

## NEW MINERAL NAMES\*

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### Niobocarbide\*

M.I. Novgorodova, M.E. Generalov, N.V. Trubkin (1997)

The new TaC-NbC isomorphous row and niobocarbide—a new mineral from platinum placers of the Urals. Zapiski Vseross. Mineral. Obshch., 126(1), 76–95 (in Russian, English abs.).

The mineral occurs as cubic and octahedral crystals and rounded grains, to 0.2 mm, in Pt placers in the Nizhnetagilsky district, middle Urals, Russia. Bronze to straw-yellow color, opaque, bright metallic luster, no cleavage,  $VHN_{50} = 1870$  (1850–1900),  $D_{\text{calc}} = 9.3 \text{ g/cm}^3$  for  $Z = 4$ . Light cream to pink cream color in reflected light, isotropic. Reflectance percentages in air (Si standard) are given in 20 nm steps from 400 to 700 nm; representative values are 40.0 (460), 42.4 (480), 47.9 (540), 49.0 (560), 51.0 (580), 54.0 (600), 55.3 (640), and 55.9 (660). Electron microprobe analysis of 21 grains gave an average and range of Ta 47.50 (27.55–57.10), Nb 42.50 (31.66–60.82), W 2.49 (0.48–4.55),  $C_{\text{calc}} = 8.58$  (7.83–9.80) wt%, corresponding to  $\text{Nb}_{0.80}\text{Ta}_{0.14}\text{W}_{0.01}\text{C}$  and  $\text{Nb}_{0.52}\text{Ta}_{0.48}\text{C}$  for the range. Electron diffraction patterns indicated cubic symmetry, space group  $Fm\bar{3}m$ ,  $a = 4.45 \text{ \AA}$ . Strongest lines of the powder pattern (114 mm camera, Fe radiation) are 2.56(110,111), 2.22(90,200), 1.574(80,220), 1.343(80,311), 1.289(70,222), and 1.115(30,400).

The mineral is part of the material collected by P. Walther at the turn of the 20<sup>th</sup> century and housed at the Fersman Mineralogical Museum, Moscow. The new name alludes to the composition, which is the Nb analog of “tantalcabide”.

**Discussion.** The status of “tantalcabide” as a valid species has been uncertain, but the authors list numerous new analyses that indicate solid solution from  $\text{Ta}_{0.95}\text{Nb}_{0.05}\text{C}$  to  $\text{Ta}_{0.51}\text{Nb}_{0.49}\text{C}$ ; thus, there seems to be a complete series from “tantalcabide” to niobocarbide. **V.A.K.**

### Phosphogartrellite\*

W. Krause, K. Belendorff, H.-J. Bernhardt, K. Petitjean (1998) Phosphogartrellite,  $\text{PbCuFe}(\text{PO}_4)_2(\text{OH})\cdot\text{H}_2\text{O}$ , a new member of the tsumcorite group. Neues Jahrb. Mineral. Mon., 111–118.

Electron microprobe analysis gave PbO 39.02, CaO 0.20,  $\text{Fe}_2\text{O}_3$  14.14, CuO 14.41,  $\text{P}_2\text{O}_5$  22.05,  $\text{As}_2\text{O}_5$  4.58,  $\text{H}_2\text{O}$  (calc.) 4.83, sum 99.23 wt%, corresponding to  $\text{Pb}_{0.99}\text{Ca}_{0.02}\text{Cu}_{1.02}\text{Fe}_{1.00}(\text{PO}_4)_{1.75}(\text{AsO}_4)_{0.23}(\text{OH})_{1.12}(\text{H}_2\text{O})_{0.96}$ . Absorption bands attributable to OH/ $\text{H}_2\text{O}$  are present in the IR spectrum. The mineral occurs as bright green aggregates, up to 0.2 mm across, in which intergrown tabular individuals are <50  $\mu\text{m}$  long. Yellow streak, vitreous to adamantine luster, transparent, no cleavage, nonfluorescent,  $H = 4\frac{1}{2}$ ,  $D_{\text{calc}} = 5.05 \text{ g/cm}^3$  for  $Z = 1$ . Optically biaxial positive,  $\alpha = 1.90(2)$ ,  $\beta_{\text{calc}} = 1.93$ ,  $\gamma = 2.00(2)$ ,  $2V_z = 70(5)^\circ$ , no distinct pleochroism or dispersion. The X-ray powder pattern (diffractometer,  $\text{CuK}\alpha_1$  radiation) is similar to that of gartrellite, and indexing by analogy gave a triclinic cell, space group  $P\bar{1}$ ,  $a = 5.320(2)$ ,  $b = 5.528(2)$ ,  $c = 7.434(3) \text{ \AA}$ ,  $\alpha = 67.61(3)$ ,  $\beta = 69.68(5)$ ,  $\gamma = 70.65(4)^\circ$ . Strongest lines of the pattern are 4.720(67,011), 4.502(61,101), 4.360(100,111), 3.250(70,012), 2.884(89,111) and 2.868(69,111).

