

NEW MINERAL NAMES

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ADAMSITE-(Y)*

J.D. Grice, R.A. Gault, A.C. Roberts, M.A. Cooper (2000) Adamsite-(Y), a new sodium-yttrium carbonate mineral species from Mont Saint-Hilaire, Quebec. *Can. Mineral.*, 38, 1457–1466.

The mineral occurs as spherical aggregates of acicular to fibrous crystals, up to 2.5 cm long. Electron microprobe analysis gave Na₂O 8.64, CaO 0.05, Y₂O₃ 22.88, Ce₂O₃ 0.37, Nd₂O₃ 1.41, Sm₂O₃ 1.02, Gd₂O₃ 1.92, Tb₂O₃ 0.56, Dy₂O₃ 3.28, Ho₂O₃ 0.90, Er₂O₃ 2.83, Tm₂O₃ 0.27, Yb₂O₃ 1.04, CO₂ 25.1 (evolved by TGA 12.9, non-evolved 12.2), H₂O (TGA) 29.90, sum 100.17 wt%, corresponding to Na_{1.00}(Y_{0.72}Dy_{0.06}Er_{0.05}Gd_{0.04}Nd_{0.03}Yb_{0.02}Sm_{0.02}Ho_{0.02}Ce_{0.01}Tb_{0.01}Tm_{0.01})_{Σ0.99}C_{2.04}H_{11.87}O₁₂, ideally NaY(CO₃)₂·6H₂O. Crystals are elongate [001], flat on (001), showing {010} and {001}, commonly twinned by reflection on {001}. Colorless, white, pale pink, rarely pale purple, transparent to translucent, vitreous to pearly luster, brittle, white streak, perfect {001} and good {100} and {010} cleavages, *H* = 3, nonfluorescent, strong effervescence in HCl, decrepitate rapidly in acetone, *D*_{meas} = 2.27(2), *D*_{calc} = 2.27 g/cm³ for *Z* = 4 and the empirical formula. Optically biaxial positive, $\alpha = 1.480$, $\beta = 1.498(2)$, $\gamma = 1.571(4)$, $2V_{\text{meas}} = 53(3)$, $2V_{\text{calc}} = 55^\circ$, nonpleochroic, orientation $X = [001]$, $Y = b$, $Z \wedge a = 14^\circ$ in β obtuse. Single-crystal X-ray structure study ($R = 0.025$) indicated triclinic symmetry, space group $P\bar{1}$; $a = 6.262(2)$, $b = 13.047(6)$, $c = 13.220(5)$ Å, $\alpha = 91.17(4)$, $\beta = 103.70(4)$, $\gamma = 89.99(4)^\circ$ as refined from a 114 mm Debye–Scherrer powder pattern (CuK α radiation) with strongest lines of 12.81 (100,001), 6.45(70,002), 4.456(60,121,120,120,121), 4.29(60,003), 2.571(60,005,043), and 2.050(50).

The mineral, previously designated UK96 and UK 106, is associated with rhodochrosite, petersenite-(Ce), horváthite-(Y), donnayite-(Y), thomasclarkite-(Y), and numerous other minerals, as a late-stage, low-temperature hydrothermal phase within cavities in an alkaline pegmatite dike at the Poudrette quarry, Mont Saint-Hilaire, Quebec. The new name is for geology professor Frank Dawson Adams (1859–1942) of McGill University, Montreal, Quebec. Type material is in the Canadian Museum of Nature, Ottawa. **J.L.J.**

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

BATIFERRITE*

C.L. Lengauer, E. Tillmanns, G. Hentschel (2001) Batiferrite, Ba[Ti₂Fe₁₀]O₁₉, a new ferromagnetic magnetoplumbite-type mineral from the Quaternary volcanic rocks of the western Eifel area, Germany. *Mineral. Petrology*, 71, 1–19.

