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NEW MINERAL NAMES

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Bakhchisaraitsevite*

R.P. Liferovich, Y.A. Pakhomovsky, O.V. Yakubovich, W. Massa, K. Laajoki, S. Gehör, A.N. Bogdanova, N.V. Sorokhtina (2000) Bakhchisaraitsevite, $Na_2Mg_5[PO_4]_4{\cdot}7H_2O$, a new mineral from hydrothermal assemblages related to phoscorite—carbonatite complex of the Kovdor massif, Russia. Neues Jahrb. Mineral. Mon., 402–418.

O.V. Yakubovich, W. Massa, R.P. Liferovich, Y.A. Pakhomovsky (2000) The crystal structure of bakhchisaraitsevite, $[Na_2(H_2O)_2]\{(Mg_{4.5}Fe_{0.5})(PO_4)_4(H_2O)_5\}$, a new mineral species of hydrothermal origin from the Kovdor phoscorite – carbonatite complex, Russia. Can. Mineral., 38, 831–838.

The mineral occurs as colorless, light yellow, or greenish fan-shaped aggregates or as single bladed tabular crystals up to 0.5 × 1.5 × 2 mm. One of 10 listed electron microprobe analyses for 10 grains has Na_2O 9.17, MgO 29.40, CaO 0.07, MnO 0.33, FeO 0.84, P_2O_5 41.57, H_2O (by difference) 18.62 (a single determination gave 17.3), sum 100 wt%, corresponding to $(Na_{2.02}Ca_{0.01})_{\Sigma 2.03}(Mg_{4.98}Fe^{2+}_{0.08}Mn_{0.03})_{\Sigma 5.09}P_4O_{16.11}{\cdot}7.06H_2O$, simplified as $Na_2Mg_5(PO_4)_4{\cdot}7H_2O$. Vitreous luster, transparent, brittle, white streak, $H = 2–2\frac{1}{2}$, perfect {001} cleavage, no twinning, nonfluorescent, soluble in 10% HCl, $D_{meas} = 2.50(2)$, $D_{calc} = 2.47$ g/cm^3 for $Z = 4$. The IR spectrum is like that of rinkorolgite. Colorless in transmitted light, biaxial positive, $\alpha = 1.538(1)$, $\beta = 1.540(1)$, $\gamma = 1.543(1)$, $2V_{calc} = 72.5°$, $b = \gamma$, $c \wedge \alpha = 45°$. Single-crystal X-ray structure study ($R = 0.033$) indicated monoclinic symmetry, space group $P2_1/c$, $a = 8.32(1)$, $b = 12.90(2)$, $c = 17.50(3)$ Å, $\beta = 102.0(1)°$ as refined from a powder pattern (diffractometer, Cu$K\alpha_1$ radiation) with strongest lines of 10.31(33,011), 8.56(100,002), 3.496(23,$1\bar{2}4$), 3.314(23,$\bar{2}04$), 2.849(33,231), and 2.675(25,125,232).

The mineral occurs with bobierite, pyrite, collinsite, chlorite, nastrophite, and juonniite in voids within veins of vuggy dolomite carbonatite at the Kovdor massif, Kola Peninsula, Russia. The new name is for crystallographer Alexander Yu. Bakhchisaraitsev (1947–1998). Type material is in the Mining Museum of the Saint Petersburg Mining Institute, Russia, and at the Geological Museum of the University of Oulu, Finland. **J.L.J.**

Ercitite*

A.-M. Fransolet, M.A. Cooper, P. Černý, F.C. Hawthorne, R. Chapman, J.D. Grice (2000) The Tanco pegmatite at Bernic Lake, southeastern Manitoba. XV. Ercitite, $NaMn^{3+}PO_4(OH)(H_2O)_2$, a new phosphate mineral species. Can. Mineral., 38, 893–898.

