American Mineralogist, Volume 80, pages 404–409, 1995

NEW MINERAL NAMES*

JOHN L. JAMBOR
Department of Earth Sciences, University of Waterloo, Waterloo, Ontario N2L 3G1, Canada
JACEK PUZIEWICZ
Institute of Geological Sciences, University of Wroclaw, Cybulskiego 30, 50–205 Wroclaw, Poland
ANDREW C. ROBERTS
Geological Survey of Canada, 601 Booth Street, Ottawa, Ontario K1A 0E8, Canada

Biotite-6A

A.P. Zhukhlistov, M.A. Litsarev, V.I. Finckho (1993) First finding of a six-layer triclinic 6*TC* polytype of Ti-oxybiotite. Doklady Akad. Nauk, 329(4), 500–503 (in Russian).

Electron diffraction study of titaniferous biotite from alkaline scoria of the Sumen-Gol volcano, Mongolia, showed the existence of the 6*A* polytype (triclinic, space group, *C*1, $a = 5.328$, $b = 9.228$, $c = 59.71$ Å, $\alpha = 92.95°$). Electron microprobe analysis and FeO and Fe_2O_3 determinations by wet chemistry gave a composition $(K_{0.93}Na_{0.07}Ba_{i0.02})_{\Sigma 1.02}[Mg_{1.24}Fe^{2+}_{0.64}Fe^{3+}_{0.26}Al_{0.18}Ti_{0.65}(Ni,Co)_{0.02}]_{\Sigma 3.01}(Si_{2.79}Al_{1.21})_{\Sigma 4.00}O_{10}(O_{1.51}OH_{0.49})_{\Sigma 2.00}$.

Discussion. Note that data are for a new polytype rather than for a new mineral. **J.P.**

Ernienickelite*

J.D. Grice, B. Gartrell, R.A. Gault, J. Van Velthuizen (1994) Ernienickelite, $NiMn_3O_7 \cdot 3H_2O$, a new mineral species from the Siberia complex, Western Australia: Comments on the crystallography of the chalcophanite group. Can. Mineral., 32, 333–337.

Electron microprobe analysis gave MnO_2 68.25, NiO 16.68, CoO 0.30, MgO 0.30, $(H_2O)_{calc}$ 13.94, sum 99.47 wt%, corresponding to $(Ni_{0.87}Mg_{0.03}Mn_{0.04}Co_{0.02})_{\Sigma 0.96}O_7 \cdot 3H_2O$, ideally $NiMn_3O_7 \cdot 3H_2O$. Occurs as thin, almost circular plates to 0.5 × 0.5 × 0.02 mm; also as rosettes of randomly oriented plates, to 0.8 mm across. Color almost black, with a red-brown cast; submetallic to vitreous luster, opaque except in thin plates, yellow-brown streak, $H = \approx 2$, brittle, splintery fracture, perfect {001} cleavage, nonfluorescent, $D_{meas} = 3.84(4)$, $D_{calc} = 3.83$ g/cm³ for $Z = 6$. Optically uniaxial negative, $\omega = >2.00$, $\epsilon = 1.97(2)$, nonpleochroic. Single-crystal X-ray study indicated trigonal symmetry, space group $R\bar{3}$ or $R3$, $a = 7.514(3)$, $c = 20.517(4)$ Å as refined from the powder pattern (114-mm Debye-Scherrer, Cu radiation). Strongest lines are 6.84(100,003), 4.01(20,104), 2.219(30,214), 1.884(20,217), and 1.575(20,2.1.10).

The mineral occurs in cavities in quartz in a Ni- and Co-rich laterite associated with a weathered ultramafic body 60 km north of Kalgoorlie, Western Australia. The new name is for mineralogist Ernest H. Nickel. Type material is in the Canadian Museum of Nature, Ottawa, Ontario.

Discussion. Corresponds to "Ni-chalcophanite" from Russia, abstracted in *Am. Mineral.*, 79, 388–389, 1994. **J.L.J.**

Fluorrichterite*

A.G. Bazhenov, I.L. Nedosekova, E.U. Petersen (1993) Fluorrichterite $Na_2Ca(Mg,Fe)_5[Si_8O_{22}](F,OH)_2$: A new mineral species in the amphibole group. Zapiski Vseross. Mineral. Obshch., 122(3), 98–102 (in Russian).

