NEW MINERAL NAMES*

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Atlasovite*
V.I. Popova, V.A. Popov, N.S. Rudashevskiy, S.F. Glavatskikh, V.O. Poliyakov, A.F. Bushmakin (1987) Nabokoite Cu3TeO6(SO4)3·KCl and atlasovite Cu6Fe3+Bi3+O18(SO4)3·KCl. New minerals of volcanic exhalations. Zapiski Vses. Mineral. Obshch., 116, 358-367 (in Russian). An average of four electron-microprobe analyses at three different laboratories using different standards gave Cu 30.48, Zn 0.82, Pb 2.04, Te 1.03, Fe 4.38, Bi 11.50, K 3.20, V 0.46, Cs 0.01, S 12.90, Cl 2.92, O 30.26 (by difference, to sum 100 wt%), corresponding to (Cu6.09Zn0.13O18.03)(Fe2.99V0.11Cl2.90)(Bi11.50Pb0.12-Te0.10)0.93(SO4)3·O1.14·K1.06Cl0.01 for O + Cl = 25. The ideal formula is Cu6Fe3+Bi3+O18(SO4)3·KCl. No water was found. The mineral forms an isomorphous series with nabokoite in which Fe3+ and Bi3+ substitute for Cu and Te. Insoluble in water but soluble in HCl and HNO3. Reacts with KOH, Chloric solution, and immersion oils of high refractive index.

By analogy with nabokoite (which see), atlasovite is presumed to be tetragonal, space group P4/ncc. The unit cell from powder data is a = 9.86(2), c = 20.58(2) Å, Z = 4. Six of the strongest lines taken with unfiltered Fe radiation (66 α and β lines given) are 10.41(100) (002), 4.57(50) (014), 3.57(40) (024), 3.43(170) (006), 2.89(70) (224), 2.44(80) (226). A line at 10.75(90) was not indexed.

Atlasovite occurs as tabular crystals showing the forms {001}, {110}, {012}, and {014}; the crystals may consist predominantly of atlasovite, or atlasovite may occur as zones within nabokoite. Atlasovite is dark brown, transparent, with a vitreous luster and light brown streak. Perfect {001} cleavage, H = 2 to 2.5, Dmax = 4.20(5) g/cm3 (by suspension in Chloric solution), Dcalc = 4.12 g/cm3. Optically uniaxial negative, ω = 1.783(3), ε = 1.776(3) (white light), dichroic with O = red brown and E = yellow. In reflected light, light gray with yellow internal reflections.

The mineral is a sublimate from the Great Cleved Talbachik volcanic eruption, Kamchatka, USSR. The name is for the Russian explorer Vladimir Vasil'yevich Atlasov (circa 1661-1664 to 1711). A sample (as zones in nabokoite) is preserved in the Fersman Mineralogical Museum of the USSR Academy of Sciences, Moscow.

Discussion. The proposed formula needs further substantiation. No evidence is given to support the valences assigned to Fe and Bi. As in the case with nabokoite, there is a discrepancy between the measured and calculated densities and a large spread of values for Zn, Pb, Te, K, and Samong the microprobe analyses, which were simply averaged. Moreover, in the X-ray powder pattern, there is an intense peak at 10.75 Å that is not accounted for; a peak also occurs at 10.64 Å in the pattern for nabokoite. E.S.G.

Carbonate-vishnevite and hydroxyl vishnevite

Four analyses of carbonate-vishnevite gave SiO2 43.62, 43.11, 39.38, 38.87; Al2O3 24.57, 24.42, 26.19, 27.48; Fe2O3 0.38, 0.33, 0.84, 0.61; MnO —, —, 0.07, 0.09; MgO 0.12, 0.11, 0.50, 0.08; CaO 0.50, 0.68, 2.11, 1.32; Na2O 20.91, 21.30, 22.79, 23.58; K2O 0.40, 0.10, 0.37, 0.11; CO2 4.04, 4.82, 5.72, 3.56; SO3 —, 0.36, 0.44, 0.50; H2O 5.80, 5.01, 2.46, 4.51; sums 100.34, 100.24, 100.37, 100.21 wt%. The first two analyses approximate Na2Al2Si2O7CO3·2.5 H2O: the second two approximate Na4Al4Si3O10(CO3)3·H2O.

Powder X-ray study of carbonate-vishnevite yields a = 12.582(4), c = 5.105(2) Å; space group could not be determined unambiguously, and splitting of several lines indicates that the unit cell could be a multiple of the above values. The mineral is uniaxial and, as a rule, negative with nmax = 1.512, nmin = 1.490, Δn = 0.022. Density 2.39 to 2.46 g/cm3; color variable from pale lilac and light blue to dark gray and black, the last attributed to included organic matter.

Carbonate-vishnevite occurs in poikilitic aegirine-nepheline-sodalite syenites and associated pegmatites and hydrothermalites of the Karnasurt and Alluav Mountains and the River Chinlusuy (Kola Peninsula). The mineral occurs as veinlets 1 to 3 cm thick, as prismatic crystals in cavities, and as irregular granular aggregates that locally are replacements of sodalite.

Analysis of hydroxyl vishnevite gave SiO2 36.32, Al2O3 31.15, Fe2O3 0.18, MnO 0.03, MgO 0.11, CaO 0.92, Na2O 23.43, K2O 0.45, CO2 1.59, H2O 5.41, sum 99.59 wt%, approximating Na4Al4Si3O10(OH)·H2O. Powder X-ray study gave a = 12.731(4), c = 5.180(2) Å, space group as P622. Refractive indices are 1.501 and 1.494. D = 2.32 g/cm3. Color light blue. The mineral occurs in the Karnasurt Mountains; the mode of occurrence is not specified, but presumably it is the same as for carbonate-vishnevite.

Discussion. In terms of chemical composition, the two minerals...
described here are not any closer to type vishnevite than to two other members of the cancrinite group, cancrinite and sacrofante. Thus the terms carbonate-vishnevite and hydroxyl vishnevite are misleading. The names have not been submitted to the IMA commission for appraisal. E.S.G.