The mineral occurs as dark brown to black, irregular aggregates, to 400 μm, of light brown, lath-like crystals in fan-like divergent sprays. The crystals are typically about 20 × 200 μm, elongate $[\bar{1}01]$ and flattened on {101}. Vitreous luster, beige streak, brittle, irregular fracture, very good cleavages parallel to {101} and {010}, $H = 3–4$, $D_{calc} = 2.75$ g/cm^3 for $Z = 4$. Optically biaxial positive, $\alpha = 1.699(2)$, $\beta = 1.715(5)$, $\gamma = 1.737(5)$, $2V_{meas} = 86$, $2V_{calc} = 82°$, orientation $X = b$, $Y \wedge c = 34°$ (β acute), $Z \wedge a = 53°$ (β obtuse), strongly pleochroic, X = yellowish green, Y = yellowish brown, Z = dark brown, $Z >> Y > X$. Electron microprobe analysis gave Na_2O 12.44, CaO 1.09, MgO 0.12, ZnO 0.08, Fe_2O_3 16.51, Mn_2O_3 18.81, Al_2O_3 0.34, P_2O_5 32.37, H_2O (calc.) 20.44, sum 102.20 wt%, corresponding to $(Na_{0.89}Ca_{0.04})_{\Sigma 0.93}(Mn^{3+}_{0.53}Fe^{3+}_{0.46}Al_{0.01})_{\Sigma 1.00}(PO_4)_{1.01}(OH)(H_2O)_2$. Single-crystal X-ray study indicated monoclinic symmetry, space group $P2_1/n$, $a = 5.362(5)$, $b = 19.89(1)$, $c = 5.362(5)$ Å, $\beta = 108.97(8)°$ as refined from a Gandolfi pattern (Fe$K\alpha$ radiation) with strongest lines of 9.9(100,020), 4.92(50,011), 3.273(60,$14\bar{1}$), 3.126(60,150), and 2.644(80,141). The structure is related to that of bermanite.

The mineral occurs as an overgrowth on collinsite-fairfieldite, whitlockite, and other phosphates on a fracture surface that cuts an altered nodule of lithiophyllite at the Tanco pegmatite. The origin is attributed to strongly oxidizing, low-temperature hydrothermal alteration. The new mineral name is for mineralogist T. Scott Ercit (b. 1957) of the Canadian Museum of Nature, Ottawa, at which the holotype is stored. **J.L.J.**

Gottlobite*

T. Witzke, M. Steins, T. Doering, U. Kolitsch (2000) Gottlobite, $CaMg(VO_4,AsO_4)(OH)$, a new mineral from Friedrichroda, Thuringia, Germany. Neues Jahrb. Mineral. Mon., 444–454.

Electron microprobe analysis gave a mean and range of CaO 24.98 (24.39–26.34), SrO 0.92 (0.54–1.43), MgO 17.54 (16.42–18.78), MnO 1.50 (0.87–2.08), CuO 1.44 (0.31–2.64), V_2O_5 27.46 (22.43–33.56), As_2O_5 20.32 (27.05–12.47), H_2O (TGA) 5.40, sum 99.57 wt%, corresponding to $(Ca_{0.93}Sr_{0.03})_{\Sigma 0.96}(Mg_{0.91}Mn_{0.04}Cu_{0.04})_{\Sigma 0.99}(V_{0.63}As_{0.37})O_4O_{1.08}H_{1.26}$ for V + As = 1. The formula range for V:As is 52:48 to 77:23. Occurs as or-

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

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ange to orange-brown, equant to tabular grains to 0.5 mm; tabular crystals show {010}, {110}, {011}, and less commonly {111}, {$\bar{1}$11}, and {101}. Transparent, vitreous to adamantine luster, brittle, light brownish streak, conchoidal to irregular fracture, no cleavage, $H = 4\frac{1}{2}$, no twinning, $D_{\text{calc}} = 3.46$ for the average composition, 3.41 and 3.58 g/cm^3 for those with the highest and lowest V; $Z = 4$. Optically biaxial negative, $\alpha = 1.797(4)$, $\beta = 1.805–1.815$, $\gamma = 1.828(5)$, $2V$ very large, $r > v$, medium strong pleochroism, X = orange brown, Y = pale yellowish brown, Z = orange brown, $Z \geq X > Y$. Single-crystal X-ray structure study ($R = 0.0446$) indicated orthorhombic symmetry, space group $P2_12_12_1$, $a = 7.501(4)$, $b = 9.010(7)$, $c = 5.941(4)$ Å as refined from a powder pattern (diffractometer, Cu$K\alpha_1$ radiation) with strongest lines of 4.496(72,020), 4.139(32,111), 3.170(100,201), 2.785(30,130), 2.523(30,131), and 1.614(41,332,133).