The mineral is associated with hentschelite, pyromorphite, malachite, and cuprite that occur as oxidation products on samples of silicified barite veins at Hohenstein (type locality) and Odenwald, Germany. Type material is in the Institut für Mineralogie, Ruhr-Universität Bochum, Germany.

**Discussion.** Although stated to be the phosphate analog of gartrellite, and named accordingly, the formula of phosphogartrellite is not strictly analogous to that of gartrellite. **J.L.J.**

### Rambergite\*

M.E. Böttcher, H. Huckriede (1997) First occurrence and stable isotope composition of authigenic  $\gamma$ -MnS in the central Gotland Deep (Baltic Sea). Marine Geol., 137, 201–205.

M.P. Kalinowski (1996) Rambergite, a new polymorph of MnS with hexagonal structure. Geol. Fören. Förh., 118, A53–A54.

The mineral, which coexists with globules of rhodochrosite in anoxic, laminated, Baltic Sea sediments rich in organic matter, occurs as idiomorphic hexagonal crystals about 200  $\mu\text{m}$  long and 150  $\mu\text{m}$  wide; sulfur isotopic analysis indicates derivation of the S by reduction of sulfate. Also occurs in cavities in amphibole skarn in the Garpenberg area, Dalarna, Sweden, associated with fluorite, apophyllite, calcite, barite, sphalerite, galena, pyrite,

\* Before publication, minerals marked with an asterisk were approved by the Commission on New Minerals and Mineral Names, International Mineralogical Association.

samsonite, pyrargyrite, pyrrhotite, and freibergite. Crystals in skarn are up to 1.5 mm long, showing  $\{10\bar{1}0\}$  and  $\{0001\}$ , with rare, small  $\{10\bar{1}1\}$ . Dark brown to black color, resinous luster, brown streak, brittle, uneven fracture,  $\{11\bar{2}0\}$  and  $\{0001\}$  cleavages observed in polished section,  $H = 4$ . Electron-microprobe analyses (not given) correspond to  $(\text{Mn}_{0.950}\text{Fe}_{0.030}\text{Sb}_{0.004}\text{Zn}_{0.002}\text{Ag}_{0.002})_{\Sigma 0.988}\text{S}_{1.000}$ . Steel gray in reflected light, low reflectance, brown-red internal reflection. Hexagonal symmetry, space group  $P6_3mc$ ,  $a = 3.975(5)$ ,  $c = 6.433(6)$  Å. The powder pattern has lines at 3.445(89), 3.217(72), 3.036(66), 2.350(32), 1.988(82), 1.820(100), 1.721(18), 1.691(63), and 1.66(17). The name is for Hans Ramberg, former professor of mineralogy and petrology at Uppsala University.

**Discussion.** A complete description has not been published. Additional data on optical properties are given in the abstract for mineral IMA No. 95-028. **J.L.J.**

#### Saddlebackite\*

R.M. Clarke (1997) Saddlebackite,  $\text{Pb}_2\text{Bi}_2\text{Te}_2\text{S}_3$ , a new mineral species from the Boddington gold deposit, Western Australia. *Austral. J. Mineral.*, 3(2), 119–124.

