

NEW MINERAL NAMES*

JOHN L. JAMBOR,¹ JACEK PUZIEWICZ,² AND ANDREW C. ROBERTS³

¹Department of Earth Sciences, University of Waterloo, Waterloo, Ontario N2L 3G1, Canada

²Institute of Geological Sciences, University of Wrocław, Cybulskiego 30, 50–205 Wrocław, Poland

³Geological Survey of Canada, 601 Booth Street, Ottawa K1A 0E8, Canada

Ancylite-(La)*

V.N. Yakovenchuk, Yu.P. Menshikov, Ya.A. Pakhomov-sky, G.Yu. Ivanyuk (1997) Ancylite-(La), SrLa(CO₃)₂(OH)·H₂O—a new carbonate from a hydrothermal vein at Kukisvumchorr Mountain (Khibiny massif) and its relationship to ancylite-(Ce). Zapiski Vseross. Mineral. Obshch., 126(1), 96–108 (in Russian).

Electron microprobe analysis (seven given, water by Penfield method, CO₂ method not specified) gave CaO 1.54, SrO 23.94, BaO 0.72, La₂O₃ 25.42, Ce₂O₃ 15.93, Pr₂O₃ 0.17, Nd₂O₃ 0.87, CO₂ 22.13, H₂O 8.66, sum 99.20 wt%, corresponding to SrLa(CO₃)₂(OH)₂·H₂O. Increase in Ce and decrease in La contents lead to compositions of ancylite-(Ce). Contents of all other REE correlate negatively with that of Ce. The mineral occurs in druses of well-formed pale yellow crystals, typically 0.3–0.7 mm and up to 2 mm, commonly short prismatic with {120} and {111}, some with {111} and {101}; also occurs rarely as skeletal or dendritic aggregates of platy crystals, and commonly as pseudomorphs after an unidentified hexagonal mineral. Translucent, vitreous luster, white streak, brittle, *H* = 4–4½, no cleavage, *D*_{meas} = 3.69(5), *D*_{calc} (Gladstone–Dale) = 3.93 g/cm³, readily soluble with effervescence in 10% HCl. In transmitted light, colorless or pale yellow, biaxial negative, $\alpha = 1.640(3)$, $\beta_{\text{calc}} = 1.717$, $\gamma = 1.731(3)$, $2V = 70(5)^\circ$. The infrared spectrum has absorption bands at 700, 710, 730, 870, 1070, 1400, 1430, 1480, 1680, 3490, and 3540 cm⁻¹, and is almost identical to that of ancylite-(Ce). DTA/TG study gave endotherms at 510 °C (loss of H₂O) and 1080 °C (loss of CO₂), correlative with losses of 20 wt% from 440–640 °C, and 10 wt% from 970–1100 °C. The X-ray powder pattern is identical to that of ancylite-(Ce), which is orthorhombic, and space group by analogy is *Pm*cn, *a* = 5.072(3), *b* = 8.589(3), *c* = 7.276(3) Å, *Z* = 2. Strongest lines (55 lines given) are 4.36(92,110), 3.738(88,111), 3.705(90,021), 2.955(100,102), and 2.664(89,031).

The mineral occurs in cavities in the natrolite-feldspar-nepheline-aegirine veins of the Kukisvumchorr apatite-nepheline deposit, Kola Peninsula, Russia. Ancylite-(La) is associated with belovite-(Ce), nenadkevichite, apophyllite, fluorite, calcite, donnayite-(Y), eudialyte, “kukarenkoite-(Y)”, and others. Type material is in the mu-

seum of the Saint Petersburg Mining Institute, Russia, and in the Geological Museum of the Kola Scientific Center, Apatity, Russia. J.P.

Brackebuschite, Fe³⁺ analog

J.A. Foley, J.M. Hughes, D. Lange (1997) The atomic arrangement of brackebuschite, redefined as Pb₂(Mn³⁺,Fe³⁺)(VO₄)₂(OH), and comments on Mn³⁺ octahedra. Can. Mineral., 35, 1027–1033.