The mineral, which is a member of the adelite group, occurs as free-standing crystals on hausmannite, or embedded in barite and commonly intergrown with adelite, in dump material of hydrothermal barite veins in Fe-Mn ore at the long-abandoned Glücksstern mine at Gottlob hill, Friedrichroda, Thuringia, Germany. The new mineral name is for the locality. Type material is in the Mineralogical Collection of the Bergakademie Freiberg, Germany. **J.L.J.**

Johntomaite*

U. Kolitsch, A. Pring, E.R.T. Tiekink (2000) Johntomaite, a new member of the bjarebyite group of barium phosphates: description and structure refinement. Mineral. Petrology, 70, 1–14.

The mineral forms clusters of greenish black crystals, to 1 mm in length, that are short to long prismatic {13$\bar{1}$}, terminated by {001} and {100}, with rare {10$\bar{1}$}, {010}, and {*hk*0}. Electron microprobe analysis gave BaO 21.96, FeO 13.34, CaO 3.28, MnO 2.67, Na_2O 0.07, MgO 0.05, CuO 0.07, ZnO 0.06, Fe_2O_3 22.62, Al_2O_3 0.25, P_2O_5 30.45, SiO_2 0.13, F 0.36, H_2O (calc.) 3.73, O ≡ F 0.15, sum 98.89 wt%, corresponding to $Ba_{1.00}(Fe^{2+}_{1.29}Ca_{0.41}Mn_{0.26}Na_{0.02}Mg_{0.01}Cu_{0.01}Zn_{0.01})_{\Sigma2.01}(Fe^{3+}_{1.97}Al_{0.03})_{\Sigma2.00}[(P_{0.99}Si_{0.01})O_4]_3(OH_{2.85}F_{0.13})_{\Sigma2.98}$, ideally $BaFe^{2+}_2Fe^{3+}_2(PO_4)_3(OH)_3$. Opaque, vitreous to greasy to subadamantine luster, brittle, dark grayish green streak, irregular fracture, perfect {100} cleavage, $H = 4\frac{1}{2}$, nonfluorescent, $D_{\text{meas}} = 4.05(1)$, $D_{\text{calc}} = 4.084$ g/cm^3 for $Z = 2$. Optically biaxial negative, $\alpha = 1.817(3)$, $\beta = 1.829(6)$, $\gamma = 1.837(3)$, $2V_{\text{meas}} = 80–85$, $2V_{\text{calc}} = 78°$, $Z = b$, strong dispersion, strong pleochroism, X = bluish to grayish green, Y = dark brownish green, Z = brownish, $Y > X > Z$. Single-crystal X-ray structure study ($R = 0.0492$), indicated monoclinic symmetry, space group $P2_1/m$, $a = 9.199(9)$, $b = 12.359(8)$, $c = 5.004(2)$ Å, $\beta = 100.19(6)°$ as refined from a 114 mm Gandolfi pattern (Co$K\alpha$ radiation) with strongest lines of 4.573(40,011), 3.159(100,031,$\bar{2}$21), 3.091(40,$\bar{1}$31), 2.983(50,211), and 2.742(50B,221,$\bar{3}$11).

The mineral, which is the Fe^{2+} analog of perloffite, is associated with quartz, libethenite, pseudomalachite, and mitridatite that are thought to be of low-temperature hydrothermal origin. The new name is for John Toma, an amateur mineralogist who collected the type specimen from the dumps of the Spring Creek copper mine near Wilmington in the southern Flinders Ranges, South Australia. Type material is in the South Australian Museum at Adelaide. **J.L.J.**

Kapitsaite-(Y)*

E.V. Sokolova, G. Ferraris, G. Ivaldi, L.A. Pautov, P.V. Khvorov (2000) Crystal structure of kapitsaite-(Y), a new borosilicate isotypic with hyalotekite — Crystal chemistry of the related isomophous series. Neues Jahrb. Mineral. Mon., 74–84.

