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NEW MINERAL NAMES*

JOHN L. JAMBOR
CANMET, 555 Booth Street, Ottawa, Ontario K1A 0G1, Canada
EDWARD S. GREW
Department of Geological Sciences, University of Maine, Orono, Maine 04469, U.S.A.

Anyuiite*

L.V. Razin, G.A. Sidorenko (1989) Anyuiite $AuPb_2$—A new intermetallic of gold and lead. Mineral. Zhurnal, 11(4), 88–96 (in Russian).

Electron-microprobe analyses of the mineral and of an antimony-bearing variety gave Au 32.6, 34.3, 36.7, Ag 0.35, not detected, Pb 64.8, 59.0, 52.9, Sb 0.3, 5.8, 10.2, sum 98.05, 99.1, 99.8 wt%, corresponding to $(Au_{1.051}Ag_{0.022})_{\Sigma 1.073}(Pb_{1.985}Sb_{0.015})_{\Sigma 2.000}$, $Au_{1.049}(Pb_{1.713}Sb_{0.287})_{\Sigma 2.000}$, and $Au_{1.101}(Pb_{1.507}Sb_{0.493})_{\Sigma 2.000}$. Fragments are opaque, silvery gray, luster metallic. Oxidizes after 1.5–2 days, becoming dull lead-gray. In reflected light, light gray (silvery) with a faint creamy tint, fairly highly reflecting; bireflectance barely noticeable; commonly oxidized, becoming dark gray with a blue-black cast and poorly reflecting. Weakly anisotropic from silvery gray to gray. The antimony-bearing variety is indistinguishable optically but is slightly less reflecting than anyuiite proper, for which R_o and R_e at 20-nm intervals (WTiC standard) are: 420 56.7, 50.3; 440 59.0, 52.9; 460 60.7, 55.0; 480 62.0, 56.2; 500 62.4, 57.7; 520 63.2, 58.3; 540 63.9, 59.3; 560 64.6, 59.9; 580 65.1, 60.7; 600 65.6, 61.4; 620 66.0, 62.1; 640 66.1, 62.6; 660 66.2, 63.0; 680 66.5, 63.4; 700 66.8, 63.7. VHN_{20} = 146 (range 142–152.8), decreasing to 101 (range 100.8–104) for the antimony-bearing variety. Plastic and malleable, nonmagnetic. The mineral is too fine grained for single-crystal study. By analogy with synthetic $AuPb_2$, tetragonal, space group $I4/mcm$. From powder-diffraction data, a = 7.39(2), c = 5.61(3) Å, D_{calc} = 13.49 g/cm³ with Z = 4. Lines attributed to the mineral are 5.22(60,110), 3.74(20,200), 2.82(10,002, possibly this reflection is a sum of 002 and 211), 2.59(20,220), 2.48(10,112), 2.23(30,202), 1.155(20,433), and 1.130-(20,541). The remaining six lines in the pattern (intensity ranges from 20 to 50) are attributed to gold.

The mineral occurs in concentrates of gold-bearing alluvium from tributaries of the Bolshoi Anyui, northeastern USSR. Associated minerals in the concentrates include gold, platinum, iridosmine, osmium, osmorutheniride [rutheniridosmine?], iridian-osmian laurite, chrome spinel, ilmenite, hematite, and sulfides. Polymineralic grains containing the mineral, gold, and lead are 1–4 mm across, weakly rounded, angular, elongate and platy either with a rhombic outline, or equant with a nearly square outline. The mineral forms complex intergrowths of three types with native lead, possibly resulting from breakdown of solid solutions. In the intergrowths, anyuiite typically forms platy aggregates ranging from 1–50 μm across and 100–900 μm long, and prismatic crystals 50 × 100 μm. Associated minerals include ilmenite, titanian magnetite, chrome spinel, hematite, pyrite, chalcopyrite, and apatite. Sources of the mineral are small Hercynian ultrabasic-gabbroid massives derived from a platinum-bearing dunite-harzburgite magmatic formation in the Anyui eugeosyncline of the Koryak-Kamchatka fold province. The mineral is named for the locality (Bolshoi Anyui River basin). A polished section containing anyuiite is in the Fersman Mineralogical Museum of the USSR Academy of Sciences, Moscow.

Discussion. There are several discrepancies between the reported intensities in the X-ray patterns for anyuiite and synthetic $AuPb_2$: notably, anyuiite is reported to have an intensity of 60 for 110 (5.22 Å) vs. 6 for $AuPb_2$, and 10 vs. 100 for 002; also, a line of intensity 45 and three lines with intensities of 18 to 20 in synthetic $AuPb_2$ are missing in the pattern of the natural material. None of the lines reported in the pattern of the natural material were assigned an intensity of 100. The phase has been reported by other authors as inclusions in a kimberlite pipe, and data were abstracted in *Am. Mineral.*, 75, 931, 1990. **E.S.G.**

Efremovite*

Ye.P. Shcherbakova, L.F. Bazhenova (1989) Efremovite $(NH_4)_2Mg_2(SO_4)_3$—Ammonium analogue of langbeinite—A new mineral. Zapiski Vses. Mineral. Obshch., 118(3), 84–87 (in Russian).