Electron microprobe analysis gave Pb 35.10, Bi 34.40, Te 23.12, S 7.94, sum 100.56 wt%, corresponding to  $\text{Pb}_{2.00}\text{Bi}_{1.94}\text{Te}_{2.14}\text{S}_{2.92}$ . Occurs as anhedral grains up to 2 mm; gray color, black streak, metallic luster, platy to flaky habit, perfect  $\{0001\}$  cleavage, uneven fracture, sectile, inelastic but flexible,  $VHN_{30} = 42$ ,  $D_{\text{calc}} = 7.61$  g/cm<sup>3</sup> for  $Z = 2$ . Opaque in reflected light, grayish white color, weakly bireflectant, nonpleochroic, faintly anisotropic from gray to yellowish-brownish gray. Reflectance percentages for  $R_o$  and  $R_E$  (WTiC standard, in air) are 40.4, 39.3 (470 nm), 42.1, 40.8 (546), 41.3, 40.8 (589), and 41.9, 40.9 (650). Convergent-beam electron diffraction indicated hexagonal symmetry; cell dimensions deduced by indexing of the X-ray powder pattern (114 mm Debye–Scherrer,  $\text{CoK}\alpha$  radiation) are  $a = 4.230(4)$ ,  $c = 33.43(2)$  Å. Strongest lines of the pattern are 3.35(40,104,0.0.10), 3.06(100,106), 2.22(25,1.0.12), 2.115(50,110), 1.311(25,1.1.20), and 1.213(25,303).

The mineral is intergrown with gold, aleksite, tsumoite, altaite, galena, and other sulfides and sulfotellurides in quartz at the Boddington Au mine, 100 km southeast of Perth. The new name refers to the Saddleback greenstone belt (Archean), within which the Boddington Au deposit is located. Type material is in the Western Australian Museum at Perth.

**Discussion.** See also *Am. Mineral.* 81, p. 1285 (1996) for an abstract of a mineral that has the same composition but different properties. **J.L.J.**

#### Sudovikovite\*

Y.S. Polekhovskiy, I.P. Tarasova, A.P. Nesterov, Y.A. Pakhomovskiy, A.Y. Bakhchisaraitsev (1997)  $\text{PtSe}_2$ —a new platinum selenide from southern Karelia metasomite. *Doklady Akad. Nauk*, 354(1), 82–85 (in Russian).

The mineral occurs as irregular grains, to 180  $\mu\text{m}$ , in clausenthalite in a dolomite-roscelite veinlet at the Srednaya Padma U-V deposit, Karelia, Russia. Electron microprobe analysis (mean of 12 listed) gave Pt 53.38, Pd 2.52, Se 43.70, sum 99.60 wt%, corresponding to  $(\text{Pt}_{0.99}\text{Pd}_{0.08})_{\Sigma 1.07}\text{Se}_{2.00}$ , ideally  $\text{PtSe}_2$ . Opaque, metallic luster, white with a yellowish tint,  $VHN_{20} = 87$  (81–93). White in reflected light; strong bireflectance, with pleochroism light yellow at  $R_{\text{max}}$  and light lilac at  $R_{\text{min}}$ . Strongly anisotropic, with polarization colors of rose-yellow to dark gray-lilac. Reflectance percentages (Si standard, air) are given in 20 nm steps from 400 to 700 nm; representative  $R_{\text{max}}$  and  $R_{\text{min}}$  values are 48.4, 35.1 (470), 48.3, 35.1 (546), 49.1, 35.3 (589), and 50.8, 36.5 (650). Indexing of the X-ray powder pattern, by analogy with that of synthetic  $\text{PtSe}_2$ , gave trigonal symmetry, space group  $P\bar{3}m1$ ,  $a = 3.730(7)$ ,  $c = 5.024(17)$  Å,  $D_{\text{calc}} = 9.7$  g/cm<sup>3</sup> for  $Z = 1$ . Strongest lines (57 mm camera,  $\text{FeK}\alpha$  radiation) are 5.04(30,001), 2.715(100,101), 1.983(50,102), 1.859(50,110), 1.747(30,111), and 1.360(40,202).

The mineral is associated with clausenthalite, guanajuatite, insizwaite, padmaite, bohdanowiczite, sobolevskite, froodite, polarite, bismuth, gold, roscelite, dolomite, quartz, and unnamed  $\text{PtBiSe}$  and  $\text{PtCoCu}(\text{Se},\text{S})_4$ . The new name is for Russian petrologist N.G. Sudovikov (1903–1966). Type material is in the Mining Museum of the Saint Petersburg Mining Institute, Russia. **V.A.K.**

#### Velikite\*

V.S. Gruzdev, V.Y. Volgin, E.M. Spiridonov, T.L. Evstigneeva, Y.K. Kabalov, V.I. Sorokin, E.G. Osadchyi, T.N. Chvileva, N.M. Chernizova (1997) Velikite  $\text{Cu}_2\text{HgSnS}_4$  (mercurian member of the stannite group)—a new mineral. *Zapiski Vseross. Mineral. Obshch.*, 126(4), 71–75 (in Russian).