The mineral occurs typically as black, opaque, euhedral, hexagonal plates up to 1 mm across and 125 μm thick. Electron microprobe analysis gave K₂O 0.30, Na₂O 0.18, SrO 0.53, BaO 11.89, MgO 1.38, Al₂O₃ 0.32, TiO₂ 13.38, MnO 2.44, FeO 5.71, Fe₂O₃ 62.61, sum 98.74 wt%, wherein ferrous-ferric Fe was calculated to achieve charge balance. The results correspond to (Ba_{0.84}Na_{0.06}K_{0.06}Sr_{0.05})_{Σ1.01}(Fe_{8.48}³⁺Fe_{0.86}²⁺Ti_{1.82}Mg_{0.37}Mn_{0.37}Al_{0.06})_{Σ11.96}O₁₉, simplified as Ba(Ti₂Fe₈³⁺Fe₂²⁺)O₁₉ or Ba(Ti₂Fe₁₀)O₁₉. Crystals are flattened on {001}, also showing {103} and {100}. Brittle, submetallic luster, dark brown streak, good {001} cleavage, no distinctive fracture, *VHN*₅₀ = 793 (710–841), *H* = ~6, ferromagnetic, *D*_{calc} = 5.016 g/cm³ for *Z* = 2. Pale gray in reflected light, nonpleochroic, moderate anisotropy and straight extinction parallel to (001), with bireflectance distinct in air and weak in oil. Reflectance percentages (SiC standard) are given in 20 nm steps from 400 to 700 nm; representative values in air and in oil for *R*₀ and *R*_c are, respectively, 22.1, 20.1, 8.4, 7.1 (470), 21.0, 19.4, 7.8, 6.6 (546), 20.2, 18.8, 7.4, 6.3 (589), and 19.3, 18.3, 6.8, 5.9 (650). Single-crystal X-ray structure study ($R = 0.031$) indicated hexagonal symmetry, space group $P6_3/mmc$, $a = 5.908(2)$, $c = 23.39(1)$ Å as refined from a 114 mm Gandolfi pattern (28 lines listed, CoK α radiation) with strongest lines of 2.799(80,107), 2.631(100,114), 2.429(60,203), 1.672(50,217), and 1.478(70,220). The formula derived from the structure refinement is A(Fe_{9.37}Ti_{2.33}Mg_{0.31})_{Σ12.01}O₁₉.

The mineral occurs in cavities within Quaternary melilite- and leucite-nephelinite basalts in association with hematite, magnetite, titanite, götzenite, clinopyroxene, nepheline, and biotite near Üdersdorf, Graulai, and Altbürg, western Eifel area, Germany. The new name alludes to the chemical composition and the structural relationship to hexaferrite-type compounds, e.g., the mineral is a member of the magnetoplumbite group and is the Pb analog plumboferrite. Type material is in the Institut für Mineralogie und Kristallographie, Universität Wien–Geozentrum, and in the Naturhistorisches Museum Wien, Austria. **J.L.J.**

GLADIUSITE*

R.P. Liferovich, E.V. Sokolova, F.C. Hawthorne, K.V.O. Laajoki, S. Gehör, Y.A. Pakhomovsky, N.V. Sorokhtina (2000) Gladiusite, $\text{Fe}_2^{3+}(\text{Fe}^{2+}, \text{Mg})_4(\text{PO}_4)(\text{OH})_{11}(\text{H}_2\text{O})$, a new hydrothermal mineral species from the phoscorite-carbonatite unit, Kovdor complex, Kola Peninsula, Russia. *Can. Mineral.*, 38, 1477–1485.