A chemical analysis gave SO_3 38.37, FeO 0.72, CaO 0.35, MgO 11.47, MnO 0.25, Na_2O 0.13, K_2O 0.50, $(NH_4)_2O$ 8.31, insoluble residue 39.97, sum 100.07 wt%, corresponding to $[(NH_4)_{2.00}K_{0.06}Na_{0.02}]_{\Sigma 2.08}(Mg_{1.79}Fe_{0.06}Ce_{0.04}Mn_{0.02})_{\Sigma 1.91}S_{3.01}O_{12}$, ideally $(NH_4)_2Mg_2(SO_4)_3$. Sulfate was determined gravimetrically with $BaCl_2$, magnesium gravimetrically with pyrophosphate, ammonia + potassium as chlorplatinate, and potassium by flame photometry. The insoluble residue is inferred to be organic material and quartz that were admixed with the mineral. The mineral is soluble in water; upon heating with alkali and upon heating in a closed tube, ammonia is evolved,

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

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and $(NH_4)_2SO_4$ melts out and subsequently decomposes with evolution of ammonia. In air at ordinary temperatures, the mineral is hydrated to boussingaultite in the course of several days. The mineral shows an endothermic effect at 430–495 °C (maximum 475 °C) accompanied by a weight loss of 35.8% associated with decomposition into $MgSO_4$ and $(NH_4)_2SO_4$ and breakdown of the latter (the calculated weight loss from the ideal formula is 35.5%). Occurs as equant grains, 0.01–0.015 mm, in gray to white aggregates that have a dull luster, $H = \sim 2$, uneven fracture, vitreous luster, no cleavage. Aggregates are opaque except in thin slivers. In immersion oil, colorless to locally tinted weak brown, isotropic, $n = 1.550(1)$. Hydration results in zoned grains with anisotropic margins of boussingaultite. No single-crystal XRD data. Given the close correspondence of the powder pattern with that of the synthetic compound (PDF 18–110), cubic, space group $P2_13$, $a = 9.99(1)$ Å, $D_{calc} = 2.52$ g/cm^3 with $Z = 4$. The strongest lines (31 given) of the powder pattern are: 5.76(35,111), 4.07(70,211), 3.15 (100,310), 3.00(35,311), 2.668(50,321), and 1.620 (25,611).

The mineral occurs in the burning dumps from two shafts in the Chelyabinsk coal basin in the southern Urals, USSR. At one shaft the mineral was deposited from hot gases issuing from a fumarole. The deposit consists of four layers overlying red burning rock: (1) unconsolidated material on top, (2) asphalt-like crust with crystals of sulfur and kladnoite, (3) crusts and stalactites of mascagnite, (4) dense cementlike gray masses dominantly of efremovite, hydrated in the upper part to boussingaultite. At the other shaft, the mineral occurs in a white, fine-grained crust on an incompletely combusted area of the dump that is enriched by a carbonaceous mass. The new mineral is interpreted to have formed by the decomposition of carbonate rocks (e.g., dolomite) in the dumps by sulfuric acid, ammonia, and the products of burning coal at temperatures between 180 and 400 °C. The association with carbonaceous and organic (hydrocarbons?) materials may have enhanced the stability of the mineral, slowing its hydration. The mineral is named in honor of the Soviet geologist and science-fiction writer Ivan Antonovich Yefremov (1907–1972). Type samples are in the Fersman Mineralogical Museum of the USSR Academy of Sciences, Moscow.

Discussion. Acceptance of the chemical analysis presumes that the mineral is entirely soluble in water, as opposed to being partly soluble with separation of an insoluble portion, which could have been overlooked in the 40 wt% insoluble residue. **E.S.G.**

Perraultite*

J.A. Mandarino, V. Anderson (1989) Monteregian Treasures. Cambridge University Press.

L. Horváth, R.A. Gault (1990) The mineralogy of Mont Saint-Hilaire, Quebec. Mineral. Record, 21(4), 284–359.

Electron-microprobe analysis gave Na_2O 3.52, K_2O 2.68, MgO 0.06, MnO 31.14, FeO 1.12, BaO 8.88, Al_2O_3 0.03, SiO_2 27.32, TiO_2 9.44, ZrO_2 0.12, Nb_2O_5 13.35, H_2O (TGA) 3.49, F 0.84, $O \equiv F$ 0.35, sum 101.64 wt%; the ideal formula $Na_2KBaMn_8Ti_4Si_8O_{32}(OH)_5 \cdot 2H_2O$ requires Na_2O 3.62, K_2O 2.75, BaO 8.96, MnO 33.16, TiO_2 18.68, SiO_2 28.09, H_2O 4.74, sum 100 wt%. Occurs in pegmatite at Mont Saint-Hilaire as orange-brown, prismatic to tabular crystals to 1 mm, elongate [100], flattened on {010}; forms shown by the crystals are {001}, {010}, {100}, and *h0l* (possibly $\bar{1}01$); swallow-tail twins on twin plane {001} are common. Crystals are transparent to translucent, vitreous luster, pale brown streak, $H = 4$, very brittle, uneven fracture, perfect {001} cleavage, $D_{meas} = 3.71(5)$, $D_{calc} = 3.81$ g/cm^3. Optically biaxial negative, $\alpha = 1.785(2)$, $\beta = 1.81(1)$, $\gamma = 1.82(1)$, $2V_{meas} = 66(1)°$, $2V_{calc} = 64°$, $X = b$, $Z \wedge c = 9.6°$ in the acute angle β; strong dispersion, $r < v$; pronounced pleochroism, X, Y = light yellow, Z = dark orange-brown. Monoclinic symmetry, space group $C2/c$, $a = 10.819(3)$, $b = 13.822(5)$, $c = 21.149(4)$ Å, $\beta = 99.61(3)°$ as refined from X-ray powder data; the cell parameters and ideal formula give $D_{calc} = 3.64$ g/cm^3 with $Z = 4$. A pronounced subcell with space group $A2/m$, $A2$, or Am has $a' = a/2$, $b' = b/2$, $c' = c$, $Z = 1$. Strongest lines of the X-ray pattern, in order of decreasing intensity, are 3.47, 10.4, 2.61, 3.19, 2.08, and 2.87. The new name is for Professor Guy Perrault of École Polytechnique, Montreal, Quebec.