The mineral occurs as small grains and tetragonal-scalenohedral crystals, mostly 0.2–0.4 mm and up to 1 mm in size. The mean of 11 electron microprobe analyses for sample 1, and the mean of five analyses for sample 2 gave, respectively, Cu 23.26, 22.69, Ag 0.19, –, Hg 29.99, 31.92, Cd 0.16, –, Zn 2.54, 2.03, Fe 0.01, 0.02, Mn 0.02, 0.02, Pb 0.10, –, Sn 19.90, 20.74, Ge 0.61, –, As 0.37, –, Sb 0.21, –, Te 0.05, –, S 23.08, 23.03, Se 0.10, –, sum 100.59, 100.41 wt%, corresponding to  $\text{Cu}_{2.00}\text{Ag}_{0.01}(\text{Hg}_{0.82}\text{Cd}_{0.01}\text{Zn}_{0.21})_{\Sigma 1.04}(\text{Sn}_{0.92}\text{Ge}_{0.04}\text{As}_{0.03}\text{Sb}_{0.01})_{\Sigma 1.00}\text{S}_{3.94}\text{Se}_{0.01}$  and  $\text{Cu}_{1.98}(\text{Hg}_{0.88}\text{Zn}_{0.17})_{\Sigma 1.05}\text{Sn}_{0.98}\text{S}_{3.99}$ . Opaque, dark gray color, metallic luster,  $VHN_{30} = 270$  (215–305), no cleavage,  $D_{\text{meas}} = 5.45$ , 5.59,  $D_{\text{calc}} = 5.450$ , 5.537 g/cm<sup>3</sup> for samples 1 and 2, respectively. Greenish gray to light gray in reflected light, no internal reflection, weakly bireflectant, moderately anisotropic. Reflectance percentages (Si standard, air) are given in 20 nm steps from 420 to 700 nm; representative values for  $R_{\text{max}}$  are 26.0 (470), 26.3 (546), 25.9 (589), and 24.8 (650). X-ray study, including Rietveld analysis, indicated tetragonal symmetry, space group  $\bar{I}4$ ,  $a = 5.560(5)$ ,  $c = 10.905(10)$  Å for sample 1, which has strongest lines (114 mm camera,  $\text{CuK}\alpha$

radiation) of 3.17(100,112), 1.958(25,220), 1.941(80,204), 1.671(40,312), 1.646(35,116), and 1.264(25,316).

The mineral is associated with quartz, fluorite, stibnite, mercurian sphalerite, metacinnabar, pyrite, aktashite, and livingstonite in the Khaidarken Hg deposit in Kirghizia (39°58' N, 71°15' E). The new name is for A.S. Velikiy (1913–1970), a well known investigator of Middle Asia geology. Type material is in the Fersman Mineralogical Museum, Moscow.

**Discussion.** See also the abstract for the same mineral in *Am. Mineral.*, 75, p. 933 (1990). **V.A.K.**

### FeNb<sub>3</sub>S<sub>6</sub>

A.Y. Barkov, K.V.O. Laajoki, Y.P. Men'shikov, T.T. Alapieti, S.J. Sivonen (1997) First terrestrial occurrence of titanium-rich pyrrhotite, marcasite and pyrite in a fenitized xenolith from the Khibina alkaline complex, Russia. *Can. Mineral.*, 35, 875–885.

Electron microprobe analysis gave Fe 9.48, Nb 54.10, V 0.39, Ti 0.06, Mn 0.08, S 36.30, sum 100.41 wt%, corresponding to  $(\text{Fe}_{0.896}\text{V}_{0.040}\text{Ti}_{0.007}\text{Mn}_{0.008})_{\Sigma 0.951}\text{Nb}_{3.074}\text{S}_{5.976}$  ideally FeNb<sub>3</sub>S<sub>6</sub>. Occurs as platy crystals, to 0.15 mm across, and as aggregates up to 0.5 mm across, typically at the margins of pyrrhotite in a heterogeneous xenolith within nepheline syenite at the Khibina alkaline complex, Russia.