**Diomignite**


The mineral occurs as a clear, colorless daughter mineral, up to 30 μm in maximum dimension, in fluid inclusions in spodumene. The grains are euhedral to anhedral, commonly pseudo-hexahedral to pseudohexagonal, the appearance derived from tetragonal forms (100) and (111). No twinning or cleavage observed. A Gandolfi X-ray pattern (57.3-mm camera, Cu radiation) gave tetragonal cell dimensions of $a = 9.470(4)$ Å, $c = 10.279(5)$ Å, and strongest powder-diffraction lines of $040(100)(112)$, $3.495(50)(022)$, $2.662(60)(123)$, $2.587(40)(132)$, $2.045(40)(322)$; the results are in excellent agreement with data for synthetic Li$_2$BO$_3$, space group $I4$,$d$, $Z = 8$, $D_{\text{calc}} = 2.437$ g/cm$^3$. The mineral is uniaxial, negative, with a refractive index of about 1.6 and birefringence of about 0.05; synthetic Li$_2$BO$_3$ is uniaxial negative, $\omega = 1.612(1)$, $\epsilon = 1.554(2)$, birefringence 0.056(4). Energy-dispersive spectroscopic analysis of diomignite crystals confirmed that elements with an atomic number >11 were absent; thermometric properties of the inclusions also are consistent with Li$_2$BO$_3$ behavior.

The new name is derived from Homeric Greek dios mignen (divine mix) in allusion to the pronounced fluxing effects of the compound. Type samples are catalogued as USNM 164236 at the Smithsonia Institution, Washington, D.C., and AMNH 98089 at the American Museum of Natural History, New York, N.Y. J.L.J.

**Hannebachite**


Ten electron-microprobe analyses gave an average of CaO 43.1, SO$_4$ 49.5, H$_2$O (by difference) 7.4 wt%; tGA showed a weight loss 0.7 wt% between 108 and 141 °C, and 6.7 wt% between 375 and 467 °C, for a total of 7.4 wt%. The ideal formula CaSO$_4$·½H$_2$O contains CaO 43.4, SO$_4$ 49.6, H$_2$O 7.0 wt%. The mineral occurs as crystals up to 1 mm long, elongate [010], flattened [011] and modified by [101] and [021]. Colorless, transparent, vitreous luster, white streak, H = 3.5, perfect (110) cleavage, $D_{\text{meas}} = 2.52$, $D_{\text{calc}} = 2.54$ g/cm$^3$ for Z = 8. Optically biaxial positive with $\alpha = 1.596(2)$, $\beta = 1.600(2)$, $\gamma = 1.634(2)$, $2V_{\text{meas}} = 38(5)$, $2V_{\text{calc}} = 38^\circ$; $X = a$, $Y = c$, $Z = b$. Single-crystal study and refinement of the powder pattern (37 lines given) gave an orthorhombic cell with $a = 6.473(5)$, $b = 9.782(9)$, $c = 10.646(9)$ Å, space group $Pbn$.$a$. Strongest lines and indices of the X-ray powder pattern (114.6-mm camera, Cu radiation) are 5.544(40)(101), 3.798(40)(112), 3.15(100)(122), 2.617(90)(221), 1.950(40)(240), 1.843(50)(033), 1.671(40)(225). The infrared spectrum has absorption bands at 989, 940, and 650 cm$^{-1}$ that are characteristic for SO$_4$.

Hannebachite occurs in cavities in melilite-nepheline-leucite lava at the Quaternary volcano of Hannebacher Ley near Hannebach, Eifel, West Germany. Associated minerals in the cavities are calcite, aragonite, gypsum, barite, celestite, various zeolites, and wheewellite. Hannebachite is thought to be primary in origin. Type material is in the Naturhistorisches Museum Mainz, Federal Republic of Germany. J.L.J.

**Johninnesite**


Electron-microprobe analysis gave SiO$_2$ 35.5, FeO 0.1, MgO 8.2, MnO 40.7, As$_2$O$_3$ 10.6, Na$_2$O 3.1, H$_2$O (Penfield method) 2.6, sum 100.8 wt%, corresponding to Na$_{7.9}$Mg$_{0.6}$Fe$_{0.9}$Mn$_{14.6}$As$_{25.5}$Si$_{12.5}$O$_{13.5}$(OH)$_{5.5}$, ideally Na$_{7.9}$Mg$_{0.6}$As$_{25.5}$O$_{13.5}$(OH)$_{5.5}$. The analytical total and calculations of Gladstone-Dale values require that Mn is divalent and As pentavalent. The mineral occurs as light yellowish-brown, friable, acicular aggregates, elongate [001] and up to 4.5 cm long, with a vitreous luster, light brownish-yellow streak, and indeterminate hardness; good (100) and poor {010} cleavages. $D_{\text{meas}} = 3.48(4)$, $D_{\text{calc}} = 3.51$ g/cm$^3$ for Z = 1. Optically biaxial negative with $2V = 41.9^\circ$, $2V_{\text{calc}} = 40.9^\circ$, $\alpha = 1.6742(4)$, $\beta = 1.6968(3)$, $\gamma = 1.6999(3)$ for Na light; r > v distinct. Single-crystal study indicated triclinic symmetry, $P1$ or $P1$. Cell dimensions refined from a Gandolfi X-ray powder pattern (114.6-mm camera, Fe radiation) are $a = 10.44(2)$, $b = 11.064(6)$, $c = 9.62(1)$ Å, $\alpha = 107.43(7)^\circ$, $\beta = 82.7(1)^\circ$, $\gamma = 111.6(1)^\circ$. Strongest lines of the powder pattern are 9.860(010), 5.990(110), 3.38(40)(121), etc., 3.23(60)(320,300,013), 2.676(100), 2.479(40), 1.539(40).

Johninnesite is named for John Innes, senior mineralogist of the Tsumeb Corporation. The mineral occurs at the Kombat mine, 49 km south of Tsumeb, Namibia, but is in late-stage veins that cut iron-manganese lenses spatially separated from the copper-lead-silver sulfide ore. Type material is preserved at the Smithsonian Institution, Washington, D.C., under catalogue number NMNH 16320. J.L.J.

**Kombatite**


Electron-microprobe analysis gave PbO 92.4, V$_2$O$_5$ 5.9, Cr 4.2, O = Cl 0.9, sum 101.6 wt%, corresponding to Pb$_{92}$V$_{26}$O$_{102}$,Cl$_{33}$ for (O,OH) = 21, ideally Pb$_{92}$(VO)$_{102}$Cl$_{33}$. The mineral occurs as bright yellow anhedral grains, 0.2 mm in diameter, most of which are turbid. Light yellow streak, adamantine luster, soft (hardness possibly 2 to 3), perfect {010} cleavage, nonfluorescent in ultraviolet light. Optically biaxial negative with n > 1.90, not pleochroic.