Discussion. The data were published with the permission of G.Y. Chao, who is to present the complete description at a later date. The mineral was referred to previously as UK17, for which Chao et al. (*Can. Mineral.*, 9, 109–123, 1967) gave the strongest X-ray lines as 3.47(100), 3.19(40), 2.87(50), 2.60(40), 1.729(30B), and 1.599(30). **J.L.J.**

Svyatoslavite*

B.V. Chesnokov, E.V. Lotova, V.S. Pavlyuchenko, L.V. Usova, A.F. Bushmakin, T.P. Nishanbayev (1989) Svyatoslavite $CaAl_2Si_2O_8$ (orthorhombic)—A new mineral. Zapiski Vses. Mineral. Obshch., 118(2), 111–114 (in Russian).

Electron-microprobe analyses of two grains gave SiO_2 43.62, 43.51, Al_2O_3 35.37, 35.28, CaO 19.33, 19.15, Na_2O 0.41, 0.44, FeO 0.02, 0.03, MgO 0.03, 0.01, K_2O 0.01, 0.02, MnO 0, 0, sum 98.79, 98.44 wt%; the average corresponds to $(Ca_{0.96}Na_{0.04})Al_{1.95}Si_{2.04}O_8$, ideally $CaAl_2Si_2O_8$. The mineral forms colorless crystals up to 0.5 to 0.8 mm across, prismatic, elongate [100]. The main forms are {011} and {100}; {110} is common, but weakly developed. Streak white, luster vitreous, fluoresces weakly yellowish in ultraviolet (360 nm). Cleavage {100} weak, fracture conchoidal, brittle, $H = \sim 6$, $D_{meas} = 2.695(5)$ in heavy liquids, $D_{calc} = 2.687$ g/cm^3 with $Z = 2$. Biaxial negative, $\alpha = 1.552(2)$, $\beta = 1.578(2)$, $\gamma = 1.581(2)$, $2V_{calc} = 37.08°$, $Z = a$, $Y = b$, $X = c$. Orthorhombic, space group $P2_12_12$ by a single-crystal method. Unit-cell parameters determined from powder data are $a = 8.232(5)$, $b = 8.606(10)$, $c = 4.852(5)$ Å. The strongest lines (59 given) are: 4.16(80,101), 3.75(60,111), 3.22(100,021), 2.94(60,211), 2.71(70,130), 2.09(80,321), 1.967(70,041), 1.670(70,322), 1.329(60,252), and 1.150(50,622).

The mineral occurs in burning dumps at Kopeysk, Chelyabinsk coal basin, southern Urals, USSR, where it formed at temperatures not below 700–900 °C as a sublimate on fracture walls in coal together with anorthite, troilite, cohenite, fayalite, titanite, and graphite. The mineral apparently formed earlier than anorthite, and no intergrowths with anorthite were found. The new name is in honor of the Soviet geologist Svyatoslav Nestorovich Ivanov (1911–). Type material is in the Fersman Mineralogical Museum of the USSR Academy of Sciences, Moscow.

Discussion. The space group was determined by extinction rules established by unfolding the layer lines through rotation around all 3 twofold axes.Unfortunately, the authors did not consider the possibility that the mineral was the monoclinic modification of $CaAl_2Si_2O_8$ synthesized by Takéuchi et al. (*Zeits. Kristallogr.*, 137, 380–398, 1973), who also refined its crystal structure. Takéuchi et al. reported that monoclinic $CaAl_2Si_2O_8$, space group $P2_1$, has pronounced orthorhombic pseudosymmetry for which extinctions are consistent with $P2_12_12$. Takéuchi et al. suggested that Davis and Tuttle's (*Am. J. Sci.*, 250-A, 107–114, 1952) orthorhombic $CaAl_2Si_2O_8$, for which only powder data were obtained, is identical to monoclinic $CaAl_2Si_2O_8$. Takéuchi et al. reported for the monoclinic phase $a = 8.228(1)$, $b = 8.621(1)$, $c = 4.827(1)$ Å, $\beta = 90.00(5)°$, parameters that are close to Davis and Tuttle's $a = 8.224(16)$, $b = 8.606(6)$, $c = 4.836(5)$ (both $Z = 2$) and to those of the new mineral. **E.S.G.**

Unnamed $BaMn(CO_3)_2$

F. Hirowatari, M. Fukuoka (1988) Some problems of the studies on the manganese minerals in Japan. Journal Mineral. Soc. Japan, 18(6), 347–365 (in Japanese).