Electron microprobe analyses (not given) of brackebuschite from Sierra de Córdoba, Argentina, showed that Mn-dominant and Fe-dominant regions within single crystals correspond to (Pb_{1.89}Sr_{0.02}Ba_{0.01}Ca_{0.03})_{Σ1.95}(Mn_{0.96}Fe_{0.04}Cu_{0.03}Zn_{0.01})_{Σ1.05}(V_{2.01}As_{0.02})_{Σ2.03}O₄(OH) and (Pb_{1.96}Sr_{0.01}Ca_{0.01})_{Σ1.98}(Fe_{0.77}Mn_{0.13}Cu_{0.03}Zn_{0.02})_{Σ0.95}(V_{2.04}As_{0.01})_{Σ2.05}O₄(OH), respectively, with H₂O by stoichiometry. Single-crystal X-ray structure study (*R* = 0.056) indicated monoclinic symmetry, space group *P*2₁/*m*, *a* = 7.650(1), *b* = 6.135(1), *c* = 8.863(1) Å, $\beta = 111.76(1)^\circ$. Brackebuschite is isostructural with gamagarite, and the new formula recognizes the trivalence of (Mn,Fe) and the presence of OH.

Discussion. Data for the redefinition, or for characterization of the Fe³⁺ analog as a new mineral, have not been submitted to the CNMMN. J.L.J.

Chromphyllite*

L.Z. Reznitsky, E.V. Sklyarov, Z.F. Ushchapovskaya, N.V. Nartova, V.G. Evsyunin, A.A. Kashaev, L.F. Suvorova (1997) Chromphyllite KCr₂[AlSi₃O₁₀](OH,F₂)—a new dioctahedral mica. Zapiski Vseross. Mineral. Obshch., 126(2), 110–119 (in Russian).

Electron microprobe analysis (average of 12) gave SiO₂ 40.24, Al₂O₃ 14.11, Cr₂O₃ 23.99, V₂O₅ 2.08, FeO 0.12, MgO 1.60, CaO 0.04, BaO 4.83, Na₂O 0.27, K₂O 8.58, H₂O (by TG) 3.32, F (by ion-selective electrode) 1.28, O = F 0.54, sum 99.97 wt%, corresponding to (K_{0.82}Ba_{0.14}Na_{0.04})_{Σ1.00}(Cr_{1.42}Al_{0.27}V_{0.13}Mg_{0.18})_{Σ2.00}[Al_{0.98}Si_{3.02}O₁₀](OH_{1.66}F_{0.30}O_{0.04}). The Cr content (max. 27.52 wt%) correlates negatively with that of Al. The mineral, which forms a solid solution series with muscovite, occurs as 0.3–0.4 mm plates and flakes, flattened [001], commonly rich in chromite and eskolaite inclusions. Emerald-green color, transparent, whitish green streak, vitreous luster, *H*_[001] = 130 (20 and 30 g load), corresponding to Mohs

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

~3, perfect {001} cleavage. Some grains are subhedral, pseudo-hexagonal, showing {110}, {010}, and {001}. $D_{\text{meas}} = 2.88(3)$, $D_{\text{calc}} = 2.86 \text{ g/cm}^3$ for $Z = 4$. Insoluble in HCl and HNO_3 . Optically biaxial negative, positive elongation, straight extinction, $\alpha = 1.619(3)$, $\beta = 1.669(2)$, $\gamma = 1.673(2)$, $2V = 31(1)^\circ$, distinct dispersion $r > v$, $b = Z$, $a \cong Y$, $X \cong \perp$ (001), optic axial plane \perp (001). In thin section, glaringly colored, distinctly or strongly pleochroic: $Z =$ emerald or bluish green, $Y =$ brownish green, $X =$ blue-green or, in very thin fragments, green-blue, supposedly $Y > X \cong Z$. The infrared spectrum has bands at 400–600, 900–1200, 1600–1700, and 3400–3600 cm^{-1} . DTA, DTG, and TG curves for mixtures of chromphyllite and muscovite are illustrated. Single-crystal X-ray study (De Jong–Bauman) showed the mineral to be orthorhombic, space group $C2c$, $a = 5.32(2)$, $b = 9.07(2)$, $c = 20.50(7) \text{ \AA}$, $\beta = 95.6(2)^\circ$, $2M_1$ polytype. Strongest lines of the Debye–Scherrer pattern (57 mm, $\text{FeK}\alpha$, 27 lines listed) are 9.94(60,002), 452(80,11 $\bar{1}$,020), 2.60(100,131), 2.40(560,133), 2.15(60,118,043), and 1.519(100,0.4.10,333,060).