Single-crystal study indicated monoclinic symmetry, space group $C2/c$ or $Cc$, $a = 12.552(1)$, $b = 22.495(6)$, $c = 11.512(7)$ Å, $\beta = 118.99(2)^\circ$, $D_{\text{calc}} = 7.979$ g/cm$^3$ for Z = 4. Strongest lines of the X-ray powder pattern (114.6-mm Gandolfi camera, Cu radiation): 3.006(100)(062), 2.958(100)(152), 2.012(100)(080), 2.253(70)(010), 2.011(40)(604), 1.989(50)(355), 1.756(70), 1.590(60). The pattern is similar to that of sahlinite, the isostructural arsenate analogue. The new name is derived from the type locality, the Kombat mine, a copper-lead-silver deposit 49 km south of Tsumeb. Type material is preserved in the National Mineral Collection (Canada) at the Geological Survey of Canada, Ottawa (catalogue number 64563). J.L.J.
**Magnesiohulsite**


Wet-chemical analysis gave CaO 0.18, MnO 0.90, MgO 25.75, FeO 20.86, Fe2O3 20.97, Al2O3 0.05, TiO2 0.05, SiO2 0.45 (attributed to an impurity), SnO2 12.90, B2O3 16.59, H2O not found, sum 97.80 wt%, corresponding to (Mg1.2Fe2.7Sn0.3Al0.4Cu0.6)B2O8(Si2.4S0.9O10.1)(OH)3. The mineral occurs as aggregates of tufts of divergent needles up to 0.4 × 0.08 × 0.08 mm, elongate [010], and twinned [101]. Color black, submetallic luster, dark brown streak, brittle, no cleavage, V(H) = 6.89-825 kg/mm2, Dmax (pycnometer) = 4.18(2), Dcalc = 4.15 g/cm3 for Z = 2. Insoluble in sulfuric and nitric acids, but slowly soluble in concentrated HCl.

In reflected light, bluish gray to grayish white with strong anisotropism. Reflectance values for R, Rf (in air, StC standard) are 405(10.11, 12.45), 436(9.55, 12.13), 480(8.67, 11.22), 526(8.24, 11.69), 546(7.61, 11.85), 589(6.78, 11.54), 644(6.21, 11.67), 656(5.87, 11.98), 690(5.29, 10.93). Transparent in thin section with α = 1.88, γ = 1.95, length slow, strongly pleochroic from dark brown (Z) to dark green (X).

Magnesiohulsite occurs in a magnesian skarn borate deposit at Qiliping, Changning County, Hunan Province, China. The mineral is a major constituent in the contact zone between granite and calcite-dolomite host rocks. Associated borates are zaisbyellite, kotoite, fluoroborite, ludwigite, and sakhaite. The new name is for the analogy to hulsite. J.L.J.

**Mattheddleite**


Electron-microprobe analysis of two grains gave PbO 83.5, 83.7, SiO2 7.3, 8.0, SO3 6.1, 5.9, Cl 2.5, 2.3, sum 98.8, 99.4 after deduction of O = Cl 0.6, 0.5 wt%. The average corresponds to Pb10.14(Al1.06Si1.94O22)1/2Cl1.83, ideally Pb12(SiO4)3Cl. The mineral occurs in cavities in quartz as creamy-white linings consisting of radiating hexagonal prisms, up to 100 μm by 10–20 μm, that form aggregates about 0.2 mm in diameter. The mineral has an adamantine luster, white streak, and a basal cleavage or fracture; colorless and transparent in transmitted light, length fast, uniaxial negative with ω = 2.017(5), ε = 1.999(5) for Na light. Fluoresces dull yellow in short-wave ultraviolet light. Single-crystal study and the refined X-ray powder pattern gave a = 9.963(5), c = 7.464(5) Å, Dcalc = 6.96 g/cm3 for the empirical formula and Z = 1. The strongest lines of the X-ray powder pattern (114.6-mm camera, Cu radiation) are 4.32(40)(200), 4.13(40)(111), 3.41(20)(102), 3.26(30)(210), 2.988(100)(112, 211), 2.877(40)(300), 2.072(20)(222), 1.871(20)(004, 402). The 001 absences are compatible with the space group P41/2/m. The infrared spectrum has similarities to that of hydroxyllestadite.

The new name is for Matthew Forster Heddle (1827–1897), a famous Scottish mineralogist. The mineral occurs with lanarkite, cerssite, hydrocerrusite, caledonite, leadhillite, susanite, and macphersonite in museum specimens from Leadhills Dod, Strathclyde region, Scotland. Type material is at the Royal Museum of Scotland, Edinburgh, Scotland (RMS GY 721.34) and at the British Museum (Natural History), London, England (MM 344).

**Discussion.** The ideal formula with Z = 1 is not compatible with the space group and gives Dcalc = 13.76 g/cm3, a substantial contrast to the value obtained from the empirical formula. J.L.J.

**Nabokoite**


An average of five electron-microprobe analyses at three different laboratories with different standards and two oxygen determinations by a chromatographic method gave Cu 36.15, Zn 1.01, Pb 0.24, Te 11.02, Fe 0.06, Bi 0.44, K 3.27, V 0.05, Ca 0.10, Mn 0.78, Cl 2.92, O 28.30–29.1, sum 97.54–97.84 wt%, corresponding to Cu6xZnxFe3+Bi3+O4(SO4)4KCIforx=0.25andy=0.17. The infrared spectrum has similarities to those for anhydrous sulfates and is characterized by absorption bands near 510, 625, 680, and 1060 cm⁻¹ (split into several peaks).

X-ray study shows the mineral to be tetragonal, space group P41/2/m (split into several peaks); the unit cell from powder data is a = 9.84(2), c = 20.52(2) Å, Z = 4. Six of the strongest lines taken with unfiltered Fe radiation (52 α and β lines given) are 10.35(100)(002), 4.57(40)(014), 3.56(40)(024), 3.42(60)(006), 2.881(50)(224), 2.439(70)(226).

The mineral forms thin tabular (001) crystals, up to 1 mm across, commonly with darker zones or as intergrowths with angesite crystals; these occur as sublimes on porous basalt with chalcocyanite, dolerophanite, chloroxiphite, and atacamite from a crevice near the fumarole “Yadovitaya,” formed during the Great Clefeld Tolbachik eruption, Kamchatka, USSR. Crystals have the main forms [001] and [110]; of secondary importance are [012] and [014]. Nabokoite is light yellow-brown to yellow-brown, yellow-brown streak, transparent, vitreous luster. Perfect (001) cleavage, H = 2 to 2.5. Dcalc = 4.18(5) (by suspension in concentrated Clerici solution), Dcalc = 4.02 g/cm³ from X-ray data and Z = 5. Optically uniaxial negative, ω = 1.773(3), ε = 1.773(3) in white light. In reflected light, light gray with yellow internal reflections. Reflectance values (13 given, Si standard) for R, and Rf are 6.7, 6.3(347 mm); 6.8, 6.6(550); 6.8, 6.6(560); 6.0, 6.6(650).