The Hagidaira manganese mine at the village of Azuma, Zeta Township, Gumma Prefecture, Japan, contains thermally metamorphosed bedded chert, rhodonite, alabandite, rhodochrosite, manganosite, and tephroite with associated witherite and $BaMn(CO_3)_2$. Electron-microprobe analysis (one of three similar analyses) gave MnO 15.39, MgO 1.98, CaO 2.32, FeO 0.04, SrO 0.00, BaO 51.18, CO_2 (calc.) 28.25, sum 99.16 wt%, corresponding to $(Mn_{0.68}Mg_{0.15}Ca_{0.13})_{\Sigma 0.96}Ba_{1.04}(CO_3)_{2.00}$, ideally $BaMn(CO_3)_2$. A fragment extracted from a polished thin section gave a Gandolfi X-ray pattern having strongest lines at 3.89(m), 3.08(s), 2.54(m), 2.14(m), and 1.910(m) Å; these results are similar to those reported by Chang (*Am. Mineral.*, 49, 1142–1143, 1964) for synthetic $BaMn(CO_3)_2$.

At the Fukumaki mine near the city of Hikari, Yamaguchi Prefecture, thermally metamorphosed bedded manganese ore consisting of rhodonite, tephroite, manganosite, galaxite, rhodochrosite, and alabandite also contains witherite and $BaMn(CO_3)_2$. Three electron-microprobe analyses of the last mineral gave a composition range of $(Ba_{0.89\text{-}0.91}Sr_{0.09\text{-}0.10})(Mn_{0.62\text{-}0.63}Mg_{0.23\text{-}0.25}Ca_{0.14\text{-}0.15})$-$(CO_3)_2$. At both the Hagidaira and Fukumaki mines the unnamed mineral is intimately associated with witherite.

Discussion. Grain sizes are not given, but photomicrographs indicate that aggregates of the unnamed mineral are up to 0.15 × 0.2 mm. Synthetic $BaMn(CO_3)_2$ is reported to be hexagonal and isostructural with northesite. **J.L.J.**

Unnamed iron silicides, silicon*

V.Yu Pankov, Z.V. Spetsius (1989) Inclusions of iron silicides and native silicon in moissanite from the "Sytykanskaya" kimberlite pipe. Doklady Akad. Nauk SSSR, 305, 704–707 (in Russian).

Electron-microprobe analyses at three spots in two inclusions gave Fe 42.57, 42.56, 41.39, Si 53.27, 52.21, 50.84, Ti 0.06, 0.39, 0.71, Ni 0.61, 0.68, 0.98, Cr 0.75, 0.97, 1.14, Al 0, 0, 0.12, Mn 0.24, 0.25, 0.05, sum 97.50, 97.06, 95.23 wt%, corresponding to $MeSi_{2.39}$ to $MeSi_{2.26}$, where Me = analyzed metals, close to high-temperature "α-leboite" ($FeSi_{2.3}$). At a few analytical spots, Ni reaches 5.54 wt%, Cr 2.61 wt%, and V 2 wt%. In reflected light, the silicide is cream-colored, opaque, and anisotropic.

Electron-microprobe analysis of another material gave Fe 3.09, Si 6.80, Ti 64.64, Ni 0.30, Cr 0.49, Al 0.09, Mn 0, sum 75.41 wt%, which is suspected to be a titanium carbide. This material is white and more reflecting than the surrounding materials.

The silicides occur with native silicon (98.10–98.99 wt% Si) included in moissanite extracted from the insoluble residue of kimberlite of the "Sytykanskaya" pipe, USSR. Most inclusions have an irregular and rounded shape, a few are negative crystals; 80–100% of the inclusions are native silicon. Areas of silicide reach 20 × 20 μm across. Titanium carbide forms grains up to 4 × 4 μm along the contact of silicide with a gas cavity or with moissanite in two such inclusions. The inclusions are interpreted to have formed from a liquid, which cooled first to silicon, "α-leboite," and Ti carbide(?); subsequently, "α-leboite" broke down to "β-leboite" and silicon in an intergrowth too fine to be resolved with the electron microprobe. The moissanite and the phases included therein are not products of contamination: the insoluble residue from which the moissanite was prepared was extracted by chemical decomposition of drill core. Moreover, present methods of preparing industrial silicon carbide materials exclude the possibility that inclusions of molten silicon carbide would occur in moissanite; one such inclusion, 20 × 20 μm and circular in outline, was found.

Discussion. The authors cite $T = 1220$ °C, $P = 1$ atm for "α-leboite" and $T = 1420$ °C to melt Si. No attempt is made to infer what conditions might be required for these at the mantle depths at which the kimberlite is interpreted to have originated. The temperatures needed to melt Si at these depths may be too great for a kimberlite magma, and "α-leboite" may not be stable at high pressures. The name "α-leboite" is used by metallurgists for a high-temperature phase of composition $FeSi_{2.33}$, variously described as orthorhombic or tetragonal, in which 13–23% of the Fe sites are vacant (R. Hultgren et al., *Selected Values of the Thermodynamic Properties of Binary Alloys,* 871–883, 1973, Am. Soc. for Metals). An abstract of data for Si will appear in the March–April issue of *Am. Mineral.* **E.S.G.**

Unnamed titanosilicate

E.V. Sokolova, R.K. Rastsvetaeva, V.I. Andrianov, Yu.K. Egorov-Tismenko, Yu.P. Men'shikov (1989) Crystal structure of a new natural sodium titanosilicate. Doklady Akad. Nauk SSSR, 307(1), 114–117 (in Russian).