The mineral occurs as dark green, almost black, arrow-headed crystals in radial clusters <2 mm in diameter, and as aggregates of acicular crystals, each up to 7 μm thick and 500 μm long. The mean and ranges of 23 microprobe analyses are MgO 11.16 (8.8–15.6), MnO 0.78 (0.69–1.07), FeO 25.00 (46.47–55.39; partitioned by Mössbauer spectroscopy), Fe_2O_3 29.90, P_2O_5 12.46 (11.53–13.03), TiO_2 0.04 (0.00–0.12), H_2O (calc.) 20.18, sum 99.51 wt%, corresponding to $\text{Fe}_{2.00}^{3+}(\text{Fe}_{2.02}^{2+}, \text{Mg}_{1.61}, \text{Fe}_{0.17}^{3+}, \text{Mn}_{0.06}^{2+})_{\Sigma 3.86}(\text{P}_{1.02}\text{O}_4)(\text{OH})_{11.0} \cdot \text{H}_2\text{O}$. Vitreous luster, translucent in thin needles, opaque in aggregates, brittle, olive-green streak, $H = 4 - 4\frac{1}{2}$, no cleavage, uneven fracture, nonfluorescent, slowly soluble in HCl, $D_{\text{meas}} = 3.11(2)$, $D_{\text{calc}} = 3.10(4)$ g/cm³ for $Z = 4$. Optically biaxial negative, $\alpha = 1.722(2)$, $\beta = 1.730(2)$, $\gamma = 1.737(2)$, $2V_{\text{calc}} = 86^\circ$, $c \parallel \gamma$; strong pleochroism, $X = \text{olive green}$, $Y = \text{grayish blue}$, $Z = \text{dark green with a blue tint}$, $X > Y > Z$. Single-crystal X-ray structure study indicated monoclinic symmetry, space group $P2_1/n$, $a = 16.959(6)$, $b = 11.650(3)$, $c = 6.266(6)$ Å, $\beta = 90.00(5)^\circ$ as refined from a diffractogram with strongest lines of 9.61(53,110), 6.87(77,210), 5.83(89,020), 4.805(100,220), 3.533(84,230), and 2.868(66,140,430).

The mineral is associated with hydrothermal pyrite, rutile, a ternovite-like mineral, catapleiite, rimkorolite, bobierrite, collinsite, juonniite, strontio whitlockite, and pyrrhotite that occur in vugs within veins of dolomite carbonatite at the Kovdor alkaline-ultramafic complex, Kola Peninsula, Russia. The new name alludes to the crystal morphology, which resembles that of a double-edged sword (*gladius*, Latin, sword). Type material is in the Fersman Mineralogical Museum, Moscow, Russia, and in the Geological Museum of the Institute of Geosciences, University of Oulu, Finland. **J.L.J.**

MANGANONAUJAKASITE*

A.P. Khomyakov, G.N. Nechelyustov, G. Ferraris, G. Ivaldi (2000) Manganonaujakasite, $\text{Na}_6(\text{Mn}, \text{Fe})\text{Al}_4\text{Si}_8\text{O}_{26}$, a new mineral from the Lovozero alkaline massif, Kola Peninsula. *Zapiski Vseross. Mineral. Obshch.*, 129(4), 48–53 (in Russian, English abs.).

The mineral occurs as bright blue, irregular grains up to 1 mm across, some showing {001}, and as phenocrysts to 5 mm, pierced by Na-K feldspar and needles of aegirine. Transparent; luster vitreous, to pearly on perfect {001} cleavage; brittle; $H = 3 - 4$; $D_{\text{meas}} = 2.67$, $D_{\text{calc}} = 2.71$ g/cm³ for $Z = 2$ and the empirical formula. No weight loss to 500 °C; insoluble in 1:1 HNO_3 or HCl at room temperature. Electron microprobe analysis gave Na_2O 19.44, K_2O 0.02, CaO 0.04, SrO 0.01, MnO 3.94, FeO 3.68, Al_2O_3 21.18, TiO_2 0.01, SiO_2 50.76, sum 99.08 wt%, corresponding to $(\text{Na}_{5.96}\text{Ca}_{0.01})_{\Sigma 5.97}(\text{Mn}_{0.53}\text{Fe}_{0.49})_{\Sigma 1.02}\text{Al}_{3.95}\text{Si}_{8.03}\text{O}_{26}$,

which is the Mn analog of naujakasite. Optically biaxial negative, $\alpha = 1.539(2)$, $\beta = 1.551(2)$, $\gamma = 1.554(2)$, $2V = 54^\circ$, dispersion $r < v$, orientation $Y = b$, $c \wedge X = 45^\circ$ in β acute. Single-crystal X-ray structure study ($R = 0.04$) indicated monoclinic symmetry, space group $C2/m$; $a = 15.039(6)$, $b = 7.996(2)$, $c = 10.482(4)$ Å, $\beta = 113.51(3)^\circ$ as refined from a diffractometer pattern ($\text{CuK}\alpha$ radiation) with strongest lines of 3.995(65,020,310), 3.623(92,112), 3.552(56,402), 3.485(58,203,221), 3.068(100,022,313, 221), and 2.613(39,420).