**Discussion.** The authors report that the mineral has been approved by the CNMMN as edgarite, and that a complete description will be published at a later date. Additional data are in the published summary for IMA mineral No. 95-017. **J.L.J.**

### PbBi<sub>4</sub>Te<sub>4</sub>S<sub>3</sub>(?)

R.M. Clarke (1997) Saddlebackite, Pb<sub>2</sub>Bi<sub>2</sub>Te<sub>2</sub>S<sub>3</sub>, a new mineral species from the Boddington gold deposit, Western Australia. *Austral. J. Mineral.*, 3(2), 119–124.

Electron microprobe analysis of three grains of a mineral that occurs sparingly with saddlebackite and associated sulfotellurides gave Pb 12.52, Bi 49.27, Te 33.84, S 5.63, sum 101.26 wt%, corresponding to Pb<sub>0.98</sub>Bi<sub>3.84</sub>Te<sub>4.32</sub>S<sub>2.86</sub>, possibly PbBi<sub>4</sub>Te<sub>4</sub>S<sub>3</sub>. **J.L.J.**

### Ca-Ce fluorocarbonates

Xiuling Wu, Dawei Meng, Zhaolu Pan, Guangming Yang (1998) Transmission electron microscopic study of new, regular, mixed-layer structures in calcium–rare-earth fluorocarbonate minerals. *Mineral. Mag.*, 62, 55–64.

Electron diffraction and TEM studies of fluorocarbonate minerals from a REE mineral deposit within an aegirine alkali granite massif in Sichuan Province, southwestern China, have revealed the presence of regular, mixed-layer structures in parisite-(Ce). Two compounds of formula Ca<sub>6</sub>Ce<sub>14</sub>(CO<sub>3</sub>)<sub>20</sub>F<sub>14</sub> are hexagonal,  $a = 7.07$ ,  $c =$

$94.20 \text{ \AA}$  and  $a = 7.13$ ,  $c = 94.20 \text{ \AA}$ , space group  $P6/m$ ,  $P6$ , or  $P\bar{6}$ , but differ in the arrangements of the layers and their stacking sequences. Of the two compounds corresponding to Ca<sub>6</sub>Ce<sub>16</sub>(CO<sub>3</sub>)<sub>22</sub>F<sub>16</sub>, one is hexagonal, space group  $P6/m$ ,  $P6$ , or  $P\bar{6}$ ,  $a = 7.03$ ,  $c = 10.362$ , and the other is rhombohedral, space group  $R3m$ ,  $R32$ , or  $R\bar{3}m$ ,  $a = 7.10$ ,  $c = 310.86$ . Two compounds of composition Ca<sub>4</sub>Ce<sub>11</sub>(CO<sub>3</sub>)<sub>15</sub>F<sub>11</sub> are rhombohedral, one with  $a = 7.03$ ,  $c = 211.95$ , space group  $R3$  or  $R\bar{3}$ , and the other with  $a = 7.10$ ,  $c = 211.95$ , space group  $R3m$ ,  $R32$ , or  $R\bar{3}m$ . The maximum dimension of the minerals is about 0.5 μm. **J.L.J.**

### Hyalotekite, Pb analog

A.G. Christy, E.S. Grew, S.C. Mayo, M.G. Yates, D.I. Belakovskiy (1998) Hyalotekite, (Ba,Pb,K)<sub>4</sub>(Ca,Y)<sub>2</sub>Si<sub>8</sub>(B,Be)<sub>2</sub>(Si,B)<sub>2</sub>O<sub>28</sub>F, a tectosilicate related to scapolite: new structure refinement, phase transitions and a short-range ordered 3b superstructure. *Mineral. Mag.*, 62, 77–92.

Hyalotekite from Långban, Sweden, including the holotype specimen, is variable in composition and is in part Pb-dominant. Electron and ion microprobe analyses of Pb-rich portions gave SiO<sub>2</sub> 37.76, 39.41, FeO 0.00, 0.01, MnO 0.19, 0.15, CaO 7.54, 7.47, K<sub>2</sub>O 0.60, 1.09, Na<sub>2</sub>O 0.01, 0.03, PbO 28.23, 28.83, BaO 18.80, 17.98, BeO 0.28, 0.33, B<sub>2</sub>O<sub>3</sub> 5.05, 4.56, Y<sub>2</sub>O<sub>3</sub> 0.07, 0.11, F 1.24, 1.32, O ≡ F 0.54, 0.56, sum 99.25, 100.73 wt%, corresponding to  $(\text{Pb}_{1.92}\text{Ba}_{1.86}\text{K}_{0.19})_{\Sigma 3.97}(\text{Ca}_{2.04}\text{Mn}_{0.04}\text{Na}_{0.01}\text{Y}_{0.01})_{\Sigma 2.10}(\text{Si}_{9.53}\text{B}_{2.20}\text{Be}_{0.17})_{\Sigma 11.90}\text{O}_{28.5}\text{F}_{0.99}$  and  $(\text{Pb}_{1.92}\text{Ba}_{1.74}\text{K}_{0.34})_{\Sigma 4.00}(\text{Ca}_{1.98}\text{Mn}_{0.03}\text{Na}_{0.01}\text{Y}_{0.01})_{\Sigma 2.03}(\text{Si}_{9.75}\text{B}_{1.95}\text{Be}_{0.20})_{\Sigma 11.90}\text{O}_{28.5}\text{F}_{1.03}$ . **J.L.J.**