The name is for Sof'ya Ivanovna Naboko (1909– ). A sample is preserved in the Fersman Mineralogical Museum of the USSR Academy of Sciences, Moscow.

**Discussion.** The proposed formula needs further substantiation. Analytical difficulties and compositional heterogeneity contributed to the spread of values reported for Cu, Zn, Pb, Bi, and Te, and thus simple averaging of the analytical data does not seem to be justified. Moreover, there is a marked discrepancy between the measured and calculated densities. E.S.G.
Nickelaustinite*


Electron-microprobe analyses of Ni-rich crystals gave CaO 23.32, NiO 20.40, CoO 1.22, ZnO 6.88, MgO 1.00, CuO 0.06, FeO 0.10, As2O3 43.70, H2O (by difference) 3.32 wt%, which yields a formula (based on 2 metal cations) Ca0.42(Ni0.67Zn0.23)Mg0.05Co0.02Sb0.3As0.98O3.95(OH)0.05.

Single-crystal and X-ray powder-diffraction studies show the mineral to be orthorhombic, space group $P2_12_12_1$, unit cell $a = 7.458(3)$, $b = 8.955(3)$, $c = 5.916(2)$ Å, $Z = 4$. The strongest X-ray lines (39 given) are 3.1519(301), 3.7699(310), 2.6261(10)(112), 2.5778(8)(311), 2.5088(8)(131), 2.0587(7)(222), 1.6059(332), and 1.4807(004). The crystal structure, refined to $R = 6.8\%$ for 761 independent reflections, consists of an assemblage of [AsO4] tetrahedra, [Ni(OH)2] octahedra, and [Ca(OH)] square-based antiprisms, sharing corners and edges.

The mineral occurs as flattened, fibrous crystals associated with roselite and calcite on dolomite. Crystals are yellowish-green to grass-green with a silky luster. The blades are flattened on (110) (good cleavage) and elongate [001] to 0.2 mm, $H = 4$, [Ca(0.70H)2] square-based antiprisms, sharing corners and edges.

The name reflects the compositional and structural relationship to austinite. Type specimens are preserved at the École National Supérieure des Mines de Paris. J.D.G.

Palenzonaite*


The average of three similar electron-microprobe analyses gave CaO 23.70, Na2O 3.40, MnO 5.09, V2O5 39.34, As2O3 5.14, SiO2 3.32, sum 100.05 wt%, corresponding to (Ca0.27Na0.04Mn0.02)2(AsO4)O(OH).

The theoretical formula is (CaNaMnV3O8). The mineral occurs as wine-red anhedral grains and as dodecahedral crystals up to 6 mm in diameter; streak brownish-red, luster adamantine, $H = 5$ to 5.5, fracture subconchoidal, nonfluorescent in ultraviolet light, $D_{meas} = 3.85$ (30)(220), $D_{calc}$ = 3.87–3.79 g/cm³ for $Z = 8$. Optically isotropic, red wine in thin section, $n = 1.965(5)$. Soluble in strong acids. Crystal-structure study ($R = 2.6\%$) indicated the space group to be $Ia3d$, $a = 12.534(2)$ Å. Strongest lines of the X-ray powder pattern are 5.12(11)(211), 3.132(55)(400), 2.830(100)(420), 2.558(60)(422), 2.458(11)(431), 1.738(20)(640), 1.675(40)(642).

Palenzonaite occurs in veinlets, about 1 mm thick, which cut quartz-braunite ore, and as crystals in a manganese calcite vein 2 cm wide, in the Molinello manganese mine, Val Vegavaglia, eastern Liguria, Italy. The name is new for the original collector of the mineral, Prof. A. Palenzona. Type material is at the Instituto di Mineralogia dell’Università di Genova, Italy, and at the Royal Ontario Museum, Toronto, Canada. J.I.L.

Qandlite*

H.M. al-Hermezi (1985) Qandlite, a new spinel end-member, Mg5Ti4O12, from the Qala-Dizeh region, NE Iraq. Mineral. Mag., 49, 739–744.

Electron-microprobe analyses of four grains gave an average of SiO2 0.02, TiO2 26.41, Al2O3 4.83, MnO 0.76, MgO 29.62, FeO 28.27, and FeO 10.32 by wet chemistry, sum 100.23 wt%, corresponding to (Mg1.20Ti0.80)4(Fe2.50Mg1.20Mn0.03)6(OH)12. The mineral occurs as iron-black, magnetic grains up to 2.3 mm; streak black, luster metallic, perfect {111} cleavage, VHN0.2 = 998(960–1045), $D_{meas} = 4.03(3)$, $D_{calc}$ = 4.04 g/cm³ for $Z = 8$. Soluble in hot HCl. The X-ray powder pattern (114.6 mm camera, Co radiation) has strongest lines at 2.971(30)(220), 2.533(100)(311), 2.101(45)(400), 1.617(30)(333,511), 1.486(60)(440), 1.092(30)(533,731); cubic, $a = 8.4033(14)$ Å, consistent with space group $Fd3m$ and synthetic MgTiO3 (PDF 3–858). In reflected light, light gray with a pinkish tint. Reflectance values (in air, SiC standard) are 400, 14.8; 440, 13.8; 480, 13.3; 520, 13.1; 560, 13.0; 600, 13.0; 640, 13.0; 680, 12.9; x 0.307, y 0.311, Y (%) 13.1, P (%) 2.0, $a = 465$. Color parameters for oil are also given, and reflectance data in air and oil are listed for 20-nm steps.

Qandlite occurs in a forsterite skarn in the Qandil Group at Dupezech Mountain, Hero Town, Qala-Dizeh region, northeastern Iraq. The new name relates to the rocks of the Qandil Group. An incomplete description of qandilite in a periclase-forsterite skarn from the Kangerdlussuaq region of Greenland was reported by Gittins et al. in 1982 (Mineral. Mag., 45, 135–137). Type qandilite is preserved at Strathclyde University, Glasgow, Scotland, at the National Science Museum, Tokyo, Japan, and at other repositories. J.I.L.