Chemical analysis (not given) of a new titanosilicate from the Khibiny alkaline massif, Kola Peninsula, USSR, gave the empirical formula $(Na_{2.251}K_{0.693}Ca_{0.004}Sr_{0.062}Ba_{0.026}Ce_{0.004})_{\Sigma 3.04}(Ti_{3.816}Nb_{0.195}Fe_{0.014}Zr_{0.006})_{\Sigma 4.031}Si_{1.928}O_{13}(O_{0.045}H_{0.955})_{\Sigma 1.000}\cdot 3.7H_2O$. Single-crystal X-ray structural analysis indicated tetragonal symmetry, space group $P4_2/mcm$, $a = 7.819(2)$, $c = 12.099(4)$ Å; $D_{meas} = 2.80$, $D_{calc} = 2.78$ g/cm³ with $Z = 2$. The ideal formula is $Na_2(H_2O)_2[Ti_4O_5(OH)(SiO_4)_2]K(H_2O)_{1.7}$. **J.L.J.**

Titanian biotite-*4M₃*

V.I. Pavlishin, A.P. Zhukhlistov, B.B. Zvyagin (1988). The first find of a heterogeneous polytype *4M₃* Ti-biotite. Mineral. Zhurnal, 10(4), 93–98 (in Russian).

A chemical analysis gave SiO_2 35.62, TiO_2 7.50, Al_2O_3 15.89, Fe_2O_3 2.19, FeO 10.43, MnO 0.04, MgO 13.86, CaO 0.12, BaO 1.07, Na_2O 0.62, K_2O 9.08, Li_2O 0.01, H_2O^+ 3.15, H_2O^- 0.11, F not detected, sum 99.69 wt%, corresponding to $(K_{0.87}Na_{0.09}Ca_{0.01})_{\Sigma 0.97}(Mg_{1.55}Fe^{2+}_{0.65}Fe^{3+}_{0.12}Ti_{0.42}Al_{0.08})_{\Sigma 2.82}(Al_{1.33}Si_{2.6}O_{10})(O_{0.37}OH_{1.63})_{\Sigma 2.00}$. Electron-diffraction study gave $a = 5.335$, $b = 9.24$, $c = 40.03$ Å, $\beta = 92.54°$, and intensities and extinctions are consistent with a monoclinic, heterogeneous *4M₃* polytype. The titanian biotite forms {001} platy, reddish megacrysts a few cm across in upper Proterozoic camptonite that cuts granosyenites in the Khlebodarov quarry in the eastern part of the Azov Sea region, USSR. The megacrysts are rimmed by a reaction zone a few mm across. Other megacrysts in the camptonite dikes from this area are aluminous augite, kaersutite, iron-rich biotite, alkali feldspar, spinel, and magnetite. The matrix for the megacrysts includes finer grained titanian augite, ferrohornblende, sericitized andesine, and serpentinized olivine set in a groundmass of fine-grained to cryptocrystalline chlorite, sericite, calcite, feldspar, and glass ($n \approx 1.54$). The titanian biotite is inferred to have crystallized from the original magma at 1200 °C and 18–20 kbar in the upper mantle.

Discussion. Structural relations are discussed in greater detail in *Kristallografiya,* 35(2), 406–413, 1990. **E.S.G.**

Mont Saint-Hilaire minerals

G.Y. Chao, R.P. Conlon, J. Van Velthuizen (1990) Mont Saint-Hilaire unknowns. Mineral. Record, 21(4), 363–368.

Mont Saint-Hilaire, an alkaline intrusive complex containing abundant agpaitic syenites, is in Rouville County, about 40 km east of Montreal, Quebec. The complex contains more than 250 species and numerous unidentified minerals, the latter designated by the prefix UK. In 1979, Chao and Baker updated the published list of the UK minerals to UK47 (*Mineral. Record,* 10, 99–101); as only five of these UK minerals remain unidentified, they are included in the summary given below. Most of the UK minerals occur in silicate cavities or in sodalite xenoliths (abbreviated below as SC and SX, respectively). Omission of a UK number means that the phase has been identified.

UK29. Black to dark reddish brown balls (1 mm), golden yellow to reddish brown flakes in irregular patches on microcline, analcime, natrolite, and others. An Fe^{2+}-rich trioctahedral smectite of composition $(Na,K,Ca)_{0.30\text{-}0.45}(Fe^{2+},Mg,Al,Mn,Ti)_{3.10\text{-}3.23}(Si,Al)_4O_{10}\cdot nH_2O$. Strongest X-ray powder-diffraction lines and intensities are 12.4(100), 2.636(20), 2.508(15), 2.309(10), 1.537(15), and 1.528(10) Å. Occurs in pegmatites, marble xenoliths, and SC.

