

## NEW MINERAL NAMES

### Gutsevichite

E. A. ANKINOVICH. Gutsevichite, a new mineral. *Sbornik Nauch. Trudy Kazakh. Gornomet. Inst. No. 18*, 125–130 (1959); from an abstract by E. M. Bonshted-Kupletskaya in *Zapiski Vses. Mineral. Obshch.*, **90**, 104 (1961).

The mineral occurs as irregular crusts and concretions and as cavity-filling in the zone of oxidation of V-containing shales of the Middle Cambrian in northwestern Kazakhstan. Color yellow-olive, tobacco-green, to dark brown, in sections greenish-yellow to yellow brown. Isotropic,  $n$  1.560–1.575 (olive), 1.575–1.590 (tobacco-green), 1.595–1.606 (brown). Luster waxy to dull, H.  $2\frac{1}{2}$ , G. 1.90–2.00.

Analyses by S. I. Potok and T. L. Vileshina of yellow-olive and dark brown varieties gave, resp., MgO 1.2, 1.4; CaO 2.7, 2.3; BaO 1.5, 1.1;  $Al_2O_3$  25.9, 24.4;  $Fe_2O_3$  2.0, 4.7;  $V_2O_4$  2.3, 2.9;  $V_2O_5$  11.7, 14.1;  $P_2O_5$  17.6, 15.9;  $SO_3$  1.2, 1.2;  $SiO_2$  1.1, 2.8;  $H_2O^+$  14.7, 14.3;  $H_2O^-$  18.2, 15.2, sum 100.1, 100.3%, stated to correspond to  $(Al, Fe)_3[(P, V)O_4]_2(OH)_8 \cdot 7\frac{1}{2} - 8\frac{1}{2} H_2O$ . Easily soluble in cold dilute acids. In the closed tube gives much water, having a weakly acid reaction. The heating curve shows endothermal effects at 190° and 820–840° and an exothermal effect at 520–560°.

The most intense x-ray lines (yellow-olive) are 4.082 (10), 2.506 (9), 1.820 (8), 1.446 (7), 3.510 (5).

The name is for V. P. Gutsevich, geologist, of Kazakhstan.

DISCUSSION.—The abstractor comments that 10% and 11.7% of the first and second analyses were discarded in calculating the formula, without any statement of what impurities were present, and that the “composition needs to be made more precise.” The mineral appears to differ from al’vanite, satpaevite, and steigerite, previously described from the same locality, and from schoderite, all aluminum vanadates.

MICHAEL FLEISCHER

### Fynchenite

E. M. BONSHTEDT-KUPLETSKAYA, abstract in *Zapiski Vses. Mineral. Obshch.*, **90**, 108 (1961).

This is the Russian transliteration of the name Feng-huang-shih (fenghuanglite), see *Am. Mineral.* **45**, 754–755 (1961).

M. F.

### Arsenothorite

E. M. BONSHTEDT-KUPLETSKAYA, abstract in *Zapiski Vses. Mineral. Obshch.*, **90**, 108 (1961).

This name is given to the material named Shen-t’u-shih (or Shen-t’u-lite) in the original (See *Am. Mineral.* **45**, 755 (1960)). Arsenothorite is the translation of the Chinese name.

M. F.

### Yanshainshynite

CHENG-CHI KUO. Jiningite, a new variety of thorite. *Kexue Tonghao (Scientia)* **1959**, No. 6, 206–207 (in Chinese), from an abstract by E. M. Bonshted-Kupletskaya, *Zapiski Vses. Mineral. Obshch. v. 90*, 108 (1961).

A calcium thorium phosphate-silicate. An incomplete analysis gave  $SiO_2$  10.04,  $P_2O_5$

11.77, ThO<sub>2</sub> 42.84, CaO 14.31, TR<sub>2</sub>O<sub>3</sub> 0.24, MgO 0.23, MnO 0.06, PbO not detd., Fe<sub>2</sub>O<sub>3</sub> 4.31, Al<sub>2</sub>O<sub>3</sub> 0.48, H<sub>2</sub>O 9.19, total 93.47%.

DISCUSSION.—Insufficient data.

M. F.

### Redledgeite

H. STRUNZ. "Chromrutil" von der Red Ledge Mine ist kein Rutil. Redledgeite: *Neues Jahrb. Mineral., Monatsh.* 1961, p. 107-111.