Wet-chemical analyses (three given) gave SiO_2 53.98, TiO_2 0.05, Al_2O_3 1.19, Fe_2O_3 3.33, FeO 5.35, MnO 0.68, MgO 18.31, CaO 8.23, Na_2O 4.20, K_2O 1.11, H_2O 0.99, F 3.30, O ≡ F 1.91, sum 99.28 wt%, corresponding to $K_{0.20}Na^{A}_{0.44}Na^{B}_{0.73}Ca_{1.27}Mg_{3.93}Mn_{0.08}Fe^{2+}_{0.64}Fe^{3+}_{0.36}Al_{0.20}Si_{7.78}(OH)_{0.50}F_{1.50}$. The mineral belongs to the amphibole group. Crystals are elongate [001] to 10 cm, with well-developed {100} and {010}, and less common {110}. Light green or blue-green color, transparent, vitreous luster, white streak, brittle, $H = 5–6$, perfect {110} cleavage, splintery fracture, $D_{meas} = 3.174(1)$, $D_{calc} = 3.213(8)$ g/cm³. Optically biaxial negative, anomalous interference colors (indigo blue and brown), $\alpha = 1.612–1.618(1)$, $\beta = 1.621(1)$, $\gamma = 1.627–1.629(1)$, $2V = 71–72°$. Optic axial plane [010], positive elongation, $c \wedge Z = 18–26°$, dispersion $r < v$. Strongly pleochroic: X = light brown to colorless, Y = brownish green to lilac violet, Z = bluish green, $Z > Y > X$. The X-ray powder pattern of the mineral is similar to that of synthetic fluorrichterite; by analogy, the symmetry is monoclinic, $a = 9.800–9.828$, $b = 17.93–18.04$, $c = 5.195–5.265$ Å, $\beta = 103.17–104.35°$. Strongest lines (57 given) are 9.2(70), 3.34(100,131), 3.13(90,310), 2.82(70,330), and 1.98(90,351). Absorptions appear in the infrared pattern at 410, 465, 515, 670, 744, 927, 1077, 1142, 3750, 3690–3720, and 3670 cm⁻¹.

The mineral occurs in the Imeno-Vishnegorskij alkaline complex, Ural Mountains, Russia, where it is a rock-forming component in fenites (accompanied by microcline,

---

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

0003–004X/95/0304–0404$02.00

albite, and phlogopite), carbonatites, and metasomatic rocks (accompanied by calcite, dolomite, phlogopite, magnetite, pyrochlore, zircon, apatite, pyrrhotite, pyrite, and ilmenite). The name is for the composition, by analogy to richterite. Type material is in the Mineralogical Museum of the Mining Institute, Saint Petersburg, Russia. **J.P.**

Høgtuvaite*

R.I. Grauch, I. Lindahl, H.T. Evans, Jr., D.M. Burt, J.J. Fitzpatrick, E.E. Foord, P.-R. Graff, J. Hysingjord (1994) Høgtuvaite, a new beryllian member of the aenigmatite group from Norway, with new X-ray data on aenigmatite. Can. Mineral., 32, 439–448.

D.M. Burt (1994) Vector representations of some mineral compositions in the aenigmatite group, with special reference to høgtuvaite. Can. Mineral., 32, 449–457.

The mineral occurs mainly as late-stage, poikiloblastic, metamorphic crystals that make up to 15% by volume of a poorly foliated, peraluminous granitic gneiss. Crystals are generally prismatic individuals, up to 4 cm long and 6 mm across, striated along the elongation; black color, dark green streak, opaque to subtranslucent, nonmetallic subadamantine luster, brittle, uneven fracture, two good cleavages at about 55°, imperfect parting approximately perpendicular to elongation, $H = 5.5$, nonfluorescent, nonmagnetic, insoluble in most common acids, $D_{meas} = 3.85(2)$, $D_{calc} = 3.98$ g/cm³ for $Z = 2$. Electron microprobe analysis gave SiO_2 31.60, Al_2O_3 2.64, BeO (by ICP) 2.65, Fe_2O_3 19.03, FeO (wet chem.) 28.06, TiO_2 2.77, SnO_2 0.53, MnO 0.27, MgO 0.42, CaO 10.44, Na_2O 1.52, sum 99.93 wt%, corresponding to $(Ca_{1.63}Na_{0.43})_{\Sigma 2.06}(Fe^{2+}_{3.42},Fe^{3+}_{2.08}Ti_{0.30}Mg_{0.09}Mn_{0.03}Sn_{0.03})_{\Sigma 5.95}(Si_{4.60}Be_{0.92}Al_{0.45})_{\Sigma 5.97}O_{20}$, simplified as $(Ca,Na)_2(Fe^{2+},Fe^{3+},Ti)_6(Si,Be,Al)_6O_{20}$. Optically biaxial, possibly negative, large $2V$, $\alpha' = 1.78$, $\gamma' = 1.82$; strongly pleochroic, X = green, Z = bronze. Single-crystal X-ray study indicated triclinic symmetry, ubiquitous polysynthetic twinning, space group $P\bar{1}$ by analogy to members of the aenigmatite group. Refined cell dimensions from the powder pattern (Guinier-Hägg, $CrK\alpha_1$ radiation) are $a = 10.317(1)$, $b = 10.724(1)$, $c = 8.855(1)$ Å, $\alpha = 105.77(1)$, $\beta = 96.21(1)$, $\gamma = 124.77(1)$°; strongest lines are 8.048(90,010), 3.125(46,021,012), 2.9247($59,0\bar{3}1,0\bar{1}3$), 2.6761($48,2\bar{4}1,\bar{2}03$), 2.5293($100,\bar{4}20$), 2.0979($63,2\bar{5}1, \bar{2}04$), 2.0747($47,4\bar{1}1$), and 1.6191($33,0\bar{5}4,0\bar{4}5$).