The mineral occurs in the parametamorphic Slyudyanka complex, Siberia, Russia, in Cr-enriched layers in quartz-diopside rocks. Accompanying minerals are muscovite, biotite-phlogopite, uvarovite, chromian dravite, chromite-zincochromite, eskolaite, and rarely titanite and rutile. The new name alludes to the composition and micaceous cleavage. Type material is in the Fersman Mineralogical Museum, Moscow, Russia. **J.P.**

Damiaioite*

Zuxiang Yu (1997) Damiaioite—a new native indium and platinum alloy. *Acta Geol. Sinica*, 71(4), 328–331 (in Chinese, English abs.).

Electron microprobe analysis gave Pt 45.6 (45.4–46.0), In 53.5 (52.4–53.9), sum 99.1 wt%, corresponding to $\text{Pt}_{1.002}\text{In}_{1.998}$. The mineral occurs as polycrystalline globules, 1–2 mm in diameter, and as exsolved intergrowths with yixunite. Opaque, metallic luster, bright white color, black streak, $H = 5$, $VHN_{50} = 485$ (434–529), no cleavage, nonmagnetic, $D_{\text{calc}} = 10.95 \text{ g/cm}^3$ for $Z = 4$. Insoluble in HCl, HNO_3 , HF, and H_3PO_4 . In reflected light, bright white with a yellowish tint; isotropic. Reflectance percentages (WTiC standard, air), given in steps of 10 nm from 400 to 700 nm, are 49.0 (450), 60.6 (550), 68.5 (590), and 80.1 (650). Strongest lines of the X-ray powder pattern (57 mm Debye–Scherrer, $\text{FeK}\alpha$ radiation) are 2.25(100,220), 1.92(60,311), 1.59(60,400), 1.299(80,422), 1.125(60,440), and 1.006(70,620), in good agreement with data for synthetic PtIn_2 ; by analogy, $a = 6.364 \text{ \AA}$ and space group is $Fm\bar{3}m$.

The mineral occurs in a Pt vein in garnet-amphibole pyroxenite near the village of Damiao and the Yixun River, about 270 km north of Beijing. Associated minerals are moncheite, sperrylite, cooperite, yixunite, and chal-

copyrite. The new name is for the locality. Type material is in the Geological Museum of China. **J.L.J.**

Deliensite*

R. Vochten, N. Bleton, O. Peeters (1997) Deliensite, $\text{Fe}(\text{UO}_2)_2(\text{SO}_4)_2(\text{OH})_2 \cdot 3\text{H}_2\text{O}$, a new ferrous uranyl sulfate hydroxyl hydrate from Mas d'Alary, Lodève, Hérault, France. *Can. Mineral.*, 35, 1021–1025.