Chromrutil was described by Gordon and Shanon in 1928 (*Am. Mineral.*, 13, 69, Dana's System, 7th Ed., Vol. I, p. 560). Analysis by Shannon gave CaO 0.76, MgO 5.52, Al<sub>2</sub>O<sub>3</sub> 0.57, Fe<sub>2</sub>O<sub>3</sub> 0.80, Cr<sub>2</sub>O<sub>3</sub> 16.61, SiO<sub>2</sub> 5.51, TiO<sub>2</sub> 69.71, loss on ign. 1.48, sum 100.96%.

Weissenberg photographs of type material show it to be tetragonal, space group *I*<sub>4</sub>/a, *a* 20.32, *c* 5.84 Å. *G* (suspension) 3.72. From Shannon's analysis the unit cell contains



or nearly



or, if TiO<sub>4</sub> is replaced by (OH)<sub>4</sub>,



An indexed *x*-ray powder pattern (31 lines) is given. The strongest lines are 3.199 (10), 2.454 (8), 1.583 (8), 2.215 (7), 1.882 (7), 1.391 (7), 3.551 (6), 1.681 (6).

Since the mineral is not a variety of rutile, the new name redledgeite is suggested for the locality, the Red Ledge Mine, Nevada County, California.

M. F.

### Five new unnamed minerals

JOSEPH A. MANDARINO AND SCOTT J. WILLIAMS. Five new minerals from Moctezuma, Sonora, Mexico: *Science*, 133, no. 3469, 2017 (1961).

The following preliminary data are given. Mackayite, emmonsite, tellurite, native Te, and paratellurite have also been found in the deposit.

- (1) Minute yellow plates with high adamantine luster give *x*-ray powder data agreeing with those of Bystrom (*Arkiv Kemi, Mineral., Geol.* 24A (1947) for synthetic Pb<sub>2</sub>OF<sub>2</sub>.
- (2) Zinc tellurite or tellurate occurs as small, brown, hexagonal prismatic crystals terminated by a bipyramid. Spectrographic analysis gave only Zn and Te as major constituents. Uniaxial, positive, with  $\omega 1.85 \pm 0.01$ ,  $\epsilon 1.93 \pm 0.01$ . The *x*-ray powder pattern does not match that of any known Te mineral; the strongest lines (Å) are 8.1 (vs), 4.04 (s), 2.75 (s).
- (3) Manganese-zinc tellurite or tellurate is a red to purple mineral occurring in platy masses. Spectrographic analysis showed only Mn, Zn, and Te as major constituents. *G*. (on 20 mg.)  $5.01 \pm 0.02$ . Optically biaxial, positive,  $\beta 1.89$ ,  $\gamma > 2.10$ , 2V 60° (estimated). The *x*-ray powder data differ from those of known Te minerals; the strongest lines (Å) are 2.98 (vs), 3.30 (s), 1.62 (s), 4.00 (s-), 4.93 (ms), 2.21 (ms).
- (4) Manganese tellurite or tellurate occurs as pale green to colorless platy masses and occasionally as small euhedral platy crystals, of octagonal shape. Spectrographic analysis shows major Mn and Te, less Zn. The physical properties are variable, indicating an isomorphous series. Average values are *G*. 5.05,  $\alpha$  and  $\beta$  approximately 1.89,  $\gamma$  about 2.0, 2V 15° (estimated), optically biaxial, positive. The strongest *x*-ray spacings (Å) are 2.03 (s), 3.36 (s-), 2.61 (s-).

- (5) Iron tellurite or tellurate occurs as red-brown botryoidal coatings. Spectrographic analysis showed only Fe and Te as major constituents. Amorphous to  $x$ -rays.  $G_c$  about 3.7. Optically very weakly anisotropic with mean  $n$  1.885  $\pm$  0.005.

M. F.

#### Carbocernaite

A. G. BULAKH, V. V. KONDRAT'eva, AND E. N. BARANOVA. Carbocernaite, a new rare earth carbonate: *Zapiski Vses. Mineralog. Obshch.*, 90, 42-49 (1961) (in Russian).