The mineral occurs in granitic gneiss and associated pegmatoids near Høgtuva Mountain, approximately 16 km northwest of Mo i Rana, Nordland County, Norway. Høgtuva, to which the new name alludes, is the most significant geomorphological feature in the area. Type material is in the Mineralogical-Geological Museum, University of Oslo, Oslo, Norway. Høgtuvaite is identical to the recently described but unapproved mineral called makarochkinite (*Am. Mineral.*, 77, p. 448, 1992). **J.L.J.**

Khristovite-(Ce)*

L.A. Pautov, P.V. Khorov, K.I. Ignatenko, E.V. Sokolova, T.N. Nadezhina (1993) Khristovite-(Ce)—(Ca,REE)-REE(Mg,Fe)$AlMnSi_3O_{11}(OH)(F,O)$: A new mineral in the epidote group. Zapiski Vseross. Mineral. Obshch., 122(3), 103–111 (in Russian).

Electron microprobe analyses gave SiO_2 29.9, Al_2O_3 9.5, MgO 2.7, CaO 5.6, TiO_2 1.6, V_2O_3 1.1, Cr_2O_3 1.5, FeO 1.8, MnO 11.8, Ce_2O_3 13.6, La_2O_3 8.7, Nd_2O_3 4.2, Sm_2O_3 0.6, Dy_2O_3 3.1, Pr_2O_3 1.4, F 2.0, $(H_2O)_{calc}$ 1.5, $F \equiv O$ 0.8, sum 99.8 wt%, corresponding to $(Ca_{0.60}La_{0.20}\square_{0.20})_{1.00}(Ce_{0.50}La_{0.12}Nd_{0.15}Dy_{0.10}Pr_{0.05}Sm_{0.02}\square_{0.07})_{1.00}(Mg_{0.40}Fe_{0.15}Cr_{0.12}Ti_{0.12}Al_{0.12}V_{0.09})_{1.00}Mn_{1.00}Al_{1.00}Si_{3.00}O_{11}(OH)_{1.00}(F_{0.63}O_{0.37})_{1.00}$. The mineral belongs to the epidote group. Grains are elongate, to 1.5 mm long, have {001} and {100} dominant, and subordinate {101} and {102} faces. Brown to dark brown color. Light brown streak, vitreous luster, transparent, $H = 5$, no cleavage observed, $D_{meas} = 4.05(5)$, $D_{calc} = 4.11$ g/cm³. Brown in transmitted light, optically biaxial negative, $\alpha = 1.773(2)$, $\beta = 1.790(2)$, $\gamma = 1.803(2)$, $2V_{meas} = 83(3)$°, medium dispersion $r < v$; strong pleochroism, with X = very light yellow, Y = dark reddish brown, Z = brown, $Y > Z \gg X$. In sections perpendicular to the acute bisectrix, $Y \wedge$ elongation = 1.5–3°; in sections perpendicular to the obtuse bisectrix, extinction is parallel. Single-crystal X-ray structure study ($R = 0.035$) showed the mineral to be monoclinic, space group $P2_1/m$, $a = 8.903(6)$, $b = 5.748(3)$, $c = 10.107(7)$ Å, $\beta = 113.41(5)$°. Strongest lines of the powder pattern (57-mm camera, Fe radiation; 16 lines given) are 3.52($40,\bar{2}11$), 2.91($100,\bar{3}02,\bar{1}13$), 2.73(70,300,013), and 2.63($80,\bar{3}03$). The infrared spectrum has absorption bands at 23300, 22500, 21700, 21300, 20400, and 19800–20000 cm^{-1}. A strong absorption band at 400–500 nm suggests Mn^{2+} at M3.