Electron microprobe analysis gave FeO 7.42 (5.70–8.36), UO_3 67.63 (65.42–69.88), SO_3 17.37 (16.71–18.20), H_2O (TGA) 8.63, sum 101.05 wt%, corresponding to $\text{Fe}_{0.909}(\text{UO}_2)_{2.081}(\text{SO}_4)_{1.949}(\text{OH})_{2.082} \cdot 3.179\text{H}_2\text{O}$. The mineral occurs as spherical aggregates, to 4 mm in diameter, consisting of pale yellow to grayish tabular crystals of mean length 0.35 mm and width of 0.06–0.15 mm, elongate [001], showing {100}, {010}, and {011}. Vitreous luster, transparent to translucent, white streak, $H = 2$, perfect {100} cleavage, commonly twinned along (010), nonfluorescent, readily soluble in dilute HCl, $D_{\text{meas}} = 3.26$, $D_{\text{calc}} = 3.31 \text{ g/cm}^3$ for $Z = 4$. Optically biaxial negative, $\alpha_{\text{calc}} = 1.432$, $\beta = 1.470(2)$, $\gamma = 1.492(2)$, $2V_{\text{meas}} = 73(2)^\circ$, nonpleochroic, weak dispersion $r > v$. Single-crystal X-ray study indicated orthorhombic symmetry, space group $Pnmm$ or $Pnn2$, $a = 15.908(5)$, $b = 16.274(3)$, $c = 6.903(1) \text{ \AA}$ as refined from a powder pattern (Guinier–Hägg, $\text{CuK}\alpha_1$ radiation) with strongest lines of 7.95(81,200), 5.90(100,111), 3.94(71,140), 3.45(67,002), 3.165(50,202), and 2.596(70,142).

The mineral is closely associated with uraninite, gypsum, and pyrite in the oxidation zone of the Mas d'Alary U deposit. The new name is for Belgian mineralogist Michel Deliens. Type material is in the Royal Belgian Institute of Natural Sciences, Brussels, Belgium. **J.L.J.**

Feinglosite*

A.M. Clark, A.J. Criddle, A.C. Roberts, M. Bonardi, E.A. Moffatt (1997) Feinglosite, a new mineral related to brackebuschite, from Tsumeb, Namibia. *Mineral. Mag.*, 61, 285–289.

Electron microprobe analysis gave PbO 61.4, ZnO 7.3, FeO 1.8, As_2O_5 22.1, SO_3 5.3, H_2O (calc.) 2.1, sum 100.0 wt%, corresponding to $\text{Pb}_{2.09}(\text{Zn}_{0.68}\text{Fe}_{0.18})_{\Sigma 0.86}[(\text{As}_{0.73}\text{S}_{0.25})_{\Sigma 0.98}\text{O}_4]_2\text{H}_{1.76}\text{O}$, ideally $\text{Pb}_2(\text{Zn,Fe})[(\text{As,S})\text{O}_4]_2 \cdot \text{H}_2\text{O}$, which is the Zn analog of arsenbrackebuschite. The infrared spectrum shows a broad band at 3282 cm^{-1} , which is attributed to H_2O . The mineral occurs as pale olive green, globular masses, with each globule about 0.5 mm across and consisting of radiating crystals. White streak, adamantine luster, sectile, $H = 4\text{--}5$, $VHN_{100} = 263$ (253–285), $D_{\text{calc}} = 6.52$ for $Z = 2$. Pale brownish gray in reflected light, nonpleochroic, not noticeably anisotropic, weak birefractance. Indexing of the X-ray powder pattern (114 mm Debye–Scherrer, $\text{CuK}\alpha$ radiation), by analogy with data for arsenbrackebuschite, indicated monoclinic symmetry, space group $P2_1$ or $P2_1/m$, $a = 8.973(6)$, $b =$

5.955(3), $c = 7.766(6)$ Å, $\beta = 112.20(6)^\circ$; strongest lines are 4.85(50,110), 3.246(100,112), 2.988(60,301), 2.769(60,300,211), and 2.107(50,321).

The mineral occurs with goethite, anglesite, and wulfenite in a cavity, about 2 cm in diameter, in a specimen of massive chalcocite from Tsumeb. The new mineral name is for Mark N. Feingloss (b. 1948) of Durham, North Carolina, who discovered the mineral. Type material is in The Natural History Museum, London, UK. **J.L.J.**

Grattarolaite*, Rodolicoite*

C. Cipriani, M. Mellini, G. Pratesi, C. Viti (1997) Rodolicoite and grattarolaite, two new phosphate minerals from Santa Barbara Mine, Italy. *Eur. J. Mineral.*, 9, 1101–1106.