Strontiopyrochlore


Chemical analysis gave Nb2O5 71.72, Ta2O5 0.31, TiO2 0.03, Al2O3 0.21, FeO 1.53, SrO 16.08, BaO 0.37, CaO 0.42, REE2O3 1.86, Na2O 0.11, K2O 0.28, H2O 7.56, sum 100.48 wt%, corresponding to (Si0.63RE0.04Ca0.03Ba0.02Fe0.02)3(Nb0.99Ta0.01)5(OH)12(PO4)2 on a basis of 2(Nb+Ta+Ti+Al+Fe). The mineral is homogeneous as regards Nb and Sr.

Powder X-ray study indicates the mineral is isostructural with pyrochlore, but has a slightly larger unit cell: $a = 10.53$ Å (the powder pattern is not reported). The mineral occurs as pale yellow octahedral crystals to 0.5 mm in diameter; some crystals are white to slightly bluish along cleavage planes; friable and powdery easily. $D = 3.80$ g/cm³, $n = 2.08$, VHN = 246 (less than pyrochlore). The reflectivity ranges from 12.6 to 17% over the 300- to 700-nm range (greater than pyrochlore). The mineral occurs in dolomite carbonatites in the western wing of the central anticlinorium of the Yenisei Ridge, USSR. Concomitant ion exchange and cation leaching are considered responsible for the formation of the mineral from a hypothetical pyrochlore precursor.

Discussion. The formula calculation may be incorrect in assuming no molecular H2O. Sr makes up 83% of the A cations; hence, by the IMA-sanctioned nomenclature for pyrochlore-group minerals, this mineral should be named strontiopyrochlore. However, a description of the mineral has not been sent to the IMA. T.S.E.
Thometzekite*


An average of six electron-microprobe analyses gave PbO 36.04, CaO 0.18, CuO 19.18, ZnO 5.63, FeO 0.30, AsO₃ 33.13, SiO₂ 0.06, H₂O (by tga) 4.9, sum 99.42 wt%. The thermogravimetric loss occurs in one distinct step between 350 and 500 °C. The analytical data correspond to an ideal formula of Pb(Cu,Zn)₂(AsO₄)₄·2H₂O with Cu > Zn; the idealized Zn-free end member, PbCu₆(AsO₄)₄·2H₂O, contains PbO 34.44, CuO 24.54, As₂O₃ 35.46, H₂O 5.56 wt%. The mineral was found on a specimen of massive gypsum, from Tsumeb, Namibia, as bluish-green to green tabular crystals up to 20 μm long and about 1 μm thick. The luster of the aggregates is earthy. Light gray in transmitted light, nonpleochroic; 2V and optic sign not determinable; average refractive index 1.855; wavy extinction.

The X-ray powder pattern (114.6-mm camera, Fe radiation) has strongest lines of 4.694(80), 4.495(50), 3.273(100), 2.961(70), 2.870(70), 2.729(60), 2.516(70). The X-ray pattern is similar to those of tsumcorite and helmutwinklerite, but the cell dimensions of thometzekite were not calculated because the unit cells of the tsumcorite-helmutwinklerite family require clarification, especially as to monoclinic or triclinic symmetry. Thometzekite is named for W. Thometzek, Tsumeb mining director from 1912 to 1922. Type material is in the collection of the Mineralogische-Petrographische Institut, Heidelberg University, Federal Republic of Germany. J.L.J.

Thornasite*


An average of five similar electron-microprobe analyses gave SiO₂ 57.93, Al₂O₃ 1.42, ThO₂ 22.45, UO₂ 0.88, Na₂O 1.55, K₂O 1.10, CaO 0.17, F 0.40, Cl 0.05, H₂O 8.62, H₂O 5.14 (H₂O by simultaneous thermogravimetric and evolved-gas analysis), O = (F + Cl) = 0.18, sum 99.53 wt%. The water is evolved in three steps, at 105, 275, and 600 °C. The calculated formula based on weight percentages is (Na₉,₆K₀,₄Na₀,₆Mg₀,₆Al₀,₄Cr₂₀,₄Fe₆,₀₆Mn₀,₂)₂[(Si₆,₆Al₃,₆O₁₈)(O₂,₀₈(H₂O,F,Cl))₄]·6H₂O. The mineral occurs as translucent to translucent anhedral grains up to 0.7 mm in diameter. Colorless with a pale green tint, white streak, vitreous to waxy luster, brittle, hardness indeterminable, fracture subconchoidal to uneven, slightly metamict, Dₐna = 2.62(2), Dₐnc = 2.627 g/cm³ for Z = 18. Fluoresces bright apple-green under long- and short-wave ultraviolet light. Optically uniaxial positive, ω = 1.510(1), ε = 1.512(1) in Na light. Extinction is generally not sharp and is patchy for some crystals; interference figures are diffuse. Single-crystal study and pyroelectric behavior indicated rhombohedral symmetry, space groups R3m or R32. Cell dimensions refined from the X-ray powder pattern (114.6-mm Gandolfi pattern, Cu radiation) are a = 29.08(1), c = 17.30(1) Å. The powder pattern has strongest lines at 14.54(20)(110), 8.17(30)(012), 7.27(100)(220), 5.09(20)(042), 4.17(70)(422), 3.23(90)(262), 2.95(90)(802), 2.89(25)(900), 1.82(633).

Thornasite occurs at the De-Mix quarry, Mont St-Hilaire, Quebec, Canada, embedded in 4- to 8-mm patches of white, powdery brockite associated with yofortierite and analcite. The new name alludes to the composition of the mineral. Type specimens are in the Royal Ontario Museum, Toronto, Canada (catalogue number M42070), and at the National Museum of Natural Sciences, Ottawa, Canada (catalogue number 50770). J.L.J.

Vantasselite*


The average of nine electron-microprobe analyses gave Al₂O₃ 30.46, FeO 5.22, P₂O₅ 33.47, SO₃ 0.35, H₂O 30.83 (tga), total 100.33 wt%, which yields (Al₆,Fe₇)₂[(PO₄)₂(OH)₉·H₂O]. 8.98H₂O (based on a cation sum of 4). Single-crystal and X-ray powder-diffraction studies show the mineral to be orthorhombic, space group Pmmn, Pma2 or P2₁/am, with a = 10.528(4), b = 16.541(3), c = 20.373(6) Å, Z = 8, Dₐnc = 2.312 g/cm³. The strongest X-ray lines (38 given) are 10.22(100)(002), 4.87(30)(211.014), 3.72(30)(223), 3.39(40)(006), 3.21(40–(044,241), 2.89(50)(036), 2.741(30)(244,027), and 2.394–(40)(335). The mineral has a sheet structure similar to that of matulaite and vashegite.