The mineral, which was found in a rhodonite occurrence on the northern slope of the Iniltschek Range, southeastern Tien-shan, Kirgizhya (former USSR), is associated with rhodonite, tephroite, rhodochrosite, hyalophane, barite, hejtmanite, hübnerite, and an unidentified Cl-bearing manganese silicate. The new name is for E.V. Khristov, a specialist in Tien-shan geology. Type material is at the Fersman Mineralogical Museum, Moscow, Russia, and at the Museum of the Ilmenskij National Park. **J.P.**

Lidinite, basinite

N.P. Tschirvinskij, L.V. Savina, E.S. Golovanova (1990) Crystal-optical properties of two organic minerals extracted from the bile of sick men. Mineral. Sbornik Lvov, 44(1), 84–85 (in Russian).

Two organic phases found in the bile of ill people are named lidinite and basinite. Lidinite occurs as crystals of various forms (spherulites, platy-prismatic, angular-rhomboidal) up to 3.5 × 2.5 mm. No cleavage, optically biaxial positive, $n = 1.55–1.56$, birefringence 0.009–0.020, $2V \approx 50–60$°, negative elongation, maximum extinction angle 33°. The chemical composition is that of cholesterine. Basinite occurs as sheaflike aggregates and as columnar crystals to 1.8 mm, striated parallel to the elongation. Optically biaxial negative, $n = 1.65–1.67$, birefringence 0.045, straight extinction, positive elongation. The chemical composition is calcium bilirubinate.

Discussion. These phases are completely of biogenic origin and do not qualify as minerals. **J.P.**

Petersenite-(Ce)*

J.D. Grice, J. Van Velthuizen, R.A. Gault (1994) Petersenite-(Ce), a new mineral from Mont Saint-Hilaire, and its structural relationship to other REE carbonates. Can. Mineral., 32, 405–414.

Electron microprobe analysis gave Na_2O 17.38, CaO 1.32, BaO 0.32, SrO 1.70, La_2O_3 14.49, Ce_2O_3 23.66, Pr_2O_3 2.00, Nd_2O_3 5.82, Sm_2O_3 0.60, CO_2 by single-crystal X-ray structure study ($R = 0.035$) 32.92, sum 100.21 wt%, corresponding to $(Na_{3.75}Ca_{0.16})_{\Sigma 3.91}(Ce_{0.96}La_{0.59}Nd_{0.23}Sr_{0.11}Pr_{0.08}Sm_{0.02}Ba_{0.01})_{\Sigma 2.00}(CO_3)_5$, ideally $Na_4REE_2(CO_3)_5$. Occurs as acicular crystals and prisms to 7 mm long; color yellow, mauve, and gray with a pinkish tint, vitreous luster, white streak, transparent to translucent, brittle, conchoidal fracture, $H = \sim 3$, nonfluorescent, $D_{meas} = 3.69(3)$, $D_{calc} = 3.67$ g/cm³ for $Z = 4$. Optically biaxial, $\alpha = 1.623(1)$, $\beta = 1.636(1)$, $\gamma = 1.649(1)$, $2V_{meas} = 89.7(5)°$, $2V_{calc} = 89.8°$, moderate dispersion, $X = \mathbf{b}$, $Y \wedge \mathbf{c} = 30°$, $Z = \mathbf{a}$. Monoclinic symmetry, space group $P2_1$, $a = 20.84(2)$, $b = 6.374(4)$, $c = 10.578(4)$ Å, $\beta = 120.43(8)°$, strong hexagonal subcell related to burbankite and remondite-(Ce). Strongest lines of the powder pattern (114-mm Debye-Scherrer, Cu radiation) are 9.13(30,001), 5.22(50,011), 4.13(30,$\bar{5}$01), 3.70(40,$\bar{4}$12), 2.607(100,402), 2.148(30,$\bar{9}$13,313), and 1.921(30,430,$\bar{4}$32).

