*, 49, 13840 (1955). Chemical analysis gave:  $Al_2O_3$  44.42, CaO 16.36,  $H_2O^+$  15.39, F 37.86% (this gives a sum of 114.03 minus 15.94 (O=F<sub>2</sub>)=98.09%. M. F.), corresponding to  $CaAl_3(F, OH)_{11} \cdot H_2O$ . Spectrographic analysis showed weak lines of Fe, Sr, As, Mn, and Ni and traces of Pb, Zn, Na, Co, and Ti.

The mineral occurs in dense white kaolinite-like aggregates,  $n$  about 1.458, birefringence less than 0.009. Differential thermal analysis showed strong endothermic peaks at  $350^\circ$ ,  $490^\circ$ , and  $850^\circ$  and a slight exothermic peak at  $730^\circ$ . The x-ray powder pattern differs from those of gearksutite and creedite.

The mineral occurs in the oxidation zone of deposits in Transbaikal where slates and sandstones have been altered by F-rich hydrothermal solutions. Gearksite is said to be a supergene replacement product of topaz and fluorite. Other associated minerals are zinnwaldite, amazonite and secondary halloysite, montmorillonite, and sellaite.

M. F.

### Betekhtinite

ARNO SCHÜLLER AND ERIKA WOHLMANN, Betehtinit, ein neues Blei-Kupfer-Sulfid aus den Mansfelder Rücken, *Geologie*, 4, No. 6, 535–555 (1955).

The mineral occurs in veins cutting the Mansfeld copper shale. It occurs in irregular masses cut by bornite, chalcopyrite, and galena, and as pure needles associated with calcite, mostly a few tenths of a mm. in diameter, but reaching 2 cm. in length and 5 mm. in

breadth. Some needles have overgrowths of native silver. Analysis by Wohlmann gave: S 17.25, Pb 19.20, Cu 61.39, Fe 1.83, Bi, As, Sb absent; sum 99.94%. Spectrographic traces of Ag and Te were found. This corresponds closely to  $(\text{Cu,Fe})_{11}\text{PbS}_8$ , but the authors prefer the formula  $\text{Cu}_{10}(\text{Fe,Pb})\text{S}_8$ .

From  $x$ -ray study, the lattice constants are  $a=3.85$ ,  $b=14.67$ ,  $c=22.8$  Å. Orthorhombic, symmetry class  $C_{2v}$  or  $D_2$ . (This gives a unit cell content containing 4.47 Pb, 46.5 Cu, 1.6 Fe, and 25.9 S. M. F.)  $X$ -ray powder data are given for 5 samples, with somewhat variable results; the one chosen by the authors had  $d$  spacings 2.955 and 1.835 strong, 1.953 and 1.764 medium strong, 3.10 and 2.368 medium. These differ from data for wittichenite, emplectite, and enargite. (No comment is made on the fact that the authors' data for these minerals differ markedly from data in the literature. M. F.).

The mineral polishes well; it is a little harder than bornite. It is a bright cream color parallel to  $c$ , stronger yellowish-cream perpendicular to  $c$ ; it becomes duller on exposure. Reflectivity in air high. Strongly anisotropic.  $G.=6.14$ .

The name is for A. G. Betekhtin, Russian mineralogist and economic geologist.

DISCUSSION: The name alisonite (1859) was given to material somewhat similar in composition, presumed to be a mixture. See *Dana's System*, 6th Ed., p. 51.

Betekhtinite appears to be a valid mineral, but further study would be desirable.

M. F.

### Ericaite

F. HEIDE, Über bemerkenswerte Borazitvorkommen in den Kalilagern des Südhartzbezirkes. *Chemie der Erde*, **17**, 211–216 (1955).

ROBERT KÜHN AND INGEBURG SCHAACKE, Vorkommen und analyse der Boracit- und Ericaitekrystalle aus dem Salzhorst von Wathlingen-Hänigsen. *Kali und Steinsalz*, No. **11**, 33–42 (1955).

These two papers describe the iron-analogue of boracite, found in several potassium salt deposits in the southern Harz in halite-anhydrite and halite-anhydrite-kieserite rock. The crystals, up to 4 mm. edge-length, range in color from light-green to raspberry-red and black. The pseudo-cubic crystals have the form (100) predominant, with (111) less prominent. Some crystals are zoned.  $X$ -ray study of 6 samples gave unit cells (on cubic indexing) ranging from 12.04 Å for white material to 12.12 Å for black, and 12.15 Å for raspberry-red with FeO 35.26, MnO 1.79% (Heide); K. and S. give  $a_0$  8.53,  $b_0$  8.53,  $c_0$  12.12 Å for the Mg end-member,  $a_0$  8.53,  $b_0$  8.60,  $c_0$  12.15 for material with Fe 2.21%,  $a_0$  8.58,  $b_0$  8.65,  $c_0$  12.17 for material with Fe 27.97, Mn 0.35%.  $G.=3.17$ – $3.27$ . Birefringent,  $n$  about 1.75 (K. and S.)

The following analyses are given: 1. Raspberry-red, from Bischofferode (partial analysis recalculated):  $\text{B}_2\text{O}_3$  50.56, FeO 35.26, MnO 1.79% (Heide). 2. Red-violet from Hänigsen: Fe 27.97, Mg 2.82, Mn 0.35, Cl 7.96, Br 0.0 83% (K. and S.) 3. Brownish-violet from Bischofferode: FeO 35.22, MgO 6.71, MnO 2.32, Cl 8.10, insol. 0.36% (K. and S.)

When heated the red material turns bluish-green at 115° (Heide), at 320–330° C. (K. and S.), and the color change is reversible on cooling. The blue-green color deepens, then changes to black at 800–1000° C. A sample cooled from 1000° C. showed no change in  $x$ -ray powder pattern. Melting began at 1100° C. (Heide). The orthorhombic-isometric inversion of ericaite occurs at 310–315° (265° for boracite) (K. and S.).

The name eracaite is quoted by K. and S. from a paper by H. Werner, Das Boracitvorkommen im Salzstock von Wathlingen-Hänigsen. *Der Aufschluss*, **1**, 24–26 (1950). This has not been seen.

M. F.