Analysis was made by E. N. B. on a 0.4 g. sample containing not more than 2-3% total of impurities (chlorite, pyrite, sphalerite, and hydrous Fe oxides). It gave CaO 15.10, SrO 12.43, BaO 3.20, rare earths 26.10, Na<sub>2</sub>O 5.11, CO<sub>2</sub> 31.82, H<sub>2</sub>O<sup>+</sup> 2.10, H<sub>2</sub>O<sup>-</sup> 0.30, F, Cl, not found, Fe<sub>2</sub>O<sub>3</sub> 1.50, Al<sub>2</sub>O<sub>3</sub> 0.30, insol. 1.40, sum 99.36%. Spectrographic analysis showed also Mn and Zn about 0.01%. Chromatographic analysis by K. A. Baklanova of the rare earths gave La<sub>2</sub>O<sub>3</sub> 42.40, CeO<sub>2</sub> 42.40, Nd<sub>2</sub>O<sub>3</sub> 8.50, Sm<sub>2</sub>O<sub>3</sub> 4.25, Y<sub>2</sub>O<sub>3</sub> 2.90, sum 100.05%. The analysis corresponds to the formula (Ca<sub>0.37</sub> Na<sub>0.23</sub> TR<sub>0.25</sub> Sr<sub>0.16</sub> Ba<sub>0.08</sub>)<sub>1.01</sub> CO<sub>3</sub>, neglecting the water. The mineral is easily soluble in dilute HCl. A D.T.A. curve, by V. P. Ivanova, shows two sharp endothermal effects at 650° and 950°, a small endothermal effect at 700°, and a minimum at 1200°. The double endothermal effect suggests that the mineral may be a double salt like dolomite.

Goniometric study shows carbocernaite to be orthorhombic with {100} most prominent, {010}, {001}, {021}, {540}, and {210} minor, {305} and {210} vicinal. Laue and oscillation photographs showed the mineral to be orthorhombic, space group not given,  $a$  6.39  $\pm$  0.01,  $b$  7.27  $\pm$  0.02,  $c$  5.21  $\pm$  0.01 kX,  $a:b:c=0.8791:1:0.7166$ ,  $Z=4(\text{RCO}_3)$ . Cleavage poor in three directions: {100}, {021}, {010}.

Indexed  $x$ -ray powder data are given (59 lines) (on coarse material; fine grinding caused poor reflections). The strongest lines are 3.00 (10)(021), 2.015 (9)(202), 1.813 (8)(231), 1.174 (8, diffuse) (252), 2.60 (7, diffuse) (002), 2.29 (7, diffuse)(112), 1.278 (7)(500).

Colorless, transparent, but turbid white, yellowish, rose, or brown when altered. Luster vitreous on crystal faces, greasy on fractures.  $H$ . 3, brittle.  $G$  (pycnometer) 3.53, calcd. 3.53. Optically biaxial, negative,  $n_s \alpha$  1.569,  $\beta$  1.679,  $\gamma$  1.708 (all  $\pm$  0.002),  $2V$  (calcd.) 52°, dispersion marked  $r > v$ ,  $X=b$ ,  $Y=a$ .

The mineral occurs in dolomite-calcite carbonatite veins 0.5-1 m. in width in pyroxenites and ijolites of the Vuorjärvi massif, Kola Peninsula, as accessory grains and as crystals on walls of cavities, closely associated with chlorite and ankerite. Other associated minerals are sphalerite, galena, pyrite, and barite, and in the cavities alstonite, anatase, quartz, and zeolites.

The name is for the chemical composition.

DISCUSSION.—Very close in composition to burbankite (Pecora and Kerr, *Am. Mineral.*, 38, 1169-1183 (1953)), and the structures may be related (burbankite has  $a$  10.53 Å = nearly twice  $c$  of carbocernaite, and  $c$  6.47 Å = nearly  $a$  of carbocernaite). It would be interesting to study the thermal relationship further. The differences in optical properties (birefringence of burbankite=0.012) suggest a very different arrangement of the carbonate groups.

M. F.

#### Vlasovite

R. P. TIKHONENKOVA AND M. E. KAZAKOVA. Vlasovite, a new zirconium silicate from the Lovozero massif. *Doklady Akad. Nauk S.S.S.R.*, 137, no. 4, 944-946 (1961) (in Russian).