The mineral is associated with Na-K feldspar, villiumite, sodalite, nepheline, analcime, aegirine, tisanalite, lamprophyllite, and others in lovozerite-lomonosovite nepheline syenite at the Lovozero alkaline massif, Russia. Type material is in the Fersman Mineralogical Museum, Moscow. **J.L.J.**

PETTERDITE*

W.D. Birch, U. Kolitsch, T. Witzke, L. Nasdala, R.S. Bottrill (2000) Petterdite, the Cr-dominant analogue of dundasite, a new mineral species from Dundas, Tasmania, Australia and Callenberg, Saxony, Germany. *Can. Mineral.*, 38, 1467–1476.

Electron microprobe and CHN analyses gave PbO 43.33, SrO 1.40, Cr_2O_3 22.64, Al_2O_3 3.65, Sb_2O_5 0.67, CO_2 18.3, H_2O (by difference) 10.01, sum 100 wt%, corresponding to $(\text{Pb}_{0.99}\text{Sr}_{0.07})_{\Sigma 1.06}(\text{Cr}_{1.52}\text{Al}_{0.36}\text{Sb}_{0.02})_{\Sigma 1.90}(\text{CO}_3)_{2.12}(\text{OH})_{3.62} \cdot 1.02\text{H}_2\text{O}$, simplified as $\text{PbCr}_2^{3+}(\text{CO}_3)_2(\text{OH})_4 \cdot \text{H}_2\text{O}$, which is the Cr^{3+} analog of dundasite. The mineral forms thin, pale gray to pinkish violet crusts consisting of platy crystals that are up to 15 μm across, flattened on {010}, and elongate [001] or less commonly [100]. Earthy to pearly luster, translucent, pale violet streak, fair {100} and possibly {010} cleavages, probable $H = 2$, no twinning, nonfluorescent, $D_{\text{calc}} = 3.95$ g/cm³ for the empirical formula and $Z = 4$. Optically biaxial negative, $\alpha = 1.704(5)$, $\beta \approx 1.802$, $\gamma = 1.842(5)$, $2V_{\text{calc}} = 62^\circ$, $X = a$, $Y = b$, $Z = c$; pleochroism $X = Y$ colorless to pale grayish pink, $Z = \text{grayish pink}$. Indexing of the X-ray powder pattern (114 mm Gandolfi, $\text{CoK}\alpha$ radiation) gave orthorhombic symmetry, probable space group $Pbnm$, $a = 9.079(3)$, $b = 16.321(9)$, $c = 5.786(7)$ Å; strongest lines are 7.937(100,110), 4.686(50B,021,111), 3.633(70,131), 3.270(40,221), 2.718(40,022,060,112,151), and 2.690(40,241,301).

The mineral is a supergene product associated with crocoite and anglesite at the type locality, the Red Lead mine in the Zeehan–Dundas region of northwestern Tasmania. The mineral also occurs sparingly at the Callenberg nickel deposit, Saxony, Germany. The new name is for amateur mineralogist William Frederick Petterd (1849–1910). The holotype specimen is in the Museum of Victoria at Melbourne, Australia. **J.L.J.**

RENGEITE*

H. Miyajima, S. Matsubara, R. Miyawaki, K. Yokoyama, K. Hirokawa (2001) Rengeite, $\text{Sr}_4\text{ZrTi}_4\text{Si}_4\text{O}_{22}$, a new mineral, the Sr-Zr analogue of perrierite from the Itoigawa–Ohmi district, Niigata Prefecture, central Japan. *Mineral. Mag.*, 65, 111–120.