The mineral occurs in several associations in specimens from the Poudrette quarry at Mont Saint-Hilaire, Quebec. The new name is for Ole V. Petersen, Geologisk Museum, Copenhagen, Denmark. Type material is in the Candian Museum of Nature, Ottawa, Ontario. **J.L.J.**

Unnamed (Pd,Pt)$_3$(Bi,Sb), Pt(Cu,Sb)$_3$

N.S. Rudashevskij, B.E. Burakov, K.N. Malitsch, V.V. Kaetskij (1992) Accessory platinum mineralization in chromities of the Konder alkaline-ultrabasic massif. Mineral. Zhurnal, 14(2), 12–22 (in Russian).

Electron microprobe analyses of a concentrate of accessory minerals in chromite ore from the Konder massif, Aldan craton, Siberia, Russia, revealed two unnamed phases. Analysis of one gave Pt 35.5, Pd 28.3, Fe 0.4, Ni 0.3, Cu 3.3, Sb 5.1, Bi 25.7, sum 98.6 wt%, corresponding to $Pd_{1.59}Pt_{1.09}Cu_{0.31}Fe_{0.03}Ni_{0.03}(Bi_{0.73}Sb_{0.25})$, or $(Pd,Pt,Cu)_3(Bi,Sb)$. Analysis of the other mineral gave Pt 47.6, Ir 0.7, Ni 0.6, Cu 45.3, Sb 4.8, Pb 0.8, sum 99.8 wt%, corresponding to $(Pt_{0.96}Ir_{0.02})_{\Sigma 0.98}(Cu_{2.81}Sb_{0.15}Ni_{0.04}Pb_{0.02})_{\Sigma 3.02}$, possibly $PtCu_3$.

Discussion. $PdBi_3$ is known synthetically, both as an isometric and an orthorhombic phase. Synthetic $PtCu_3$ is isometric. **J.P.**

ReS$_n$

M.A. Korzhinsky, S.I. Tkachenko, K.I. Shmulovich, Y.A. Taran, G.S. Steinberg (1994) Discovery of a pure rhenium mineral at Kudriavy volcano. Nature, 369(6475), 51–52.

The mineral occurs as solid crusts, 1–2 mm thick, which formed as a fumarolic sublimate on volcanic fragments at Kudriavy volcano, an active (degassing) calc-alkaline volcano on Iturup Island, one of the Kuril Islands northeast of Japan. The crusts are light gray, soft, and graphite-like, consisting of rosettes and radial clusters of thin plates (up to 100 × 300 μm, judging from SEM photos). Numerous (>50) analyses gave Re 76–78, S 23–24 wt%, corresponding to ReS_2 (requiring 74.4 wt% Re) or Re_2S_3 (79.5% Re). The basal spacing is 6.11(1) Å. Some analyses are reported to contain 6–12% Mo.

Discussion. Analysis of a grain corresponding to $(Re,Mo,Fe,Cu)_2S_3$ or $Re(Mo,Fe,Cu)S_3$ was abstracted in *Am. Mineral.,* 75, p. 1212, 1990. **J.L.J.**

AgInS$_2$, zinc iron copper sulfide

E. Ohta (1989) Occurrence and chemistry of indium-containing minerals from the Toyoha mine, Hokkaido, Japan. Mining Geol., 39(6), 355–372.

The minerals occur in the Pb-Zn-Ag vein-type deposit of the Toyoha mine, 40 km southwest of Sapporo, Hokkaido, Japan. Associated In minerals are roquesite, sakuraiite, and the Zn-In mineral described in the succeeding abstract.

AgInS$_2$

Electron microprobe analysis (one of three listed) gave Cu 0.52, Ag 37.48, Fe 0.18, Zn 1.31, In 39.19, S 21.49, sum 100.17 wt%, corresponding to $Ag_{2.00}Zn_{0.12}Cu_{0.05}Fe_{0.02}In_{1.96}S_{3.86}$ for eight atoms, ideally $AgInS_2$, which is known synthetically. Slightly more reddish tint than that of hocartite, similar polishing hardness, strong anisotropism, no bireflectance. Occurs as a partial replacement of In-bearing sphalerite and the unnamed Zn-In mineral.

Zinc iron copper sulfide

Occurs as strongly anisotropic dendrites within chalcopyrite associated with roquesite, kesterite, sakuraiite, sphalerite, and the Zn-In mineral. Brownish gray with a violet tint, nonpleochroic. Electron microprobe analysis (one of three listed) gave Zn 49.28, Fe 9.75, Cu 6.47, Ag 0.14, In 0.56, Sn 0.12, S 33.67, sum 99.99 wt%, corresponding to $Zn_{2.89}Fe_{0.67}Cu_{0.39}Ag_{0.01}In_{0.02}S_{4.02}$ for eight atoms. Ratios of metal to S for the three analyses are 3.98:4.02, 3.96:4.03, and 3.98:4.02.