UK32. A hydrous carbonate of Ca-Y-Al occurring as white, silky aggregates, rarely as acicular, colorless hexagonal crystals striated along the length. Good basal cleavage, $D_{meas} = 2.15(1)$ g/cm³, strong effervescence in HCl. Hexagonal, $P6/mmm$, $P622$, $P6mm$, $P6m2$, or $P62m$, $a = 10.830(2)$, $c = 10.516(5)$ Å. Optically uniaxial negative, $\epsilon = 1.501(1)$, $\omega = 1.532(1)$. Strongest X-ray lines are 9.38(100), 4.58(65), 3.77(45), 3.358(50), 2.491(70), and 2.143(50). In pegmatite and SC.

UK33A. $Sr_2Na_2(Ce,La)Y(CO_3)_6\cdot 3H_2O$ (?); a REE analogue of donnayite-(Y), from which it is megascopically indistinguishable. Pseudotrigonal, probably triclinic. Strongest X-ray lines 4.27(90), 3.207(50), 2.827(100), 2.023(60), 1.976(60), 1.916(60) Å. In SC, and in carbonate cavities(?). UK33 is donnayite-(Y).

UK37A. White, greenish gray, brown barrel-shaped and pagoda-shaped crystals megascopically indistinguishable from ewaldite, donnayite-(Y), and mckelveyite-(Y). Hexagonal, $P6_3mc$, $a = 5.193(1)$, $c = 12.25(1)$ Å; strongest X-ray lines 4.50(60), 4.23(80), 3.023(100), 2.596(70), 2.391(50), and 1.976(90). Composition $Sr_3NaCaY(CO_3)_6\cdot 3H_2O$ (?), probably the Sr analogue of ewaldite. In SC and carbonate cavities, pegmatites, and igneous breccia. UK37 is ewaldite.

UK38. Canary-yellow patches of minute flakes, rarely as small tabular hexagonal crystals. Composition

$(Na,K)_2(Mn,Fe,Ca,Ti,Al)_3(Si,Al)_8O_{20}\cdot 8H_2O$ (?); water assumed, by difference. Trigonal, $P3$ or $P\bar{3}$, $a = 14.659(3)$, $c = 12.667(2)$ Å. Uniaxial negative, $\epsilon = 1.534(1)$, $\omega = 1.550(1)$. Strongest X-ray lines 12.65(100), 8.96(50), 4.01(50), 3.166(50), 2.839(60), and 2.646(70). In SX and SC.

UK48. Beige, prismatic crystals (0.2 mm), commonly in clusters. Composition $CaY_{2-x}(Si,Be,B)_4(O,OH)_{10}\cdot 2H_2O$. Monoclinic, $P2_1$ or $P2_1/m$, $a = 9.965(4)$, $b = 7.692(2)$, $c = 4.822(2)$ Å, $\beta = 90.01(1)°$. Biaxial positive, $\alpha = 1.701(3)$, $\beta = 1.706(3)$, $\gamma = 1.715(3)$, $2V = 74(1)°$, $b = Y$, $c \wedge X = 9.5°$. Strongest X-ray lines 6.09(50), 4.83(50), 3.778(30), 3.593(30), 2.882(100), and 2.580(60). In SC(?).

UK51. $Al(OH)_3$ (?). White, translucent to opaque balls and irregular powdery patches in SC and pegmatites. Strongest X-ray lines 4.81(100), 4.34(60), 4.18(60), 3.90(30), 2.394(50), and 2.293(40) Å, very close to those of nordstrandite.

UK52. Red to reddish brown platy crystals as spherical aggregates; also as irregular grains with curved crystal faces. Composition variable, best represented by $(K,Na)_{4-x}(Mn,Fe)_{4-y}Si_8O_{20}\cdot nH_2O$ where $x = 0–1.5$, $y = 0–0.5$, $n \approx 4$; water assumed, by difference. Strongest X-ray lines 12.23(100), 5.10(30), 4.34(40), 2.823(50), 2.625(50), and 1.674(30) Å. In pegmatite.

UK52A. Properties, occurrence, and X-ray lines as for UK52. Composition $(Na,K)_3Ti_2(Fe,Mn)_{2-3}Si_8O_{20}\cdot nH_2O$ where $n \approx 4$; water assumed, by difference.

UK53. $NaBSiO_4$. Colorless, white, pink, pale blue, vitreous transparent to translucent, pseudohexagonal crystals striated along elongation; also botryoidal, as balls, and radiating clusters of microscopically twinned prismatic grains; $D_{meas} = 2.86$ g/cm³. Monoclinic, $P2_1/n$, $a = 8.001(1)$, $b = 7.693(2)$, $c = 13.885(6)$ Å, $\beta = 89.80(2)°$. Strongest X-ray lines 4.34(60), 3.848(70), 2.778(100), 2.314(50), 2.217(60), and 1.926(40). In SX.

UK53A. Similar to UK53 but hexagonal, $P6m$, $P6$, or $P\bar{6}$, $a = 8.036(3)$, $c = 7.709(3)$ Å. Uniaxial negative, $\epsilon = 1.578(1)$, $\omega = 1.588(1)$. Strongest X-ray lines 4.02(40), 3.858(60), 3.564(50), 2.782(100), 2.321(50), and 2.222(70) Å. In SX.

UK55. $Cu_{2-x}S$, $x = 0.12–0.37$. Irregular submetallic grains, black with a violet tint. X-ray patterns fall into four major groups, one of which is similar to that of anilite, Cu_7S_4. In SX.