Analysis by M.E.K. gave SiO<sub>2</sub> 55.76, ZrO<sub>2</sub> 28.11 (including HfO<sub>2</sub> 1.7), TiO<sub>2</sub> trace, Nb<sub>2</sub>O<sub>5</sub> 0.33, Al<sub>2</sub>O<sub>3</sub> 0.20, Fe<sub>2</sub>O<sub>3</sub> 0.10, FeO none, MgO 0.06, MnO trace, CaO 0.49, rare earths

none, Na<sub>2</sub>O 14.03, K<sub>2</sub>O 0.68, H<sub>2</sub>O<sup>-</sup> 0.09, H<sub>2</sub>O<sup>+</sup> 0.32, F 0.20, sum 100.37—(O=F<sub>2</sub> 0.08) =100.29%, corresponding closely to Na<sub>2</sub>ZrSi<sub>4</sub>O<sub>11</sub>. Spectrographic analysis showed traces of Be, Pb, Cu, and Sn. The mineral is nearly insoluble in HCl and HNO<sub>3</sub>, dissolves easily in a mixture of HF and H<sub>2</sub>SO<sub>4</sub>.

Vlasovite is colorless; the border zones of large grains (up to 0.5×1×1.5 cm.) are light-brown due to the presence of numerous dust-like inclusions. Luster vitreous to pearly on the cleavage, greasy elsewhere, Hardness 6 (770 kg/mm<sup>2</sup> on the PMT-3 apparatus). G. 2.97 (suspension), altered material had G. 2.95. Colorless material does not luminesce in UV light, altered parts luminesce a strong orange-yellow. Optically biaxial, negative, with *ns*:  $\alpha$  1.607,  $\beta$  1.623,  $\gamma$  1.628, 2V 50–56°, plane of optic axes parallel to a distinct cleavage on (010). Dispersion distinct,  $r > v$ .

X-ray study by N. G. Batalieva and A. A. Voronkov showed vlasovite to be monoclinic, space group not given,  $a$  10.98±0.04,  $b$  10.00±0.04,  $c$  8.52±0.03 Å,  $\beta$  100°24′±10′,  $Z=4$ . Unindexed *x*-ray powder data are given (52 lines); the strongest lines are 3.26 (100), 2.966 (94), 5.02 (72), 3.37 (61), 2.173 (61), 2.723 (49), 1.951 (49), 3.68 (45). Cleavages (010) distinct, a second imperfect cleavage at an angle of 88° to the first was observed under the microscope. Fracture irregular to conchoidal.

Vlasovite occurs near Mt. Vavnbed, Lovozero massif, Kola Peninsula, in the contact zone between pegmatites and fenites (arfvedsonitic alkalic syenites with eudialyte). It was formed in areas of strongly microclinized and albitized rock by replacement of eudialyte. Associated minerals include microcline, albite, arfvedsonite, aegirine, eudialyte, apatite, and fluorite.

The name is for K. A. Vlasov, Russian mineralogist and geochemist, who has done much work on the Lovozero Massif.

DISCUSSION.—This is the Zr analogue of narsarsukite; the latter is tetragonal, however. M. F.

### Kilchoanite

S. O. AGRELL, AND P. GAY. Kilchoanite, a polymorph of rankinite. *Nature*, **189**, No. 4766, 743 (1961).

The mineral was found in limestones thermally metamorphosed by gabbro at Kilchoan, Ardnamurchan, Scotland, and Carlingford, Eire. It corresponds to phase Z (3 Ca<sub>3</sub>Si<sub>2</sub>O<sub>7</sub>·H<sub>2</sub>O) synthesized by D. M. Roy (*Am. Mineral.* **43**, 1009 (1958) and described by Roy and others (*Nature*, **188**, 1187 (1960)). The mineral is colorless, optically biaxial, positive, *ns*  $\alpha$  1.647,  $\gamma$  1.650, 2V 60°, dispersion distinct,  $r > v$ . In thin section the interference colors are commonly weak ultra-blue and ultra-brown.

X-ray data show it to be orthorhombic, space group *Imam* or *Ima2*,  $a$  11.42,  $b$  5.09,  $c$  21.95 Å (all ±0.05 Å) X-ray powder data are given; the strongest lines are 2.89 (s), 2.68 (s), 3.07 (s), 3.56 (ms), 2.36 (ms), 1.964 (ms). When heated at 1000° C. for 10 hours, it inverts to rankinite.