Wet-chemical (for B and REE) and electron microprobe analyses (not given) correspond to $(Ba_{3.54}K_{0.26}Pb^{2+}_{0.12}Na_{0.08})_{\Sigma4.00}(Y_{1.00}Ca_{0.78}Na_{0.14}REE_{0.22})_{\Sigma2.14}(Si_{7.99}Al_{0.01})_{\Sigma8.00}(B_{3.55}Si_{0.31})_{\Sigma3.86}O_{28}F_{1.05}$, simplified as $(Ba,K,Pb^{2+},Na)_4(Y,Ca,REE)_2[Si_8B_2(B,Si)_2O_{28}F]$. Single-crystal X-ray structure study ($R = 0.112$) indicated triclinic symmetry, space group $I\bar{1}$, a 11.181(4), $b = 10.850(7)$, $c = 10.252(4)$ Å, $\alpha = 90.64(6)$, $\beta = 90.05(4)$, $\gamma = 89.97(7)°$, $D_{\text{meas}} = 3.74$ g/cm^3 for $Z = 2$. Kapitsaite-(Y) and hyalotekite are members of a complex solid-solution series that, for nomenclature purposes, is distinguished by the dominant M cation at the [8]-coordinated site: Y for kapitsaite-(Y), and Ca for hyalotekite.

The mineral occurs in peralkaline pegmatite in the moraine of the Dara-i-Pioz glacier in the Alaiskii mountain range, Tien-Shan, northern Tajikistan. Associated minerals are quartz, aegirine, leucosphenite, polylithionite, stillwellite-(Ce), microcline, reedmergnerite, pyrochlore, pectolite, and sogdianite.

Discussion. A complete description of the mineral has not been published. Corresponds to IMA mineral No. 98-057. **J.L.J.**

Rollandite*

H. Sarp, R. Černý (2000) Rollandite, $Cu_3(AsO_4)_2·4H_2O$, a new mineral: its description and crystal structure. Eur. J. Mineral., 12, 1045–1050.

Electron microprobe analysis gave CuO 44.87, As_2O_5 42.44, H_2O (by difference) 12.69, sum 100 wt%, corresponding to $Cu_{3.09}As_{2.02}H_{7.71}O_{12}$. The mineral occurs as bottle-green aggregates, to 1 mm diameter, consisting of crystals, to 0.1 × 0.15 × 0.5 mm, that are elongate parallel to a, flattened on {010}, and show {010}, {011}, {101}, and {001}. Transparent, vitreous luster, light green streak, brittle, conchoidal fracture, good {001} cleavage, $H = 4–4\frac{1}{2}$, nonfluorescent, no twinning, soluble in HCl, $D_{\text{meas}} = 3.9(1)$, $D_{\text{calc}} = 3.80$ g/cm^3 for the ideal formula and $Z = 4$. Optically biaxial negative, nonpleochroic, α 1.745(5), $\beta = 1.755(5)$, $\gamma = 1.760(5)$, $2V_{\text{meas}} = 71(2)$, $2V_{\text{calc}} = 70.1(4)°$, strong dispersion $r < v$, orientation $\alpha = a$, $\beta = c$, $\gamma = b$. Single-crystal X-ray study ($R = 0.086$) gave orthorhombic symmetry, space group $Pnma$, $a = 5.6906(4)$, $b = 17.061(1)$, $c = 9.732(1)$ Å. Strongest lines of a Gandolfi powder pattern (114 mm, Cu$K\alpha$ radiation) are 8.520(100,020), 3.721(60,131), 3.221(90,141,051), 3.102(40,132), 2.817(35,103,233), and 2.795(35,142).

The mineral is associated with olivenite, conichalcite, clinotyrolite, cornubite, kolfanite, and other minerals in the old Cu mines of Roua at the western margin of the Barrot Dome, Alpes-Maritimes, France. The new mineral name is for Pierre Rolland (b. 1940), an eminent mineral collector of the Roua mines. Type material is in the Natural History Museum of Geneva, Switzerland. **J.L.J.**

Tamaite*

S. Matsubara, R. Miyawaki, T. Tiba, H. Imai (2000) Tamaite, the Ca-analogue of ganophyllite, from the Shiromaru mine, Okutama, Tokyo, Japan. J. Mineral. Petrol. Sci., 95, 79–83.