### New Data

#### Coeruleolactite

E.E. Foord, J.E. Taggart, Jr. (1998) A reexamination of the turquoise group: the mineral aheylite, planerite (redefined), turquoise and coeruleolactite. *Mineral. Mag.*, 62, 93–111.

In the Al members of the turquoise group, A sites are occupied by Cu (= turquoise), Zn (= faustite), Fe<sup>2+</sup> (= aheylite), □ (= planerite), and Ca (= coeruleolactite). Despite substantial efforts, no sample corresponding to the composition of coeruleolactite has been found, and the existence of the mineral is doubtful. **J.L.J.**

#### Doyleite

G.R. Clark, K.A. Rodgers, G.S. Henderson (1998) The crystal structure of doyleite, Al(OH)<sub>3</sub>. *Zeits. Kristallogr.*, 213(2), 96–100.

Single-crystal X-ray structure study ( $R = 0.044$ ) gave triclinic symmetry,  $a = 4.9997(8)$ ,  $b = 5.1681(6)$ ,  $c = 4.9832(6) \text{ \AA}$ ,  $\alpha = 97.444$ ,  $\beta = 118.688$ ,  $\gamma = 104.661^\circ$ ,

$D_{\text{calc}} = 2.48 \text{ g/cm}^3$  for  $Z = 2$ ; the space group was established to be  $P\bar{1}$ . **J.L.J.**

### Illite

M. Zöller, O. Brockamp (1997)  $1M$  and  $2M_1$ -illites: different minerals and not polytypes. *Eur. J. Mineral.*, 9, 821–827.

Wet-chemical analysis of the  $<2 \mu\text{m}$  fraction of a bulk sample consisting of about 80% illite and 10% each of quartz and feldspar gave, after deduction for the last two, a composition corresponding to  $\text{K}_{1.66}\text{Na}_{0.22}(\text{Al}_{3.10}\text{Fe}_{0.40}\text{Mg}_{0.39})\text{(Si}_{6.63}\text{Al}_{1.37})\text{O}_{20}(\text{OH})_4$ . TEM examination showed the presence of both lath-like ( $1M$  illite type) and hexagonal-shaped grains ( $2M_1$  illite type), for which average compositions are  $\text{K}_{1.43}(\text{Al}_{3.27}\text{Fe}_{0.40}\text{Mg}_{0.33})\text{(Si}_{6.90}\text{Al}_{1.10})\text{O}_{20}(\text{OH})_4$  and  $\text{K}_{1.67}(\text{Al}_{3.29}\text{Fe}_{0.38}\text{Mg}_{0.32})\text{(Si}_{6.68}\text{Al}_{1.32})\text{O}_{20}(\text{OH})_4$ . Despite their co-crystallization, the compositional fields of the two types are sharply demarcated, thus indicating the presence of two minerals rather than polytypic variation. The source of the material studied is a layer of clay gouge, 3 m thick, along the side of the Käfersteige hydrothermal fluorite vein deposit, northern Black Forest, Germany.

**Discussion.** As is noted by the authors, the status of “illite” has not yet been defined by the AIPEA nomenclature committee. **J.L.J.**

### Lizardite

C. Viti, M. Mellini (1997) Contrasting chemical compositions in associated lizardite and chrysotile in veins from Elba, Italy. *Eur. J. Mineral.*, 9, 585–596.