Discussion. See *Am. Mineral.,* 78, p. 453 (1993) for a report of (Zn,Fe,Cu)S from a deposit in Inner Mongolia.

In contrast to the strongly anisotropic Toyoha zinc iron sulfur sulfide, the other is reported to be weakly anisotropic (but polarization colors are fairly pronounced). **J.L.J.**

Zinc indium sulfide

E. Ohta (1989) Occurrence and chemistry of indium-containing minerals from the Toyoha mine, Hokkaido, Japan. Mining Geol., 39(6), 355–372.

B.I. Semenyak, A.P. Nedashkovskii, N.N. Nikulin (1994) Indium minerals in the ores of the Pravourmiiskoe deposit (Russian Far East). Geology of Ore Deposits, 36(3), 207–213 (translation of Geol. Rudnykh Mestorozhdenii, 36(3), 230–236, 1994).

The mineral occurs in the vein-type Toyoha mine and in the Pravourmiiskoe Sn-W greisen deposit, in both cases associated with In-bearing sphalerite and other indium sulfides. Six electron microprobe analyses are given for the Zn-In mineral from each deposit; for Pravourmiiskoe, In ranges from 17.1 to 24.68 wt%, and, for the Toyoha mineral, the analyses with the highest and lowest In contents (and range) are Cu 15.25, 9.15 (15.25–9.15), Ag 0.26, 0.12 (0.26–0.12), Fe 1.28, 2.41 (1.28–3.74), Zn 29.44, 43.88 (29.44–43.88), In 22.73, 10.85, Sn 2.66, 2.42 (1.25–2.66), S 28.91, 31.12 (28.91–31.12), sum 100.53, 99.97 (100.53–99.80) wt%, corresponding to $Cu_{1.05}Ag_{0.01}Fe_{0.10}Zn_{1.96}In_{0.86}Sn_{0.10}S_{3.93}$, and $Cu_{0.59}Ag_{0.01}Fe_{0.18}Zn_{2.76}In_{0.39}Sn_{0.08}S_{3.99}$, close to $(Zn,Fe)_2CuInS_4$. Solid solution with sphalerite seems to be complete. In the Toyoha deposit the mineral occurs as bands, up to 50 μm wide, in concentric intergrowths with sphalerite and In-bearing sphalerite; color is slightly brownish relative to sphalerite, similar polishing hardness, no birefringence or internal reflection, imperceptible to weak anisotropism. The slight anisotropism indicates that the crystal structure may depart slightly from that of the synthetic phase Zn_2CuInS_4, which has a sphalerite structure. In the Pravourmiiskoe occurrence the anisotropism of the mineral is not detectable, and the reflectance curve is similar to that of sphalerite, but higher (by about 2%; at 500 nm, 17% for sphalerite, and 19% for the Zn-In mineral). VHN_{10} = 263; relief similar to that of sphalerite and higher than that of chalcopyrite. **J.L.J.**

New Data

Coconinoite

L.N. Belova, A.I. Gorshikov, O.A. Doinikova, A.V. Mokhov, N.V. Trubkin, A.V. Sivtsov (1993) New data on coconinoite. Doklady Akad. Nauk, 329(6), 772–775 (in Russian).

Chemical analysis (wet?) of coconinoite from the Kizylkhum Formation (no other details about the geographical location) gave Al_2O_3 13.78, UO_3 38.73, P_2O_5 19.52, SO_3 4.96, H_2O 23.97, sum 100.96 wt%, corresponding to $Al_4(UO_2)_2(PO_4)_4SO_4(OH)_2 \cdot 18H_2O$. Varieties containing Fe_2O_3 (3.94) and Cr_2O_3 (1.86 wt%) were also found. Combined X-ray and electron diffraction study showed the mineral to be monoclinic, space group $C2/c$ or Cc, a = 12.50(3), b = 12.97(3), c = 23.00(3) Å, β = 106.6°.

Discussion. The original analyses of coconinoite gave proportions of Fe to Al approximating 1:1, and the "probable formula" was given as $Fe^{3+}_2Al_2(UO_2)_2(PO_4)_4SO_4(OH)_2 \cdot 20H_2O$ (*Am. Mineral.*, 51, 651–663, 1966). The new data indicate not only a slightly different formula, but also a clear predominance of Al. **J.P.**

Corvusite, fernandinite

H.T. Evans, Jr., J.E. Post, D.R. Ross, J.A. Nelen (1994) The crystal structure and crystal chemistry of fernandinite and corvusite. Can. Mineral., 32, 339–351.