The average of four electron microprobe analyses and a single H_2O determination is Na_2O 0.34, K_2O 0.82, CaO 1.94, BaO 2.03, MgO 0.23, FeO 0.16, MnO 35.17, Al_2O_3 7.79, SiO_2 41.23, H_2O 11.07, sum 100.78 wt%, corresponding to $(Ca_{1.65}K_{0.83}Ba_{0.63}Na_{0.53})_{\Sigma 3.64}(Mn_{23.71}Mg_{0.27}Fe_{0.11}Al_{0.12})_{\Sigma 24.21}(Si_{32.81}Al_{7.19})_{\Sigma 40.00}O_{95.27}(OH)_{16.73}\cdot 21H_2O$, simplified as $(Ca,K,Ba,Na)_{3\text{-}4}Mn_{24}(Si,Al)_{40}(O,OH)_{112}\cdot 21H_2O$, which is the Ca analog of ganophyllite. Occurs as micaceous, colorless to pale yellowish brown platy crystals to about 0.5 mm in diameter; transparent, vitreous to pearly luster, white streak, $H = 4$, perfect {001} cleavage, nonfluorescent, $D_{meas} = 2.85(5)$, $D_{calc} = 2.83$ g/cm^3 for $Z = 4$. Colorless in thin section, optically biaxial negative, $\beta = 1.612(2)$, $2V = <15°$, interference color like that of muscovite. Single-crystal X-ray study indicated monoclinic symmetry, space group $P2_1/a$, $a = 16.64(1)$, $b = 27.11(2)$, $c = 25.35(2)$ Å, $\beta = 98.74(7)°$. Strongest lines of the powder pattern (114 mm Gandolfi, Cu$K\alpha$ radiation) are 12.6(vvs,002), 3.13(s,008), 2.84(s,38$\bar{2}$), 2.69(vs, 38$\bar{4}$), 2.60(s,602), and 2.46(s,60$\bar{6}$,38$\bar{6}$).

The new mineral, which is associated with celsian, barian orthoclase, aegirine, grossular, and andradite, forms veinlets up to 1.5 mm in width at the weakly metamorphosed Mn ore deposit of the former Shiromaru mine near the town of Okutama, Tama district, about 60 km from Tokyo, Japan. The new mineral name is for the locality. Type material is in the National Science Museum, Tokyo. **J.L.J.**

Urusovite*

L.P. Vergasova, S.K. Filatov, M.G. Gorskaya, A.A. Molchanov, S.V. Krivovichev, V.V. Ananiev (2000) Urusovite, $Cu[AlAsO_5]$, a new mineral from the Tolbachik volcano, Kamchatka, Russia. Eur. J. Mineral., 12, 1041–1044.

S.V. Krivovichev, A.V. Molchanov, S.K. Filatov (2000) Crystal structure of urusovite $Cu[AlAsO_5]$: a new type of tetrahedral aluminoarsenate polyanion. Crystallogr. Reports, 45, 723–727.

Electron microprobe analysis gave CuO 32.23, ZnO 0.25, Al_2O_3 20.89, Fe_2O_3 0.32, As_2O_5 46.02, V_2O_5 0.10, sum 99.81 wt%, corresponding to $(Cu_{0.99}Zn_{0.01})_{\Sigma 1.00}Al_{1.00}As_{0.98}O_5$. The mineral occurs as light green plates up to 0.4 mm in maximum dimension, elongate [001], platy (010), showing {100}, {010}, {110}, {011}, and {111}. Vitreous luster, white streak, brittle, perfect {010} cleavage, $VHN_{10} = 378$ (337–441), nonfluorescent, $D_{calc} = 3.93$ g/cm^3 for $Z = 4$. Optically biaxial negative, $\alpha = 1.672(2)$, $\beta = 1.718(2)$, $\gamma = 1.722(2)$, $2V_{meas} = \sim 30(2)$, $2V_{calc} = 32.2°$, orientation, $b = \beta$, $c \sim \alpha$, weakly pleochroic, α = colorless, β and γ = light green. Single-crystal X-ray structure study ($R = 0.048$) indicated monoclinic symmetry, space group $P2_1/c$, $a = 7.314(2)$, $b = 10.223(3)$, $c = 5.576(2)$ Å, $\beta = 99.79(3)°$. Strongest lines of the powder pattern are 7.20(100,100), 4.327(23,$\bar{1}$11), 3.604(10,200), 3.174(10,121), and 3.124(20,$\bar{2}$11).

The mineral is associated with ponomarevite, piypite, sylvite, dolerophanite, euchlorine, tenorite, hematite, and two unidentified As minerals in a fumarole at the Great fissure Tolbachik eruption, Kamchatka, Russia. Gas temperature at the time of collection was 410–420 °C. The new mineral name is for Vadim Sergeevich Urusov of Moscow State University. Type material is in the Mining Museum of the Saint Petersburg Mining Institute, Russia. **J.L.J.**

Zincowoodwardite*

T. Witzke, G. Raade (2000) Zincowoodwardite, $[Zn_{1-x}Al_x(OH)_2][(SO_4)_{x/2}(H_2O)_n]$, a new mineral of the hydrotalcite group. Neues Jahrb. Mineral. Mon., 455–465.