Serpentinic veins consisting of chrysotile and well-crystallized lizardite at the Monte Fico quarries, Elba Island, Italy, show that chrysotile is transformed to polygonal serpentine, and thence to lizardite. Chemical data indicate that a compositional gap separates lizardite and chrysotile, with the former systematically enriched in Al and Fe. Thus, the two minerals should be regarded as separate species rather than polymorphs. **J.L.J.**

### Raite

J.J. Pluth, J.V. Smith, D.Y. Pushcharovsky, E.I. Semenov, A. Bram, C. Riekel, H.-P. Weber, R.W. Broach (1997) Third-generation synchrotron X-ray diffraction of  $6\text{-}\mu\text{m}$  crystal of raite,  $\approx\text{Na}_3\text{Mn}_3\text{Ti}_{0.25}\text{Si}_8\text{O}_{20}(\text{OH})_2 \cdot 10\text{H}_2\text{O}$ , opens up new chemistry and physics of low-temperature minerals. *Proceedings Nat. Acad. Sci. USA*, 94, 12263–12267.

Single-crystal X-ray structure study ( $R = 0.07$ ) of raite from the Yubileynaya pegmatite, Lovozero alkaline massif, Kola Peninsula, Russia, indicated monoclinic symmetry, space group  $C2/m$ ,  $a = 15.1(1)$ ,  $b = 17.6(1)$ ,  $c = 5.290(4)$  Å,  $\beta = 100.05(2)^\circ$ ,  $D_{\text{calc}} = 2.39 \text{ g/cm}^3$  for the

tentative structural formula given above. The unit cell, symmetry, and formula are new. **J.L.J.**

### Squawcreekite

N.B. Sergeev, O.V. Kuz'mina, L.V. Zvezdinskaya (1997) Skuokrikite,  $\text{Fe}^{3+}\text{SbO}_4$ , from the Olimpiada deposit in the Enisei Ridge: the first find in Russia. *Trans. Russ. Acad. Sci., Earth Sci. Sections*, 356(7), 1110–1112 (translation of *Doklady Akad. Nauk*, 356(4), 525–527).

The name in the title of the paper is a mistranslated version of squawcreekite, for which this is the second occurrence. Five electron microprobe analyses are listed; the lowest and highest in W, and the range for the five, are CaO 0.2, 0.0 (0.0–0.3), MnO 0.2, 0.1 (0.1–0.3), PbO 0.1, 0.0 (0.0–1.5),  $\text{Fe}_2\text{O}_3$  27.4, 22.3 (21.6–27.9),  $\text{As}_2\text{O}_3$  1.8, 0.0 (0.0–2.0),  $\text{Sb}_2\text{O}_5$  55.2, 40.4 (40.4–55.2),  $\text{WO}_3$  9.4, 29.6, sum 94.3, 92.4 (92.4–94.7) wt%, corresponding to  $(\text{Fe}_{0.90}\text{Sb}_{0.90}\text{W}_{0.11}\text{As}_{0.05}\text{Ca}_{0.01}\text{Mn}_{0.01})_{\Sigma 1.98}\text{O}_4 \cdot 0.83\text{H}_2\text{O}$  and  $(\text{Fe}_{0.78}\text{Sb}_{0.70}\text{W}_{0.36}\text{Mn}_{0.01})_{\Sigma 1.85}\text{O}_4 \cdot 1.18\text{H}_2\text{O}$ . Penfield-method analysis gave  $\text{H}_2\text{O}^- = 0.8$  and  $\text{H}_2\text{O}^+ = 5.12$  wt%. The IR spectrum of squawcreekite, in contrast to that of tripuhyite from the same deposit, shows a wide band from 4000–3000  $\text{cm}^{-1}$  (maximum at 3400–3300  $\text{cm}^{-1}$ ), and additional bands at 1640–1620, 950–930, and 850–840  $\text{cm}^{-1}$ ; the 3400–3300 and 1640–1620 bands are assignable to OH. TGA and DTA curves of a 23 mg sample showed  $\text{H}_2\text{O}$  (wt%) losses in steps: 2.9 up to 125 °C; 0.9 at 125–218 °C; 3.8 at 218–440 °C; 0.5 at 440–560 °C; 0.5 at 560–690 °C; 0.5 at 609–992 °C; total loss 9.1 wt%. The ideal formula is suggested to be  $(\text{Fe}^{3+}\text{Sb}^{5+}\text{W}^{6+})_2\text{O}_4 \cdot \text{H}_2\text{O}$ , whereas squawcreekite was proposed to be anhydrous. **J.L.J.**

### Taranakite

S. Dick, U. Gossner, A. Weiss, C. Robl, G. Grossman, G. Ohms, T. Zeiske (1998) Taranakite—the mineral with the longest crystallographic axis. *Inorg. Chim. Acta*, 269, 47–57.