The minerals are anhydrous phosphates occurring as aggregates, up to 1 mm long, in cavities in reddish brown, earthy nodules about 1 cm in diameter. The aggregates are reddish brown, brittle, and nontranslucent, with a greasy luster, brown streak, and no cleavage. The aggregates consist of almost homogeneous intergrowths of crystallites of irregular shape that are typically <1000 Å in size. TEM energy-dispersion analyses (not given) correspond to $\text{Fe}_{1.04}\text{P}_{0.96}\text{O}_{4.00}$ for rodolicoite, and $\text{Fe}_{2.99}\text{P}_{1.01}\text{O}_{7.00}$ for grattarolaite. The absence of H_2O is indicated by infrared, TG, and DT analyses. X-ray powder patterns have strongest lines at 4.38(25), 3.45(100), 3.08(100), and 2.077 Å (30), which matches data for a mixture of FePO_4 (PDF 29–715) and Fe_3PO_7 (PDF 37–61). By analogy, rodolicoite is trigonal, space group $P3_121$, $a = 5.048(3)$, $c = 11.215(8)$, $D_{\text{calc}} = 3.04$ g/cm³ for $Z = 3$; grattarolaite is trigonal, space group $R3m$, $a = 7.994(4)$, $c = 6.855(4)$, $D_{\text{calc}} = 4.08$ g/cm³ for $Z = 3$. Rietveld analysis indicated a mixture of 80% rodolicoite and 20% grattarolaite in the aggregates.

The minerals occur with heterosite at the Santa Barbara lignite mine, Upper Arno River Valley, 30 km southeast of Florence. The new names are for Guiseppa Grattarola (1844–1907) and Francesco Rodolico (1905–1988), mineralogists at the University of Florence. Type material is in the Museum of Natural History, University of Florence, Italy. **J.L.J.**

Jedwabite*

M.I. Novgorodova, M.E. Generalov, N.V. Trubkin (1997) Jedwabite $\text{Fe}_7(\text{Ta,Nb})_3$ —a new mineral in paragenesis with tantalum and niobium carbides from platinum-bearing placers. *Zapiski Vseross. Mineral. Obshch.*, 126(2), 100–103 (in Russian).

The average of 11 electron microprobe analyses gave Ta 35.33, Nb 13.05, Fe 44.40, Mn 0.60, Sn 2.06, W 3.07, Si 1.54, sum 100.05 wt%, corresponding to $(\text{Fe}_{6.46}\text{Mn}_{0.09}\text{Si}_{1.45})_{\Sigma 7.00}(\text{Ta}_{1.58}\text{Nb}_{1.14}\text{W}_{0.14}\text{Sn}_{0.14})_{\Sigma 3.00}$, simplified as $\text{Fe}_7(\text{Ta,Nb})_3$. The mineral occurs in polycrystalline aggre-

gates to 0.15 mm, or as 1–2 μm flattened hexagonal crystals with prism faces. Grayish yellow in color, metallic luster, opaque, uneven fracture, brittle, no cleavage, $VHN_{100} = 1100(50)$, $VHN_{50} = 1050(50)$, $D_{\text{calc}} = 8.91$ g/cm³ for $Z = 1$. In reflected light, grayish white, no internal reflections, no birefractance or anisotropy. Reflectance percentages are 50.0 (420 nm), 52.6 (440), 55.4 (460), 55.3 (480), 57.3 (500), 59.0 (520), 60.8 (560), 62.4 (580), 60.4 (600), 61.9 (640), 62.4 (660), 62.2 (680), and 63.3 (700). Electron diffraction study showed the mineral to be hexagonal, space group $P6_3/mmc$, $P6_3/mc$, or $P62c$, $a = 4.81(2)$, $c = 7.87(2)$ Å. Strongest lines of a Gandolfi powder pattern (FeK α radiation, 9 lines given) are 2.19(70,013), 2.05(100,112), 2.01(60,021), 1.347(80,123), and 1.059(50,133).