UK56. White balls (0.5 mm) of silky fibers of composition $CaNb_4O_{11}\cdot 12H_2O$ (?); water assumed, by difference. Strongest X-ray lines 10.28(100), 6.16(20), 4.78(60), 4.70(60), 2.680(30), and 2.058(50) Å. In veins in albite-quartz hornfels.

UK57. $(Na,Ca,K)_6Si_{10}O_{24}(F,OH,Cl)\cdot 4H_2O$ (?); water assumed, by difference. Pearly, white micaceous. Triclinic, $P1$ or $P\bar{1}$, $a = 9.62$, $b = 9.61$, $c = 12.10$ Å, $\alpha = 86.99$, $\beta = 99.51$, $\gamma = 120.04°$. Strongest X-ray lines 11.80(80), 5.94(78), 3.110(50), 2.978(30), 2.887(100), and 1.819(60). In breccia(?).

UK58 group. $M_4Al_2(OH)_{12}(CO_3)\cdot 4H_2O$ (?) where M = Mg,Fe,Mn. Colorless to white (Mg), pale brown, brown, and pale blue (Mn,Fe); hexagonal, tabular to prismatic and barrel-shaped crystals. Group 1: hexagonal, $a = n \times 5.3$, $c = 15$ Å ($n = 1$ or 2); strongest llines 7.56(100), 3.774(70), 2.576(50), 2.218(50), 1.854(50), and 1.554(40). Group 2: trigonal, $a = 11.0$, $c = 22.8$ Å; strongest lines 7.56(100), 3.774(70), 2.668(50), 2.344(30), 1.969(30), and 1.586(20).

Optically uniaxial negative, $\epsilon = 1.531–1.548$, $\omega = 1.531–1.587$, birefringence 0–0.039. Mn and Fe members are strongly pleochroic from light brown to brown. In SC and carbonate cavities, pegmatite, rarely hornfels.

UK59. $NaCa(Mn,Fe)(Ti,Nb,Zr)Si_2O_7(O,F)_2$, the Ti analogue of lavenite and Ca analogue of janhaugite. Yellow to orange-brown fibrous crystals, flattened {100}, elongate [001]; distinct {100} cleavage. Monoclinic, $P2_1/a$, $a = 10.828(7)$, $b = 9.790(7)$, $c = 7.054(2)$ Å, $\beta = 108.21(3)°$. Optically biaxial negative, $\alpha = 1.743(2)$, $\beta = 1.785(2)$, $\gamma = 1.810(5)$, $2V = 72–84°$, $Y = b$, $c \wedge X = 15°$ in obtuse β; $r > v$ moderate, X = pale greenish yellow, Y = yellow, Z = brownish red to deep red. Strongest X-ray lines 3.945(20), 3.234(30), 2.859(100), 2.807(70), 1.762(20), and 1.741(20). In SC and nepheline syenite.

UK60. Carbonate of Sr, Ba, Ca, REE, with Sr > Ba; probably hydrous. Small (0.1 mm) pearly white, hexagonal plates, or as flakes in rosettes or irregular clusters. Strongest X-ray lines 4.45(100), 3.012(60), 2.563(30), 2.420(15), 2.211(40), and 1.975(40) Å. Mainly in SC, also in SX.

UK60A. Similar to UK60, but with Ba > Sr. Strongest X-ray lines 4.43(100), 4.05(20), 3.102(30), 2.557(70), 2.206(30), and 2.163(30) Å.

UK61. $Na_{1-2}Ca_2Ti_3Si_8O_{24}(OH)_{1-2}\cdot 5H_2O$ (?); water assumed, by difference. Ca analogue of zorite. Off-white to pale tan, orange-brown prismatic crystals. Good {100}, {010}, {001} cleavages. Orthorhombic, $Bmmm$, $Bmm2$, or $B222$, $a = 23.19$, $b = 2 \times 6.955$, $c = 2 \times 7.192$ Å. Biaxial positive, $\alpha = 1.599(1)$, $\beta = 1.610(1)$, $\gamma = 1.696(1)$, $2V = 38(1)°$, $X = a$, $Y = b$, $Z = c$. Strongest X-ray lines 11.59(100), 6.93(100), 5.27(30), 3.069(50), 2.984(30), and 2.588(30). In breccia(?).

UK62. $Na_3(Ca,Mn)_2(CO_3)_3(F,OH)$. Vitreous, colorless, tan to brown, transparent to translucent masses and blocky to prismatic crystals (0.3 mm). Conchoidal fracture, good {001} cleavage, {010} imperfect, $H = \sim 3$, $D_{meas} = 2.67(2)$ g/cm³. Effervesces in HCl. Optically biaxial negative, $\alpha = 1.472(1)$, $\beta = 1.562(1)$, $\gamma = 1.569(1)$, $2V = 25(1)°$, $Y = b$, $X \wedge c = 6°$ in acute β. Monoclinic, $C2/c$ or Cc, $a = 8.043(4)$, $b = 15.812(5)$, $c = 7.030(3)$ Å, $\beta = 101.16(3)°$. Strongest X-ray lines 7.081(70), 2.895(100), 2.711(80), 2.637(60), 2.039(60), and 1.869(60). In SX.