The mineral occurs as pale bluish to bluish white botryoidal crusts of tabular crystals, each 5–10 μm across and commonly of hexagonal outline. Wet-chemical analysis gave CuO 10.4, ZnO 33.3, Al_2O_3 17.2, SO_3 12.6, H_2O (TGA) 25.1, sum 98.6 wt%, corresponding to $[Zn_{0.47}Cu_{0.15}Al_{0.38}(OH)_{2.00}][(SO_4)_{0.18}O_{0.01}(H_2O)_{0.59}]$. The general formula is $[Zn_{1-x}Al_x(OH)_2][(SO_4)_{x/2}(H_2O)_n]$, where x has been found to range from 0.32 to 0.50, and the highest sulfate content is 0.67. Waxy luster, translucent, white to bluish white streak, sectile, $H = 1$, no cleavage; $D_{meas} = 2.66$ for the 3R polytype, $D_{calc} = 2.71$ g/cm^3; $D_{calc} = 2.71$ g/cm^3 for the 1T polytype. Optically uniaxial, $\omega = 1.5636(5)$ for 3R, $n_{max} = 1.558(2)$ for 1T. Indexing of X-ray powder patterns (diffractometer, Cu$K\alpha$ radiation) gave a trigonal cell, $a = 3.065(1)$, $c = 25.42(2)$ Å for the 3R polytype, probable space group $R\bar{3}m$; $a = 3.064(4)$, $c = 8.85(2)$ Å for 1T, probable space group $P\bar{3}$. Strongest lines for 3R are 8.50(100,003), 4.248(33,006), 2.600(5,012), 2.354(4,015), and 2.039(3,018); those for 1T are 8.81(100,001), 4.406(21,002), 2.654(4,100), and 2.545(5,101).

The mineral is a member of the hydrotalcite group and is the Zn analog of woodwardite, hence the new name. Glaucocerinite is a higher hydrated analog. Zincowoodwardite occurs in the cotype specimen of glaucocerinite from Laurion (Lavrion, Laurium), Greece, and with glaucocerinite, natroglaucocerinite, and zaccagnaite in specimens from the Hilarion mine at Kamariza, near Laurion; also known from the Christiana mine at Kamariza, in association with serpierite and hemimorphite. The 3R and 1T polytypes are commonly intergrown. Type material is in the Mineral Collection of the Bergakademie Freiberg in Germany, and in the Naturhistorisches Museum Wien, Austria. **J.L.J.**

$(Sc,Fe^{3+})(Nb,Ta)O_4$

P. Černý, R. Chapman, M. Masau (2000) Two-stage exsolution of a titanian $(Sc,Fe^{3+})(Nb,Ta)O_4$ phase in niobian rutile from southern Norway. Can. Mineral., 38, 907–913.

One of two electron microprobe analyses listed for a mineral exsolved from pegmatitic niobian rutile has MgO 0.07, CaO 0.25, MnO 1.19, FeO 6.03, Fe_2O_3 6.08, Y_2O_3 0.17, Sc_2O_2 10.06, UO_2 0.20, SnO_2 1.10, ZrO_2 0.78, TiO_2 12.42, Ta_2O_5 9.97, Nb_2O_5 50.21, WO_3 1.67, sum 100.2 wt%, corresponding to $[Sc_{0.627}Fe^{3+}_{0.328}Fe^{2+}_{0.361}Mn_{0.072}Ca_{0.019}Mg_{0.008}Y_{0.007})_{\Sigma 1.422}$ $(Ti_{0.661}Sn_{0.031}Zr_{0.027}U_{0.003})_{\Sigma 0.722}(Nb_{1.624}Ta_{0.194}W_{0.031})_{\Sigma 1.849}O_8$. The mineral occurs as subround, granular aggregates, generally 10 to 30 µm but up to 30 × 100 µm, in rutile from Håverstad, Norway, and from other localities. Strongest lines of the powder pattern are 3.59(30), 2.93(100), and 1.71(about 20), close to those of a monoclinic $Fe^{3+}NbO_4$ compound. **J.L.J.**

F-dominant elbaite

J.B. Selway, P. Černý, F.C. Hawthorne, M. Novák (2000) The Tanco pegmatite at Bernic Lake, Manitoba. XIV. Internal tourmaline. Can. Mineral., 38, 877–891.