Single-crystal X-ray structure study ( $R = 0.028$ ) of synthetic taranakite gave rhombohedral symmetry, space group  $R\bar{3}c$ ,  $a = 8.7025(11)$ ,  $c = 95.05(1)$  Å,  $D_{\text{calc}} = 2.145 \text{ g/cm}^3$  for  $Z = 6$ . The structurally determined new formula is  $\text{K}_3\text{Al}_5(\text{HPO}_4)_6(\text{PO}_4)_2 \cdot 18\text{H}_2\text{O}$ . **J.L.J.**

### Vistepite

J. Hybler, V. Petříček, K. Jurek, R. Škrla, I. Čsařová (1997) Structure determination of vistepite  $\text{SnMn}_2\text{B}_2\text{Si}_4\text{O}_{16}(\text{OH})_2$ : isotypism with bustamite, revised crystallographic data and composition. *Can. Mineral.*, 35, 1283–1292.

Electron microprobe analysis gave Sn 13.70, Mn 27.91, CaO 0.71, Fe 0.28, Si 15.21, B 2.50, Al 0.27, O 36.64,  $H_{\text{calc}} = 0.25$ , sum 97.47 wt%, corresponding to  $(\text{Mn}_{3.99}\text{Ca}_{0.13}\text{Fe}_{0.04})_{\Sigma 4.16}\text{Sn}_{0.91}\text{B}_{1.81}(\text{Si}_{4.25}\text{Al}_{0.08})_{\Sigma 4.33}\text{O}_{16}(\text{OH})_2$ . Single-crystal X-ray structure study ( $R = 3.34\%$ ) showed the mineral to



consist of twinned triclinic crystals, with (010) as the composition plane and with [100] the twin axis; space group  $P\bar{1}$ ,  $a = 6.973(2)$ ,  $b = 7.365(2)$ ,  $c = 7.665(1)$  Å,  $\alpha = 89.94(2)$ ,  $\beta = 62.94(2)$ ,  $\gamma = 76.88(2)^\circ$ ,  $D_{\text{calc}} = 3.72$  g/cm<sup>3</sup> for  $Z = 1$ . Strongest lines of the powder pattern (diffractometer,  $\text{CuK}\alpha$  radiation) are  $3.392(100,112,201)$ ,  $3.210(82,01\bar{2})$ ,  $2.934(39,012)$ ,  $2.826(59,2\bar{1}1)$ ,  $2.2300(69,01\bar{3})$ , and  $1.6952(56,224,004)$ . The redefinition involving the new formula and symmetry was approved by the CNMMN. **J.L.J.**

### ReS<sub>2</sub>

N.D. Samotoin, L.O. Magazina, V.S. Znamenskii (1995) Structural-morphological characteristics of natural rhenium disulfide from fumaroles of Kudryavyi Volcano, Iturup, Kurile Islands. *Doklady Akad. Nauk*, 345(4), 518–522 (in Russian).

The mineral occurs as silvery aggregates, to >1 mm,

consisting of lamellar crystals to several hundred micrometers in length and 1–5 μm in width. Electron microprobe analyses by two different instruments gave Re 73.79, 74.78, Mo 0.16, 0.04, Zn 0.02, –, As 0.09, –, Se 0.02, –, S 25.73, 25.26, sum 99.81, 100.08 wt%. Electron diffraction patterns indicated triclinic symmetry,  $a = 6.45$ ,  $b = 6.36$ ,  $c = 6.4$  Å,  $\alpha = 92$ ,  $\beta = 105$ ,  $\gamma = 119^\circ$ . The microdiffraction pattern is in good agreement with data for synthetic ReS<sub>2</sub>. The mineral occurs as coatings and infillings in altered andesitic basalt exposed to high-temperature fumarolic emissions at Kudryavyi Volcano.

**Discussion.** See also the abstract in *Am. Mineral.*, 80, p. 406 (1995) for the same mineral. **J.L.J.**

### ERRATUM

In the abstract of feinglosite (*Am. Mineral.*, 83, 653–654, 1998) the mineral is named for M.D. Feinglos, not Feingloss.