The mineral occurs in museum specimens, collected by P. Walther around the turn of the century, from Pt-bearing alluvial deposits in the middle Urals. The specimens also contain Ta carbide. The name is for Belgian mineralogist J. Jedwab, who initiated the study of natural Ta carbides. Type material is in the Fersman Mineralogical Museum, and in the State Vernadski Geological Museum, Moscow, Russia. **J.P.**

Lesukite*

L.P. Vergasova, E.L. Stepanova, E.K. Serafimova, S.K. Filatov (1997) Lesukite, $\text{Al}_2(\text{OH})_5\text{Cl}\cdot 2\text{H}_2\text{O}$ —a new mineral from volcanic exhalations. *Zapiski Vseross. Mineral. Obshch.*, 126(2), 104–110 (in Russian).

One of the five wet-chemical analyses listed gave Al_2O_3 25.54, Fe_2O_3 5.15, FeO 0.43, MgO 3.14, CaO 3.44, Na₂O 2.08, K₂O 0.98, Cl 21.27, SO₃ 1.36, H₂O⁻ 13.16, H₂O⁺ 22.89, residue 5.67, O = Cl 4.80, sum 100.31 wt%, corresponding to $(\text{Al}_{1.77}\text{Fe}_{0.23})_{\Sigma 2.00}(\text{OH}_{5.00}\text{Cl}_{0.90})_{\Sigma 5.99}\cdot 1.95\text{H}_2\text{O}$. The mineral forms damp, semi-transparent, yellowish creamy, polycrystalline clods of orthogonal shape, mixed with particles of volcanic ash. Yellow-orange color and streak, soluble in warm dilute acids. In transmitted light, transparent, colorless, isotropic, $n = 1.53$ –1.55. Decomposes at 150(20) °C. The DTA curve has endotherms at 160 (13 wt% loss), 185 (17%), and 340 °C (37%). The Debye–Scherrer X-ray pattern of the mineral is identical to that of synthetic $\text{Al}_2(\text{OH})_5\text{Cl}\cdot 2\text{H}_2\text{O}$, which is cubic, space group $Im3m$, $a = 19.824$ – 19.878 Å, $Z = 36$, $D_{\text{calc}} = 1.91$ g/cm³. Strongest lines of the powder pattern (34 lines given) are 8.11(70,211), 3.23(70,611), 2.706(100,721), 2.446(80,811), and 1.957(70,1.0.11). The mineral occurs in yellow-orange or yellow-brown accumulations in hot (50–300 °C) ashes and lavas at the Great Tolbachik Fissure Eruption, Kamchatka Peninsula, Russia. The new name is for Russian crystallographer G.L. Lesuk (1935–1995). Type material is in the museum of the Saint Petersburg Mining Institute, and in the museum of Saint Petersburg University, Russia. **J.P.**

Normandite*

G.Y. Chao, R.A. Gault (1997) Normandite, the Ti-analogue of lăvenite from Mont Saint-Hilaire, Quebec. *Can. Mineral.*, 35, 1035–1039.