Several electron microprobe analyses are listed of tourmaline for which B_2O_3, Li_2O, and H_2O were calculated by stoichiometry. The results indicate the common presence of elbaite with F > OH at the W site in the general formula $XY_3Z_6[T_6O_{18}][BO_3]V_3W$.

Discussion. See the proposed classification of the tourmaline group as abstracted in *Am. Mineral.*, 85, p. 629 (2000). **J.L.J.**

New Data

Boleite

M.A. Cooper, F.C. Hawthorne (2000) Boleite: resolution of the formula, $KPb_{26}Ag_9Cu_{24}Cl_{62}(OH)_{48}$. Can. Mineral., 38, 801–808.

Single-crystal X-ray structure study ($R = 0.022$) of boleite from the Amelia mine, Santa Rosalia, Baja California, Mexico, confirmed the cubic symmetry, space group $Pm\overline{3}m$, $a = 15.29$ Å, and led to revision of the formula to that given above. The IR spectrum is consistent with the presence of OH and the absence of H_2O. Electron microprobe analysis confirmed the presence of K, which apparently rapidly migrates and thereby thwarts its quantitative determination. The name boleite, from Boleo, Mexico, should be written without an accent. **J.L.J.**

Iriginite

S.V. Krivovichev, P.C. Burns (2000) The crystal chemistry of uranyl molybdates. II. The crystal structure of iriginite. Can. Mineral., 38, 847–851.

Single-crystal X-ray structure study ($R = 0.035$) of synthetic iriginite, $[(UO_2)Mo_2O_7(H_2O)_2](H_2O)$, gave orthorhombic symmetry, $a = 6.705$, $b = 12.731$, $c = 11.524$ Å, and the new space group $Pbcm$; $D_{calc} = 4.241$ g/cm³, $Z = 4$. **J.L.J.**

Juabite

P.C. Burns, C.M. Clark, R.A. Gault (2000) Juabite, $CaCu_{10}(Te^{4+}O_3)_4(OH)_2(H_2O)_4$: crystal structure and revision of the chemical formula. Can. Mineral., 38, 809–816.

Single-crystal X-ray structure study ($R = 0.073$) of type juabite confirmed the triclinic cell and established the space group as $P\overline{1}$. Electron microprobe analysis gave CaO 2.52, FeO 0.26, CuO 38.51, TeO_2 29.99, As_2O_5 23.17, H_2O (calc.) 4.39, sum 98.84 wt%, corresponding to $(Ca_{0.92}Fe_{0.07})_{\Sigma 0.99}Cu_{9.94}(Te^{4+}_{0.96}O_3)_4(As_{1.04}O_4)_4(OH)_2(H_2O)_4$, $D_{calc} = 4.50$ g/cm³ for $Z = 1$. The new formula takes into account the presence of Ca and revises the previously assumed oxidation state of Te. **J.L.J.**

Sterlinghillite

S. Matsubara, R. Miyawaki, T. Mouri, M. Kitamine (2000) Sterlinghillite, a rare manganese arsenate, from the Gozaisho mine, Fukushima Prefecture, Japan. Bull. National Sci. Museum, Tokyo, Ser. C, 26(1-2), 1–7.

Electron microprobe analysis of sterlinghillite from the second known occurrence, in dump material from the rhodonite-braunite ore at the Gozaisho mine, Iwaki city, Fukushima Prefecture, gave MnO 42.76, As_2O_5 46.40, H_2O by difference 10.84, sum 100 wt%, corresponding to $Mn_{2.99}As_{2.00}O_8 \cdot 2.98H_2O$, ideally $Mn_3As_2O_8 \cdot 3H_2O$, whereas the original formula was tentatively assigned $4H_2O$. Aggregates containing sterlinghillite occur on rhodonite as colorless bundles or subparallel prisms to 5 mm in length. Indexing of the X-ray powder pattern gave a monoclinic cell with $a = 12.39(2)$, $b = 11.23(2)$, $c = 11.62$ Å, $\beta = 98.45(5)°$; $D_{calc} = 3.09$ g/cm³ for the ideal formula and $Z = 6$. The lower water content and the unit cell are new. **J.L.J.**