The mineral occurs in jade pebbles and boulders as ~0.5 mm anhedral grains interstitial to jadeite, as elongate aggregates (~9 mm) of anhedral crystals associated with titanite, and as a fan-shaped aggregate of prismatic crystals <3 mm long associated with jadeite crystals. One of two listed electron microprobe analyses gave CaO 0.43, FeO 0.10, SrO 34.32, BaO 0.13, Al₂O₃ 0.20, Ce₂O₃ 0.38, Pr₂O₃ 0.10, Nd₂O₃ 0.29, Sm₂O₃ 0.04, SiO₂ 22.58, TiO₂ 29.88, ZrO₂ 9.49, Nb₂O₅ 0.24, Ta₂O₅ 0.07, sum 98.25 wt%, corresponding to (Sr_{3.62}Ca_{0.08}Ce_{0.03}Nd_{0.02}Pr_{0.01}Ba_{0.01})_{Σ3.76}(Zr_{0.84}Ti_{0.09}Al_{0.04}Fe_{0.02}Nb_{0.02})_{Σ1.01}Ti_{4.00}Si_{4.11}O₂₂, ideally Sr₄ZrTi₄Si₄O₂₂. Dark greenish brown color, transparent, adamantine luster, pale greenish brown streak, no cleavage, nonfluorescent, $H = 5-5\frac{1}{2}$, $D_{\text{calc}} = 4.12 \text{ g/cm}^3$ for $Z = 2$. Optically biaxial positive, very high refractive indices; strongly pleochroic, from pale green to pale greenish brown in areas with $\Sigma\text{REE} = <1 \text{ wt\%}$, and pale violet to greenish brown where $\Sigma\text{REE} = 3-10 \text{ wt\%}$. Single-crystal X-ray study indicated monoclinic symmetry, space group $P2_1/a$, $a = 13.97(1)$, $b = 5.675(7)$, $c = 11.98(1) \text{ \AA}$, $\beta = 114.26(8)^\circ$ as refined from a 114 mm Gandolfi pattern (CuK α radiation) with strongest lines of 4.16(m, $\bar{1}12$), 3.11(m, 400), 3.13(s, $\bar{4}03$), 3.06(vvs, $\bar{3}13$), 3.00(vs, $\bar{2}04$, 311), 2.86(s, $\bar{0}20$), 2.79(m, 113, $\bar{4}01$), and 2.51(m, $\bar{2}22$, $\bar{5}12$). A weak superstructure corresponding to $5 \times c$ is present.

The mineral is associated with titanite, zircon, apatite, eckermannite, nyböite, rutile, and tausonite in blue omphacite-jadeite rock from the seashore at the town of Ohmi, and variably also with natrolite and lamprophyllite in boulders from the beds of the Kotaki-gawa and Himie-kawa rivers at the city of Itoigawa, Niigata Prefecture, central Japan. The origin is attributed to high- P/T metamorphism. The new mineral name is for Mt. Renge, which is near the discovery locality and the jadeite-bearing Renge metamorphic belt. Type material is in the Fossa Magna Museum at Itoigawa, and in the National Science Museum, Tokyo. **J.L.J.**

Fe JAHNSITE

S. Matsubara (2000) Vivianite nodules and secondary phosphates in Pliocene-Pleistocene clay deposits from Hime-Shima, Oita Prefecture and Kobe, Hyogo Prefecture, western Japan. Mem. National Sci. Mus., Tokyo, 33, 15–27.