Electron microprobe analyses and Rietveld analyses of the X-ray powder patterns of type corvusite (R_w = 0.126) and fernandinite (R_w = 0.16) have confirmed their monoclinic symmetry and cell dimensions. The average analytical formula of fernandinite is $(Ca_{0.87}K_{0.04}Na_{0.01})_{\Sigma 0.92}(V_{7.79}Fe_{0.18}Ti_{0.03})_{\Sigma 8.00}O_{20} \cdot 4H_2O$, or $(Na,Ca,K)_xV_8O_{20} \cdot 4H_2O$. The interlayer H_2O is loosely bound and varies with temperature and humidity. The formulas are new.

Discussion. A problem needs to be resolved in that a previous study, also of type material, led to the discreditation of fernandinite (*Am. Mineral.*, 75, p. 1215, 1990). **J.L.J.**

Kalipyrochlore

T.S. Ercit, F.C. Hawthorne, P. Černý (1994) The structural chemistry of kalipyrochlore, a "hydropyrochlore." Can. Mineral., 32, 415–420.

Electron microprobe analysis and single-crystal X-ray structure study (R = 0.0162) of kalipyrochlore, which is known only from the Lueshe carbonatite, Zaire, gave isometric symmetry, space group $Fd3m$, a = 10.604(1) Å, and the new formula $[(H_2O)_{0.99}Sr_{0.05}Ca_{0.01}]_{\Sigma 1.05}(Nb_{1.80}Ti_{0.20})_{\Sigma 2.00}[O_{4.06}(OH)_{1.94}]_{\Sigma 6.00}[(H_2O)_{0.86}K_{0.14}]$, ideally $Nb_2(O,OH)_6 \cdot pH_2O$, where $p \leq 1.75$. **J.L.J.**

Mrázekite

H. Effenberger, W. Krause, K. Belendorf, H.-J. Bernhardt, O. Medenbach, J. Hybler, V. Petříček (1994) Revision of the crystal structure of mrázekite, $Bi_2Cu_3(OH)_2O_2(PO_4)_2 \cdot 2H_2O$. Can. Mineral., 32, 365–372.

Single-crystal X-ray structure study (R = 0.050) of mrázekite indicated that the cell dimensions reported previously (see *Am. Mineral.*, 77, p. 1306, 1992) are for the pseudocell; for the full cell, a = 9.065(1), b = 6.340(1), c = 21.239(3) Å, β = 101.57(1)°, space group $P2_1/n$, D_{calc} = 5.00 g/cm³ for Z = 4. Optically biaxial negative, n = 1.86–

1.87, $X \wedge \mathbf{c} = 27°$, $Y \wedge \mathbf{a} = 15°$, Z parallel to **b**. The description is from the second occurrence, in silicified barite veins at Gadernheim and Reichenbach, Odenwald, Hesse, Germany, where the mineral forms elongate, blue crystals up to 0.5 mm across. **J.L.J.**

Olympite

R.K. Rastsvetaeva, A.P. Khomyakov (1994) A comparative crystal-chemical study of lithium-sodium phosphates (lithiophosphate, nalipoite, olympite, and Na_3PO_4). Crystallography Reports, 39, 35–41.

Olympite was originally described as Na_3PO_4. Single-crystal X-ray structure study ($R = 0.029$) of a fragment of the holotype material from the Khibini massif, Russia, showed the mineral to be orthorhombic, space group $P2_12_12_1$, $a = 10.124(2)$, $b = 14.794(2)$, $c = 10.132(3)$ Å, and to have the composition $LiNa_5(PO_4)_2$, $Z = 8$. Thus, olympite specimens from the Khibini and Lovozero massifs both have the composition $LiNa_5(PO_4)_2$.

Discussion. The results clarify the previous confusion about the formula of olympite and the possible existence of a Li analogue (*Am. Mineral.*, 79, 571–572, 1994). Olympite is redefined as $LiNa_5(PO_4)_2$. **J.L.J.**

Rhomboclase

K. Mereiter (1974) The crystal structure of rhomboclase, $H_5O_2^+\{Fe[SO_4]_2\cdot 2H_2O\}^-$. Tschermaks Mineral. Petrog. Mitt., 21, 233–245 (in German).