Vantasselite occurs as rosettes (up to 8 mm) of thin, white, transparent lamellae. The luster is pearly on the perfect {001} cleavage. Crystals are elongate {100}, flattened {001}, and terminated by {120}. H = 2 to 2.5. Optically biaxial negative, αₐnc = 1.511, β = 1.560(2), γ = 1.579(2), 2Vₐnc = 61(2)°, X = c, Y = b, Z = a.

Vantasselite was found on the dumps of a quartzite quarry, 1 km north of Bihain, Stavelot massif, Belgium. The mineral lines the schistosity planes or occurs as lamellae in quartz veinslets within metapelites; it is associated with wavelite, variscite, cacoxene, turquoise, clinochlore, muscovite, and lithiophorite. The new name honors Professor R. Van Tassel. Type specimens are preserved in the Institut de Minéralogie de l’Université de Liège. J.D.G.

Zincochromite*


Energy-dispersive microprobe analyses of four zones in six grains gave the following ranges of average composition for each zone: ZnO 34.09–37.72, Cr₂O₃ 52.64–54.7, Al₂O₃ 0.51–1.44, SiO₂ 2.44–3.36, TiO₂ 0–0.82, V₂O₅ 1.42–7.67, Fe₂O₃ 1.36–4.21, and sums 100.00–100.01, corresponding to an average formula (weighted for thickness of zones) Zn₁₋ₓ(Cr₁₋ₓVₓ)O₄, which yields (Al₂O₃)₀.₃₃₋ₓ(PO₄)₀.₃₃₋ₓ(SO₄)₀.₃₃₋ₓ(OH)₉₋ₓ(H₂O)ₓ. Powder X-ray data were indexed for a cubic mineral by analogy with synthetic Zn₁₋ₓCrₓO₄ and Zn-bearing chromite, giving a = 8.352(1) Å. The strongest lines (9 given) are 2.954(50–(220), 2.519(100)(311), 2.088(25)(400), 1.607(30)(211,014), 1.476(35–(440). The mineral forms tiny brownish-black euhedral (generally 2 to 10 μm across, rarely to 50 μm) with quartz and amorphous Cr-V-Fe oxides and hydroxides, formed from the breakdown of chromian aegirine, in micaceous metasomatites in the Onega trough (South Karelia, USSR). Translucent (brown) in thin slivers, brown streak, semimetallate luster, cleavage absent, weakly paramagnetic. H = 5.8; Dₐnc from X-ray data, 5.434 g/cm³; isotropic, rare brown internal reflections. In reflected light, brownish gray. Reflectance values (measured in air with Si and STF-3 tellurite glass): 13.0(440); 12.4(460); 12.1(480); 12.0(500);
**Zincroselite**


Electron-microprobe analysis gave MgO 0.4, CaO 25.0, MnO 0.9, FeO 0.2, ZnO 15.9, As$_2$O$_3$ 49.3, H$_2$O (by weight loss at 700 °C) 7.7, sum 99.4 wt%, corresponding to Ca$_2$(Zn$_{0.90}$Mn$_{0.06}$-Mg$_{0.04}$Fe$_{0.01}$)Z$_{1.93}$As$_{1.98}$O$_{10}$·2H$_2$O, ideally Ca$_2$Zn(AsO$_4$)$_2$·2H$_2$O. The mineral occurs as aggregates, up to 12 × 5 × 4 mm, consisting of intergrown lathlike crystals, elongate and strongly striated [001], commonly twinned on (100), with {hkO} and {hkl} present but not specifically determinable. Colorless to white, brittle, H = 3, not fluorescent in ultraviolet light, D$_m$ = 3.75, D$_c$ = 3.77 g/cm$^3$ for Z = 2 with the ideal formula. Soluble in HNO$_3$. Optically biaxial positive, $\alpha$ = 1.703(3), $\beta$ = 1.710(4), $\gamma$ = 1.720(3), $\varepsilon$ = 50°, $\gamma$ = 57°, strong dispersion with $\gamma$ < $\beta$; $\gamma$ = $\beta$, X∥c = 0–5° in the acute angle of 6. Single-crystal study indicates monoclinic symmetry, space group $P2_1/c$, cell dimensions refined from the X-ray powder pattern (114.6-mm camera, Fe radiation) are $a$ = 5.832(2), $b$ = 12.889(4), $c$ = 5.644(2)Å, $\beta$ = 107.72(3)°. Strongest lines of the powder pattern are 6.44(50)(020), 5.10(60)(110), 3.36(50)(130), 3.22(80)(040), 3.13(50)(131), 3.00(100)(121), 2.78(211,200,102).

The new mineral, found in a small cavity in oxidized copper ore at the Tsumeb mine, Namibia, is the zinc analog ofросelite, Ca$_2$Co(AsO$_4$)$_2$·2H$_2$O. The mineral forms graphic intergrowths with tetrahedrite and ruckleidite and less frequently is intergrown with chalcotryite and other bismuth tellurides. These occur in dumps from the Pepf mine of the Jilově u Prahy gold deposit, Czechoslovakia.

**Discussion.** The authors tentatively suggest that the mineral is the bismuth analogue of nagyite, Pb$_2$(AuTe$_2$S)$_3$.X, supporting X-ray data are needed. J.L.J.

**Unnamed (Pb,Ag)$_2$Bi$_2$Sb$_3$As$_4$**


An average of 5 microprobe analyses of mineral “AZ” yielded Pb 29.75, Ag 0.83, Bi 3.81, Sb 24.98, As 15.54, S 24.76, sum 99.67 wt%, which corresponds to Pb$_2$(Ag$_0.98$Bi$_3.04$Sb$_0.01$As$_0.49$)·S. The mineral was observed in polished section associated with zinkenite and sartorite in an orpiment-rich sample from the Julcani deposit, Peru. Small grain size (<40 μm) precluded obtaining any X-ray data. J.D.G.

**Unnamed K-V-Batitanate**


The range of five electron-microprobe analyses listed is SiO$_2$ 0.19–0.81, TiO$_2$ 75.41–78.47, ZrO$_2$ 0.06–0.33, Cr$_2$O$_3$ 0.0–0.50, V$_2$O$_3$ 1.65–4.51, Ce$_2$O$_3$ 0.70–1.76, Fe$_2$O$_3$ 3.52–7.10, MnO 0.0–0.17, MgO 0.0–0.90, MgO 0.0–0.53, BaO 1.19–4.47, K$_2$O 8.30–9.63, Na$_2$O 0.0–0.03 wt%. Individual grains are homogeneous, but considerable composition variation is found from grain to grain; the average composition of twelve individual grains is reported to be A$_{28}$B$_{0.71}$C$_{0.56}$O$_{1.16}$, where A = K, Ba; B = V, Cr, Ce, Fe$^{3+}$, Mn, Mg, Ca; C = Ti, Zr, Si. The mineral occurs as spherulitic clusters of prismatic crystals, and as smaller anhedral grains. In thin section, opaque with reddish internal reflection at thin edges; in reflected light, gray with medium reflection pleochroism and strong anisotropism from light to dark gray. H = 6. The mineral occurs in the groundmass of the New Elands kimberlite, Boshof District, South Africa.