One of six listed energy-dispersion analyses has MgO 4.01, CaO 4.1, MnO 4.85, FeO_{tot} 32.79, FeO (calc.) 16.22, Fe₂O₃ (calc.) 18.39, Al₂O₃ 0.34, P₂O₅ 33.74, sum 81.65, which in an anhydrous jahnsite-type formula corresponds to (Ca_{0.62}Mn_{0.38})_{Σ1.00}(Fe_{0.80}²⁺Mn_{0.20}²⁺)_{Σ1.00}(Fe_{1.10}²⁺Mg_{0.84})_{Σ1.94}(Fe_{1.94}³⁺Al_{0.06})_{Σ2.00}(PO₄)₄. In contrast to jahnsite-(CaMnFe), the analyzed material corresponds to jahnsite-(CaFeFe). Indexing of the X-ray powder pattern gave a monoclinic cell with $a = 14.97$, $b = 7.18$, $c = 9.91 \text{ \AA}$, $\beta = 110.50^\circ$; strongest lines are 9.28(100,001), 5.017(12,210), 4.642(50,002), 3.091(12,41 $\bar{2}$), 2.834(35,302), and 1.947(15,024,40 $\bar{5}$). The mineral occurs as dark brown aggregates, >300 μm across, of minute tabular crystals that coat voids in vivianite-metavivianite nodules in Pliocene clay sediments near Kobe, Japan. Associated minerals are lipscombite, phosphosiderite, strunzite, beraunite, ushkovite, mitridatite, and several other phosphates. **J.L.J.**

TETRAGONAL ZrSiO₄

B.P. Glass, S. Liu (2001) Discovery of high-pressure ZrSiO₄ polymorph in naturally occurring shock-metamorphosed zircons. *Geology*, 29, 371–373.

The mineral occurs on the continental slope off New Jersey, within a thin layer of coesite- and stishovite-bearing Eocene impact ejecta intersected by holes 612, 903, and 904 of the Deep Sea Drilling Project. Several of the grains of zircon from the heavy-mineral suite have extra X-ray powder diffraction lines corresponding to the high-pressure, tetragonal polymorph of zircon, and a few grains consist mainly of the tetragonal phase. Strongest lines of the powder pattern (31 lines listed) are 2.81(100), 2.065(50), 1.755(60), and 1.437 \AA (50), in good agreement with data for the synthetic analog. Energy-dispersion analysis gave FeO 0.4, SiO₂ 31.0, ZrO₂ 65.9, H₂O 2.7 [sum 100 wt%], similar to results from the associated zircon. **J.L.J.**

OSUMILITE GROUP, ALKALI-FREE

W. Postl, F. Walter, K. Ettinger, H.-P. Bojar (2000) On a nearly alkali-free mineral of the osumilite group from the nephelinite quarry at Stradner Kogel near Wilhelmsdorf, southern Bad Gleichenberg, Steiermark, Austria. *Joannea Mineral.*, 1, 53–64 (in German, English abs.).

Millimeter-size cavities in a feldspar-rich xenolith from the häuylne-nephelinite quarry contain quartz, tridymite, sanidine, hematite, a clay mineral, and an alkali-free mineral of the osumilite group. The last is short prismatic to tabular, rarely elongate to 1 mm. Euhedral grains show the basal pinacoid and hexagonal prism and dipyrmaid. Some grains are deep blue, and short prismatic crystals have distinct pleochroism, from blue to green. One of five listed electron microprobe analyses has K₂O 0.18, Na₂O 0.04, CaO 0.01, MgO 9.10, MnO 0.73, FeO 17.45, ZnO 0.51, Al₂O₃ 0.44, TiO₂ 0.02, SiO₂ 71.79, sum 100.27 wt%, corresponding to K_{0.04}Na_{0.01}Fe_{2.52}Mg_{2.35}Mn_{0.11}Zn_{0.07}Al_{0.09}Si_{12.40}O₃₀. Indexing of the X-ray powder pattern gave $a = 10.050$, $c = 14.338 \text{ \AA}$. **J.L.J.**

Ca-Nb LABUNTISOVITE

N.A. Yamnova, I.V. Pekov, Yu.K. Kabalov, J. Schneider, N.V. Chukanov (2000) Crystal structure of a new Ca, Nb-representative of the labuntsovite group. *Doklady Chemistry*, 375(4–6), 263–266.