Electron microprobe analysis gave Na₂O 9.26, K₂O 0.01, CaO 15.38, MnO 9.31, FeO 6.13, SiO₂ 31.92, TiO₂ 17.51, ZrO₂ 2.62, Nb₂O₅ 3.89, F 5.11, O = F 2.15, sum 98.99 wt%, corresponding to Na_{1.12}Ca_{1.03}(Mn_{0.49}Fe_{0.32})_{Σ0.81}(Ti_{0.82}Nb_{0.11}Zr_{0.08})_{Σ1.01}Si_{2.00}O_{7.99}F_{1.01}, ideally MnCa(Mn,Fe)(Ti,Nb,Zr)Si₂O₇F. Occurs as irregular fibrous patches, as acicular crystals to 2 mm, and as euhedral prismatic crystals to 10 mm length, elongate [001], flattened on {010}, and showing {100}, {110}, and {001}. Yellow, orange, or orange-brown color, vitreous luster, white to pale yellow streak, transparent to translucent, brittle, $H = 5-6$, distinct {100} and {001} cleavages, conchoidal fracture, nonfluorescent, resistant to 1:1 HCl or HNO₃, $D_{\text{meas}} = 3.50(1)$, $D_{\text{calc}} = 3.48 \text{ g/cm}^3$ for $Z = 4$. Optically biaxial negative, $\alpha = 1.743(2)$, $\beta = 1.785(2)$, $\gamma = 1.810(5)$, $2V_{\text{meas}} = 72-84^\circ$, $2V_{\text{calc}} = 74^\circ$, moderate dispersion $r > v$, pronounced pleochroism $X = \text{pale yellow}$, $Y = \text{yellow}$, $Z = \text{brownish red to deep red}$; $Y = b$, $X \wedge c = 15^\circ$ in the obtuse angle β . Single-crystal X-ray study indicated monoclinic symmetry, space group $P2_1/a$; $a = 10.828(7)$, $b = 9.790(7)$, $c = 7.054(2)$ Å, $\beta = 108.20(3)^\circ$ as refined from a 114 mm Gandolfi pattern (CoK α radiation) with strongest lines of 3.942(20, $\bar{1}21$), 3.234(30, 310), 2.859(100, $\bar{1}22$), 2.807(70, 320), 1.762(20, $\bar{2}04$), 1.741(20, 242), 1.727(20, 442), 1.688(20, 610), and 1.627(20, 152).

The mineral occurs in nepheline syenite and its miarolitic cavities at the Poudrette quarry, Mont Saint-Hilaire, Quebec. A mineral of similar composition and properties has been reported from several other localities worldwide. The new name is for Charles Normand (b. 1963) of Montreal, Quebec, who discovered the mineral. Type material is in Canadian Museum of Nature, Ottawa, and in the Royal Ontario Museum, Toronto. **J.L.J.**

Ternesite*

E. Irran, E. Tillmanns, G. Hentschel (1997) Ternesite, Ca₃(SiO₄)₂SO₄, a new mineral from the Ettringer Bellerberg/Eifel, Germany. *Mineral. Petrology*, 60, 121–132.

The mineral occurs in Ca-rich xenoliths in the Quaternary leucite tephrite lava of the Ettringer Bellerberg volcano. Two of the xenoliths consist mainly of light blue ternesite with ellestadite and ettringite-thaumasite. Ternesite occurs as colorless prismatic crystals to 0.2 mm length and 0.05 mm diameter, elongate [100], radially arranged into bright blue aggregates. No cleavage, $H = 4\frac{1}{2}-5$, nonfluorescent, $D_{\text{meas}} = 2.94$, $D_{\text{calc}} = 2.97 \text{ g/cm}^3$ for $Z = 4$. Optically biaxial negative, $\alpha = 1.630(1)$, $\beta = 1.637(2)$, $\gamma = 1.640(1)$, $2V_{\text{meas}} = 63.5(5)^\circ$, $2V_{\text{calc}} = 66(5)^\circ$. Energy dispersion analysis gave CaO 58.90, SiO₂ 25.22, SO₃ 16.34, sum 100.46 wt%, corresponding to Ca_{5.04}Si_{2.01}S_{0.98}O₁₂. Only the strongest lines of the X-ray

powder pattern are given: 3.198(42, 132), 2.853(63, 230), 2.830(100, 033), 2.565(55, 060), and 1.892(39, 035), in good agreement with data for the synthetic analog (PDF 26–1071). Single-crystal X-ray structure study ($R = 0.0582$) indicated orthorhombic symmetry, space group $Pnma$, $a = 6.863(1)$, $b = 15.387(2)$, $c = 10.181(1)$ Å.