Analysis of material containing no rankinite gave, after deducting all CO<sub>2</sub> as spurrite, the unit cell content



Kilchoanite is associated with rankinite, which it replaces, spurrite, mellite, cuspidine, grossular, wollastonite, and vesuvianite.

The name is for the locality.

M. F.

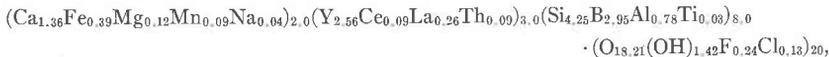
## Spencite

CLIFFORD FRONDEL. Two yttrium minerals: spencite and rowlandite: *Canadian Mineralogist*, **6**, Pt. 5, 576-581 (1961).

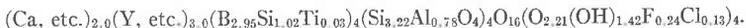
The mineral was collected by H. S. Spence in 1934 from a prospect pit in Cardiff Township, Haliburton County, Ontario. It occurs as masses in a narrow pegmatite stringer in a vuggy pyroxenite, associated with calcite, red apatite crystals, diopside, purple fluorite, and wernerite. About 24 pounds of pure material was obtained. Cracks in the mineral contain a fine-grained white carbonate high in yttrium.

Analysis by C. O. Ingamells on 15 g. gave SiO<sub>2</sub> 24.89, B<sub>2</sub>O<sub>3</sub> 10.04, P<sub>2</sub>O<sub>5</sub> 0.02, TiO<sub>2</sub> 0.27, Al<sub>2</sub>O<sub>3</sub> (including very little BeO) 3.87, Fe<sub>2</sub>O<sub>3</sub> (total Fe) 3.22, MnO 0.60, MgO 0.50, CaO 7.81, SrO 0.05, Na<sub>2</sub>O 0.11, K<sub>2</sub>O 0.01, ΣY<sub>2</sub>O<sub>3</sub> 28.20, Ce<sub>2</sub>O<sub>3</sub> 1.44, ΣLa<sub>2</sub>O<sub>3</sub> 4.16, ThO<sub>2</sub> 2.44, Cl 0.45, F 0.44, H<sub>2</sub>O<sup>+</sup> 9.82, H<sub>2</sub>O<sup>-</sup> 1.93, sum 100.27 - (O = F<sub>2</sub>, Cl<sub>2</sub>) 0.28 = 99.99%. Spectrographic analysis by H. Bastron gave 10.0% B<sub>2</sub>O<sub>3</sub>. X-ray spectrographic analysis showed that ΣY<sub>2</sub>O<sub>3</sub> is nearly all Y with very small amounts of the other elements, mainly Gd, Er, and Ho, and ΣLa<sub>2</sub>O<sub>3</sub> shows only small amounts of the other elements, chiefly Nd. Optical and x-ray spectrographic analysis showed traces of U, Sn, Cu, Pb, Ni, Co, Zr, and Sc.

Calculating all the iron as divalent, Frondel recasts the analysis as



or in the structural form of the datolite group, as



The mineral is dark reddish brown to brownish-black, translucent in thin splinters, powder greenish gray. Luster weakly vitreous. Metamict, gives no x-ray diffraction pattern. Isotropic,  $n$  1.627-1.653, mostly near 1.630. H.  $3\frac{1}{2}$ , G. 3.05. When heated in air at 325° for 46 hours was still isotropic, gave no diffraction pattern and the average  $n$  increased to 1.640 and G. to 3.20. The mineral decomposes at about 450-550°; heated in N<sub>2</sub> at 700-900° gave a light porous to slaggy mass; heated at 1050° gave a yellowish-white sintered mass; the x-ray pattern of the latter could not be identified.

The name is for Hugh S. Spence, Canadian Mineralogist.

M. F.

## Hexastannite

PAUL RAMDOHR. Die Erzminerale und ihre Verwachsungen, 3rd Ed., 1960, p. 514-515.

Name given, in analogy to the isotropic "isostannite" (of which a complete description has not yet been published), to "Zinnkies?" I, one of the many varieties of "stannite" recognized in microscopic work. Occurs partly as a product of unmixing, partly as a replacement of stannite with addition of Cu, rarely independently. Hexagonal, wurtzite-structure,  $a$  3.84,  $c$  12.6 Å, formula Cu<sub>3</sub>Fe<sub>2</sub>Sn<sub>6</sub>. Optical data are given.

DISCUSSION.—It would have been preferable not to name the mineral until more data were obtained.

M. F.