The mineral occurs as pink-tinted white, fine-grained pseudomorphs after tabular crystals of vuonnemite in hydrothermally modified pegmatite at the Ilimaussaq alkaline complex, southwestern Greenland. Rietveld structure determination ($R = 0.0170$) in space group $C2/m$ gave $a = 14.641(1)$, $b = 14.214(1)$, $c = 7.9148(2) \text{ \AA}$, $\beta = 117.36(1)^\circ$, and the formula $\square_4(\text{K}_{1.0}\text{Na}_{0.9})(\text{Ca}_{0.6}\text{Nb}_{0.3})\{\text{Ca}_{1.4}(\text{Nb}_{2.7}\text{Ti}_{1.2}\text{Fe}_{0.05})(\text{Nb}_{2.65}\text{Ti}_{1.3}\text{Fe}_{0.05})[\text{Si}_6\text{O}_{48}](\text{OH}_{4.75}\text{O}_{3.25})\} \cdot 11\text{H}_2\text{O}$ for $Z = 1$. The mineral is distinct because of the predominance of Ca in the positions indicated in the formula, and because of $\text{Nb} > \text{Ti}$. **J.L.J.**

THOMSONITE, Sr ANALOG

O.A. Gurbanova, R.K. Rastsvetaeva, I.V. Pekov, A.G. Turchkova (2001) Crystal structure of Sr-rich thomsonite. *Doklady Earth Sci.*, 376(1), 101–104.

The mineral occurs as colorless, prismatic grains, to 1 mm, within veinlets in pegmatite at Mount Rasvumchorr, Khibiny alkaline massif, Kola Peninsula, Russia. Electron microprobe and TG analyses (not given) show Ca-Sr variations, and the two ions are inversely related; the compositional range is $\text{Na}_{0.92-1.04}\text{Ca}_{0.49-1.52}\text{Sr}_{0.4-1.69}\text{K}_{0.01-0.04}\text{Ba}_{0.01-0.05}\text{Si}_{4.9-5.05}\text{Al}_{4.84-5.05}(\text{H}_2\text{O})_{6-7}$ for 20 oxygen atoms. Single-crystal X-ray structure study ($R = 0.032$) indicated orthorhombic symmetry, space group *Pcnn*, $a = 13.050(2)$, $b = 13.123(2)$, $c = 13.241(2)$ Å, $D_{\text{calc}} = 2.45$ g/cm³ for $Z = 4$; the crystallochemical formula of the grain examined is $(\text{Na}_{1.2}\text{Ca}_{0.8})(\text{Sr}_{0.52}\text{Ca}_{0.48})[\text{Si}_{5.2}\text{Al}_{4.8}\text{O}_{20}]\cdot 6\text{H}_2\text{O}$. The crystal structure is slightly different from that of thomsonite. **J.L.J.**

New Data**MITRYAEVAITE**

C.L. Cahill, S.V. Krivovichev, P.C. Burns (2001) The crystal structure of mitryaevaitite, $\text{Al}_5(\text{PO}_4)_2[(\text{P,S})\text{O}_3(\text{OH},\text{O})]_2\text{F}_2(\text{OH})_2(\text{H}_2\text{O})_8\cdot 6.48\text{H}_2\text{O}$, determined from a microcrystal using synchrotron radiation. *Can. Mineral.*, 39, 179–186.

Single-crystal X-ray structure study ($R = 0.059$) of mitryaevaitite from the type locality in Kazakhstan gave triclinic symmetry, space group $P\bar{1}$, $a = 6.918(1)$, $b = 10.127(2)$, $c = 10.296(2)$ Å, $\alpha = 77.036(3)$, $\beta = 73.989(4)$, $\gamma = 76.272(4)^\circ$; for the new formula, as indicated in the title above, and the new unit cell, $Z = 1$, $D_{\text{calc}} = 2.057$ g/cm³. **J.L.J.**

OLSHANSKYITE

A. Callegari, F. Mazzi, C. Tadini (2001) The crystal structure of olshanskyite. *Can. Mineral.*, 39, 137–144.

Single-crystal X-ray structure study ($R = 0.017$) of olshanskyite from the Fuka mine, Okayama Prefecture, Japan, gave triclinic symmetry, space group $P\bar{1}$, $a = 7.953(4)$, $b = 9.873(9)$, $c = 7.362(6)$ Å, $\alpha = 111.00(7)$, $\beta = 94.65(7)$,

$\gamma = 107.53(7)^\circ$. With the new unit cell and new formula $\text{Ca}_2[\text{B}_3\text{O}_3(\text{OH})_6]\text{OH}\cdot 3\text{H}_2\text{O}$, $D_{\text{meas}} = 2.19$, $D_{\text{calc}} = 2.20$ g/cm³ for $Z = 2$. **J.L.J.**

WEEKSITE

J.M. Jackson, P.C. Burns (2001) A re-evaluation of the structure of weeksite, a uranyl silicate framework mineral. *Can. Mineral.*, 39, 187–195.