Single-crystal X-ray structure study ($R = 0.030$) of synthetic rhomboclase gave orthorhombic symmetry, space group *Pnma*, $a = 9.724(4)$, $b = 18.333(9)$, $c = 5.421(4)$ Å, $Z = 4$, $D_{calc} = 2.21$ g/cm³. The structure consists of pronounced $[Fe(SO_4)_2\cdot 2H_2O]^-$ sheets linked by $(H_5O_2)^-$, thus leading to the structural formula given above.

Discussion. The formula is a revision of the one in the *Glossary of Mineral Species.* **J.L.J.**

Wermlandite

J. Ruis, R. Allmann (1984) The superstructure of the double layer mineral wermlandite $[Mg_7(Al_{0.57}Fe^{3+}_{0.43})_2(OH)_{18}]^{2+}\cdot[(Ca_{0.06}Mg_{0.4})(SO_4)_2(H_2O)_{12}]^{2-}$. Zeits. Kristallogr., 168, 133–144.

Single-crystal X-ray structure study ($R = 0.072$) of wermlandite from Långban, Sweden, showed it to be hexagonal, space group $P\bar{3}c1$, $a = 9.303(3)$, $c = 22.57(1)$ Å, $D_{calc} = 1.96$ g/cm³ for $Z = 2$. The structure consists of alternating layers of a brucite-like, OH-rich component and an ordered sulfate-bearing interlayer. The presence of sulfate and the absence of carbonate are notable in the new formula.

Discussion. The structural formula corresponds to $Mg_7(Ca,Mg)(Al,Fe)_2(SO_4)_2(OH)_{18}(H_2O)_{12}$. This abstract is intended as a revision for the *Glossary of Mineral Species.* **J.L.J.**

Wherryite, macquartite

M. Cooper, F.C. Hawthorne (1994) The crystal structure of wherryite, $Pb_7Cu_2(SO_4)_4(SiO_4)_2(OH)_2$, a mixed sulfate-silicate with $[^{[6]}M(TO_4)_2\phi]$ chains. Can. Mineral., 32, 373–380.

Single-crystal X-ray structure study ($R = 0.056$) of wherryite from the Mammoth mine, Arizona, indicated monoclinic symmetry, space group $C2/m$, $a = 20.789(4)$, $b = 5.787(1)$, $c = 9.142(3)$ Å, $\beta = 91.24(2)°$, and the new formula $Pb_7Cu_2(SO_4)(SiO_4)_2(OH)_2$, differing substantially from the original formula in that SiO_4 groups are present and CO_3 is absent. By analogy with wherryite, it is suggested that the formula of macquartite is probably $Pb_7Cu_2(CrO_4)_4(SiO_4)_2(OH)_2$. **J.L.J.**

Discredited Minerals

Doranite

D.K. Teertstra, A. Dyer (1994) The informal discreditation of "doranite" as the magnesium analog of analcime. Zeolites, 14, 411–413.

Doranite was first described in 1836 and has long been categorized as a doubtful species, possibly the Mg analogue of analcime. Reexamination of material collected from the type locality, Knockagh escarpment near Carrickfergus, Antrim County, Northern Ireland, showed that the host rock is a highly altered amygdaloidal basalt containing Mg-free analcime, natrolite, and thomsonite and Mg-rich clay minerals. Contamination of bulk samples by the clay minerals is unavoidable, probably accounting wholly or in large part for the MgO in the first reported analysis. Formal discreditation was not sought because doranite is not an IMA-accepted name.

Discussion. A.M. Clark in *Hey's Mineral Index* (3rd edition, 1993) states for doranite that "the mineral calls for re-examination." Informal discreditation is not a valid category of discreditation. **J.L.J.**

Portite*

M. Franzini, N. Perchiazzi (1994) Portite discredited = natrolite and new data on "schneiderite" (=laumontite). Eur. Jour. Mineral., 6, 351–353.

Reexamination of holotype portite, first described in 1852, showed that the original chemical analysis is erroneous and that the mineral is natrolite. Schneiderite, also originally described in the 1852 paper and thought since 1873 to be a magnesian laumontite, has been confirmed to be laumontite; the Mg reported in the original (1852) analyses for schneiderite, portite, and several other subsequently discredited minerals seem to have been due to the presence of impurities. **J.L.J.**

Rézbányite*

L. Žák, W.G. Mumme (1994) Rézbányite discredited. Neues Jahrb. Mineral. Mon., 314–316.

Previous investigations (*Am. Mineral.*, 77, 1308–1309, 1992) had indicated that no mineral with the composition of rézbányite is known and that museum specimens catalogued in 1874 from the type locality are heterogeneous mixtures predominantly of bismuthinite derivatives. The CNMMN has approved the discreditation. **J.L.J.**