**Discussion.** As the authors have pointed out, the composition of the mineral is similar to that of priderite, (K, Ba)(Ti, Fe$^{3+}$)$_8$O$_{16}$; one of the analyses, however, has V > Fe$^{3+}$, corresponding to a theoretical end member K$_2$V$_2$Ti$_6$O$_{16}$. All of the titanate grains are reported to be too small to obtain X-ray data, but a photomicrograph illustrates spherulitic clusters at least 0.1 mm in maximum dimension. J.L.J.

**Unnamed Al sulfater**

Electron-microprobe analyses of aggregates of delicate platy crystals, which collapse under the microprobe beam, gave K,O 0.11–0.20, SO, 27.28–30.53, Al,O, 24.77–27.97 wt%. Thermo-gravimetric analysis of a 10.5-mg sample gave a water loss (to 700 °C) of 42.64 wt%. Omitting K, the empirical formula is Al29(SO4MOH)4,.9H,O. Thermo-gravimetric analysis of a 10.5-mg sample gave a water loss (to 700 °C) of 42.64 wt%. Omitting K, the empirical formula is Al29(SO4MOH)4,.9H,O. Single-crystal studies gave unreliable, but possibly triclinic, results. The mineral is mixed intimately with gypsum; the strongest lines of the X-ray powder pattern (excluding lines identified by the authors as belonging to gypsum contamination) are 11.45(100), 10.99(36), 5.72(22), 4.46(30), 3.991(20), 3.347(27). The mineral occurs with numerous iron and aluminum sulfates in the Cetine antimony mine, Tuscany, Italy.

Discussion. The presence of diffraction lines for gypsum in the X-ray pattern makes questionable the purity of the 10.5-mg sample used to derive the H2O value. J.L.J.

Unnamed garnets Ca,Ga,(GeO3)2, Ca3Al[(Ge,Si)O4] and an Fe-Ge-Ga equivalent of sapphire


Electron-microprobe analysis of trace minerals gave SnO2 0.87, GeO2 46.45, SiO2 1.69, Al2O3 0.08, Ga2O3 26.11, FeO 3.18, MnO 0.60, CaO 25.21, ZnO 0.52, sum 108.71 wt%; GeO2 28.53, SiO2 15.28, Al2O3 16.58, Ga2O3 4.97, FeO 2.99, MnO 3.23, CaO 26.19, ZnO 3.11, sum 100.88 wt%; and ZnO 0.87, FeO 17.61, MnO 0.80, FeO 5.36, Ga2O3 51.30, SnO2 14.14, GeO2 6.19, sum 99.47 wt%, which yield the three simplest formulae given above. These phases occur as 10- to 15-µm grains in sphalerite, and their size precludes a full description as new mineral species at this time.

This area has been metamorphosed to the greenschist facies and 78 species to date have been reported. Conditions of formation were such that Ga, Ge, and Sn were released from sphalerite and combined to form these new phases. J.D.G.

Unnamed U-Fe silicates


Analysis by electron microprobe gave UO2 76.43, TiO2 0.09, SiO2 14.34, FeO 5.57, CaO 1.46, MnO 0.06, Al2O3 0.71, Na2O 0.05, sum 98.59 wt%; the ratio U:Fe:Si is 4:1:3 for unidentified phase 1. For unidentified phase 2, UO2 73.69, TiO2 0.03, SiO2 16.04, FeO 7.62, CaO 1.79, MnO 0.02, Al2O3 0.60, sum 99.83 wt%; the ratio U:Fe:Si is 5:2:5. For unidentified phase 3, UO2 62.15, TiO2 0.01, SiO2 13.10, FeO 21.28, CaO 1.36, PbO 0.11, Al2O3 0.47, sum 98.56 wt%, and U:Fe:Si = 1:1:1. A fourth unidentified phase from Austria gave UO2 24.50, SiO2 12.80, FeO 49.00, CaO 0.05, PbO 1.24, Al2O3 1.60, Na2O 0.03, sum 89.30 wt%; the ratio of U:Fe:Si is 1:6:2.

These U-Fe silicate phases are gray in reflected light and of small (up to 0.1 mm) isometric to irregular shape; hardness, 320–405 kg/mm. The phases occur along cracks in layered aggregates that are up to 1 mm thick and consist mainly of uraninite, nauturan (pitchblende), and "hydronasturan." Other minerals present in lesser amounts include pyrite, hematite, chalcopyrite, sphalerite, and galena.

Discussion. The lack of X-ray data or structural characterization is regrettable. Inadequate description of physical and optical properties. K.W.B.

Unnamed epistolite intergrowths


Single-crystal studies of some epistolite grains from the Ilimaussaq complex show the presence of an unidentified triclinic phase with a = 5.42, b = 7.13, c = 13.02 Å, α = 94.04, β = 96.44, γ = 89.32°. X-ray powder-diffraction patterns of the intergrowths are indistinguishable from those of epistolite, and electron-microprobe analyses do not show any systematic compositional variations.

In another sample, lamellar intergrowths consist of epistolite and a different unidentified phase for which the average of two electron-microprobe analyses gave Na2O 3.65, K2O 0.24, CaO 1.26, ZnO 9.06, FeO 0.26, TiO2 14.48, Nb2O5 51.24, SiO2 10.95, sum 91.14 wt%. For Si = 1, the formula is (Na2O,.95CaO,.05ZnO,.04FeO,.02)O,.95 (TeO2,.95Nb2O5,.05SiO2,.02)O,.02. Single-crystal X-ray examination of two flakes gave results identical to those for epistolite. J.L.J.