Single-crystal X-ray structure study ($R = 0.07$) of weeksite from the Anderson mine, Yavapai County, Arizona, gave orthorhombic symmetry, space group *Cmmb*, $a = 14.209(2)$, $b = 14.248(2)$, $c = 35.869(4)$ Å. Electron microprobe analysis gave Na_2O 0.07, K_2O 4.85, CaO 0.67, SrO 0.02, BaO 3.72, UO_3 58.36, SiO_2 29.93, H_2O (assumed) 2.36, sum 99.98 wt%, corresponding to $(\text{K}_{1.05}\text{Ba}_{0.25}\text{Ca}_{0.12}\text{Na}_{0.02})_{\Sigma 1.44}[(\text{UO}_2)_{2.08}(\text{Si}_{5.07}\text{O}_{12.38})](\text{H}_2\text{O})_{1.46}$. The microprobe results and crystal-structure data lead to the new formula $\text{K}_{1.26}\text{Ba}_{0.25}\text{Ca}_{0.12}[(\text{UO}_2)_2(\text{Si}_5\text{O}_{13})]\text{H}_2\text{O}$, $D_{\text{calc}} = 3.640$ g/cm³, $Z = 16$. Potassium, Ba, Ca, and H_2O are in channels within the uranyl silicate framework. **J.L.J.**

FERRIAN WINCHITE

E.V. Sokolova, F.C. Hawthorne, V. Gorbatova, C. McCammon, J. Schneider (2001) Ferrian winchite from the Ilmen Mountains, southern Urals, Russia, and some problems with the current scheme for amphibole nomenclature. *Can. Mineral.*, 39, 171–177.

Electron microprobe analysis, Mössbauer spectroscopy, and Rietveld refinement ($R_{\text{wp}} = 0.058$) of winchite from the Ilmen Mountains, Russia, gave a composition corresponding to $(\square_{0.87}\text{K}_{0.13})(\text{Ca}_{0.65}\text{Na}_{1.34})_{\Sigma 1.99}(\text{Mg}_{2.78}\text{Fe}_{0.12}^{2+}\text{Mn}_{0.07}\text{Ti}_{0.01})_{\Sigma 2.98}(\text{Fe}_{0.88}^{2+}\text{Fe}_{0.92}^{3+}\text{Al}_{0.20})_{\Sigma 2.00}(\text{Si}_{7.88}\text{Al}_{0.12})_{\Sigma 8.00}\text{O}_{22}[(\text{OH})_{1.77}\text{F}_{0.23}]_{\Sigma 2.00}$. In the nomenclature of amphiboles, the current system leads to the classification of the Ilmen mineral as ferrian winchite. Also in the current system, however, winchite is assigned the “end-member” formula $\square(\text{CaNa})\text{Mg}_4(\text{Al},\text{Fe}^{3+})\text{Si}_8\text{O}_{22}(\text{OH})_2$, whereas the Ilmen mineral has $\text{Fe}^{3+} > \text{Al}$. For the Ilmen mineral to be named “ferriwinchite,” the requirement is that Fe^{3+} be > 1 atom per formula unit, which leads to the question of the end-member formula of “ferriwinchite.” An inconsistency is also evident by comparison of, for example, eckermannite $\text{NaNa}_2(\text{Mg}_4\text{Al})\text{Si}_8\text{O}_{22}(\text{OH})_2$ vs. magnesio-arfvedsonite $\text{NaNa}_2(\text{Mg}_4\text{Fe}^{3+})\text{Si}_8\text{O}_{22}(\text{OH})_2$. **J.L.J.**