The new name is for B. Ternes of Mayen, Germany, who discovered the mineral. Type material is in the Institut für Mineralogie und Kristallographie, Universität Wien, and in the Naturhistorisches Museum, Wien, Austria. **J.L.J.**

Yixunite*

Zuxiang Yu (1997) Yixunite—an ordered new native indium and platinum alloy. *Acta Geol. Sinica*, 71(4), 332–335 (in Chinese, English abs.).

The mineral occurs as polycrystalline globules, up to 2 mm across, in intimate association with damiaoite. Electron microprobe analyses (eight listed) gave Pt 82.8 (81.8–83.6), In 16.4 (15.6–17.1), sum 99.2 wt%, corresponding to Pt_{2.993}In_{1.007}. The mineral is opaque, metallic luster, bright white color, black streak, $H = 6$, $VHN_{50} = 634$ (573–681), no cleavage, not magnetic, $D_{\text{calc}} = 18.21 \text{ g/cm}^3$ for $Z = 1$, insoluble in HCl, HNO₃, HF, and H₃PO₄. In reflected light, bright white with a yellowish tint; isotropic. Reflectance percentages (WTiC standard, air) are listed in steps of 10 nm, from 400 to 700 nm; representative values are 54.5 (450), 62.5 (550), 65.7 (590), and 71.3 (650). The X-ray powder pattern (57 mm Debye-Scherrer, FeK α radiation) has strongest lines of 2.30(100, 111), 1.99(60, 200), 1.41(40, 220), 1.203(80, 311), and 1.151(40, 222), in good agreement with data for synthetic InPt₃Co_{0.5} (PDF 28–472); by analogy, $a = 3.988(3)$ Å, space group $Pm\bar{3}m$.

The mineral is associated with moncheite, sperrylite, malanite, cooperite, chalcopyrite, and damiaoite that occur in a Pt vein in contact-metamorphosed garnet-amphibole pyroxenite near the Yixun River, about 270 km north of Beijing. The new name is for the locality. Type material is in the Geological Museum of China. **J.L.J.**

Pd₃(Te,Bi)₂(?)

J.G. Arnason, D.K. Bird, S. Bernstein, P.B. Kelemen (1997) Gold and platinum-group element mineralization in the Kruuse Fjord gabbro complex, east Greenland. *Econ. Geol.*, 92, 490–501.

Electron microprobe analysis gave Pd 51.29, Os 0.31, Fe 0.93, Sb 0.22, Te 23.09, Pb 0.11, Bi 24.82, sum 100.82 wt%, corresponding to (Pd_{0.60}Fe_{0.02})_{Σ0.62}(Te_{0.23}Bi_{0.15})_{Σ0.38}. The mineral occurs as a 6 × 8 μm anhedral grain associated with intercumulus chalcopyrite and actinolite replacement of clinopyroxene.

Discussion. The ratio is close to Pd₃(Te,Bi)₂. Pd₃Te₂ is a discrete phase (orthorhombic) in the Pd-Te synthetic system. **J.L.J.**

New Data

Kaolin-serpentine Group

S. Guggenheim et al. (1997) Report of the Association Internationale pour l'Etude des Argiles (AIPEA) Nomenclature Committee. *Clay Minerals*, 32, 493–495.

The AIPEA Nomenclature Committee recommends that the term kaolin-serpentine group be used to designate what was previously referred to as the kaolinite-serpentine group. Terms such as “kandite” or “septechlorite”

should not be used as alternative group and subgroup names for kaolin and serpentine. **J.L.J.**

Miargyrite

J.V. Smith, J.J. Pluth, Shao-Xu Han (1997) Crystal structure refinement of miargyrite, AgSbS_2 . *Mineral. Mag.*, 61, 671–675.

Single-crystal X-ray structure study ($R_{\text{int}} = 0.021$; $R_{\text{F}} = 0.049$) of miargyrite confirmed the previously determined cell dimensions and monoclinic symmetry, but the new space group is $C121$. **J.L.J.**