New Data

Crookesite


Electron-microprobe analysis of crookesite from Bukov, Czechoslovakia, gave Cu 46.89, Ag 0.06, Ti 21.03, Se 32.43, sum 100.41 wt%, which yields TiO2,.95CuO,.07A80. D1Se,.94 (calculated on 12 atoms per formula unit). Single-crystal Weissenberg photographs show the mineral to be tetragonal; space group I4/m, I4, or I4; a = 10.435, c = 3.954 Å, Z = 2 (in contrast to the previous monoclinic, pseudotetragonal, cell). Dcalc = 6.90, Dmeas = 7.443 g/cm3. No structure refinement was done, but it is proposed, on the basis of similarities in space group, cell parameters, and empirical formula, that crookesite is isostructural with NH4Cu,Se4.

This is the third locality for crookesite. In this vein-replacement deposit, crookesite is associated with bukovite and saba-tierite. J.D.G.

Ferropyrosmalite*


Two electron-microprobe analyses gave SiO2 34.71, 34.17, Al2O3 0.22, 0.00, FeO 48.61, 49.54, MnO 4.37, 4.36, MgO 0.76, 0.64,
NEWMINERAL NAMES

CI 4.25, 400, H2O (by difference) 8.04, 8.19, less O = Cl 0.96, 0.90 wt%, corresponding to (Si0.93Al0.07)24.00(Fe0.97Mn0.03)4-Mg0.18)27.36O41.16(OH14.12Cl1.14)44 and Si0.94Fe0.06Mn0.04-Mg0.16)27.36O41.16(OH14.12Cl1.14)43.83, ideally Fe2Si10O30(OH,Cl)40. An X-ray powder pattern (57.3-mm camera) gave calculated cell dimensions of a = 13.33(3), b = 7.11(2) Å and strongest lines of 7.13(80)(001), 3.564(60)(002), 2.675(100)(401), 2.243(60)(402), 1.833(40)(403, 431), and 1.667(40)(440). Optically uniaxial negative with ω = 1.677(2) and ε = 1.652(2) at 589 nm. Habit platy to radiating, subhedral to euhedral, grain size typically 0.2 to 1 mm; cleavage {001}; colorless in thin section. The mineral occurs in the sulfide-rich central part of the Pegmont stratiform lead-zinc deposit, 175 km southeast of Mt. Isa, Queensland, Australia, and probably formed during prograde metamorphism.

The Pegmont mineral indicates that the pyrosomalite series extends well into Fe-rich compositions. The name pyrosomalite is now used for the series Fe8Si6O18(OH,Cl)6-Mn8Si6O18(OH,Cl)6. The Fe-rich half of the series is designated feropyrosomalite, and the existing name manganopyrosomalite is retained for the Mn-rich other half. J.L.J.

Collacci et al. (1987) described the crystal structure of pyrosomalite. The unit-cell data, hardness, optical properties, and the structural formula, concluded to be (Cu0.5Zn0.5Fe0.5In0.5Sn0.5)40, are new.

**Discussion.** Each of the two papers presents a different structural formula for sakuraiite: (Cu0.5Zn0.5Fe0.5In0.5Sn0.5)40, versus (Cu0.5Zn0.2Fe0.2In0.5Sn0.5)40. The former is reported to be tetragonal, and the latter, cubic. Presumably the authors will collaborate in the future to resolve the disparate results. J.L.J.

**Volkonskoite**


Volkonskoite was first used in 1830 to describe a bright blue-green, Cr-bearing, dioctahedral smectite from Efimyatsk, Okhansk region of the Perm Basin, USSR. Since then, many smectites have been called volkonskoite in the literature even though their Cr content was minor. Re-examination of type material from Efimyatsk (now designated the neotype, USNM 16308), and another sample from the same region (designated as a cotyope, USNM R4820), gave the following respective chemical results obtained with a variety of analytical techniques, including Mössbauer spectroscopy to distinguish Fe2+ from Fe3+

(Cr0.8Fe0.2)20.4, 23.5, Si0.5, 41.5, 40.4, Al0.5, 5.16, 4.13, Mg0.7, 5.95, Ca0.13, 2.56, Fe0.45, 4.52, 5.16, Fe0.40, 0.15, Ti0.07, 0.05, Mn0.10, 0.05, KO.15, 0.21, Na0.3<0.15<0.15, PO.10, 0.10, <0.05, C22.4, 2.60, loss on ignition 19.2, 18.0, sum 100.37, 100.11 wt%, corresponding to (Ca0.5Mg0.5K0.5)20.23(Si1.89Al0.11)24.00O32.00(OH)2.3.6H2O. The crystal structure, refined to an R index of 4.4% in space group I4/mmd, is a triclinic structure. The unit-cell data reported by the authors in the Tifernine plateau, central Anti-Atlas, Morocco are the second locality. J.D.G.

**Wakefieldite-(Ce)**

C. Baudracco, G. Quartieri, G. Vezzalini, P. Fermingeat, F. Pillard, R. Rinaldi (1987) A non plumboan wakefieldite-(Ce): New data on the mineral species corresponding to cerium orthovanadate. Bull. Mineral., 110, 657-663 (in French). Electron-microprobe analysis gave Cu0.13La0.15Nd0.59, O.33, 9.53, Y0.1, 2.99, Pr0.1, 3.5, Sm0.1, 1.7, V0.1, 32.69, As0.1, 3.73, sum 98.80 wt%, which yields (Ce0.13La0.15Nd0.59, Y0.1, Pr0.1, Sm0.1)20.22V2.00.08As0.12H2O4. The crystal structure, refined to an R index of 1.4% in space group I4/amd, is a zircon-type structure. The unit-cell structure of the Tiferine plateau, central Anti-Atlas, Morocco is the second locality. J.D.G.

**Discredited Minerals**

**Cacliocelsian = armenite**


Armenite, BaCaAl3Si6O18·2H2O, known previously only from Kongsberg, Norway, occurs at Broken Hill, Australia, and at
Purnamoota, 30 km north of Broken Hill. Re-examination of a type specimen of calciocelsian, which came originally from the same outcrops that have yielded the Broken Hill armenite, shows that no mineral corresponding to calciocelsian is present. Instead, the type specimen contains armenite, celsian, and bytownite; the original analysis of calciocelsian is concluded to have been done on a mixture of celsian and armenite. J.L.J.

**Errata**

**Xinganite, yttroceberysite**

In the Discussion of these minerals (*Am. Mineral.*, 73, 441–442, 1988) both xinganite and yttroceberysite were incorrectly designated as synonymous with gadolinite-(Y). The appropriate designation is hingganite-(Y), a member of the gadolinite group. J.L.J.

**Tagilite = Pseudomalachite**


X-ray powder-diffraction patterns of A. Breithaupt's (1841) original samples of tagilite from Ullersreuth, Germany, confirm that tagilite is identical to pseudomalachite. J.L.J.