UK63. $NaLi_2PO_4$. Vitreous, white, pale yellow, pale blue irregular grains. Fracture conchoidal, good cleavages {100}, {010}, {001}, {110}. Orthorhombic, $Pmnb$ or $P2_1nb$, $a = 6.874(2)$, $b = 9.971(4)$, $c = 4.9281(5)$ Å. Optically biaxial negative, $\alpha = 1.533(1)$, $\beta = 1.540(1)$, $\gamma = 1.541(1)$, $2V = 49(1)°$, $X = a$, $Y = c$, $Z = b$. Strongest

X-ray lines 4.02(100), 3.512(100), 3.440(100), 2.489(90), 2.462(90), and 1.719(40). In SX.

UK64. $Na_8Ca_2Ce(PO_4)_4(SiO_2)_4(OH,F)_3 \cdot 4H_2O$ (?); water assumed, by difference. Vitreous, brown to reddish brown, irregular grains to prismatic crystals coated with a film of amorphous substance; good {001} and {110} cleavages. Orthorhombic, $P22_12_1$, $a = 12.297(2)$, $b = 14.660(3)$, $c = 7.2454(4)$ Å. Optically biaxial, refractive indices ≈ 1.52–1.64 approximately along elongation, $X = b$, $Y = c$, $Z = a$. Strongest X-ray lines 9.42(80), 6.56(40), 6.29(40), 4.72(50), 3.948(60), 2.722(100), and 2.577(70). In SX.

UK65. $Ba_4Ce(CO_3)_5F$ (?); CO_2 by difference. White to silvery gray, vitreous to dull crystals (0.1 mm), commonly in dendritic and stellate groups. Effervesces in HCl. Monoclinic, $P2_1$, or $P2_1/m$, $a = 13.18(1)$, $b = 5.073(1)$, $c = 6.724(4)$ Å, $\beta = 102.16(3)°$. Optically biaxial negative, $\alpha = 1.594(1)$, β 1.710(5), $\gamma = 1.715(5)$, $2V = 16(1)°$, $Y = b$, $Z \wedge c = 26°$ in obtuse β. Strongest X-ray lines 4.02(100), 3.272(90), 2.539(30), 2.143(40), 2.007(50), and 1.636(30). In hornfels.

UK67. White, translucent balls (0.1 mm) of a Na-K-Mn-Fe-Ca-Zr silicate; low analytical total, probably not homogeneous. Strongest X-ray lines 6.97(100), 6.47(90), 3.051(20), 2.702(30), 1.844(30), and 1.744(30) Å; lines vary in intensity and sharpness. In breccia.

UK68. Na-Mn-Nb oxide or hydroxide (?). Thin, bright yellow plates when fresh; alters to poorly crystalline, red, crumbly masses of splinters. Strongest X-ray lines 10.30(100), 8.49(70), 7.83(60), 7.56(60), 2.911(60), and 2.846(60) Å. In SC.

UK69. $Na_2Zr_2Si_7O_{18}(OH,F)_2 \cdot 8H_2O$ (?); water assumed, by difference. Shown by single-crystal X-ray study to be a mosaic with overall hexagonal symmetry. White, pale green, gray; hexagonal crystals (0.5 mm), some with a dark green rim to pale green to gray core, the zoning arising from inclusions. Also as rosettes of brown, hexagonal, tabular crystals (0.1 mm). Strongest X-ray lines 6.47(70), 5.69(50), 3.954(70), 3.754(70), 3.122(80), and 2.743(100) Å. In SC(?) and breccia.

UK70. Ca-K-Mn-Nb-Al silicate. Pink, earthy to porcelaneous alteration product; also pseudomorphs after an unidentified mineral. Strongest X-ray lines 9.93(100), 7.72(40), 7.48(40), 7.09(50), 3.633(20), and 2.929(60) Å. In SX.

UK72. Ca silicate with minor Al and Fe. White, irregular patches and balls of powder or very fine fibers. Strongest X-ray lines 16.9(100), 3.410(40), 3.105(90), 2.930(50), 1.893(50), and 1.876(70) Å. In marble xenoliths.

UK73 group. Probably hydrous Na carbonates. Three members. White, powdery, silky, fibrous efflorescence. Soluble in water, effervescent in HCl. The three members give distinct X-ray patterns; strongest lines of only one member are given: 9.76(100), 8.40(70), 3.931(80), 3.411(50), 2.792(90), and 2.465(70) Å. In SX.

UK74. Na-Ca-Ti silicate with minor Fe, Nb. White, fibrous aggregates, and vitreous, white to colorless, acicular crystals. Monoclinic, $C2/c$, $a = 28.67(3)$, $b = 8.619(3)$, $c = 5.215(1)$ Å, $\beta = 90.98(2)°$. Strongest X-ray lines 14.32(100), 4.77(30), 2.995(50), 2.738(30), 2.149(20), and 2.134(20). In SX.

UK75. $(Na,K)CaTi_2Si_{10}O_{25}(OH) \cdot 6H_2O$ (?); water assumed, by difference. Ti analogue of lemoynite. Vitreous, brown, irregular grains (0.5 mm) in a carbonate matrix. Brittle, conchoidal fracture. Monoclinic, $C2/m$, $a = 10.197(3)$, $b = 15.885(7)$, $c = 9.118(3)$ Å, $\beta = 104.51(2)°$. Optically biaxial positive, $\alpha = 1.567(1)$, $\beta = 1.591(1)$, $\gamma = 1.618(1)$, $2V = 87°$, $X = b$, $Y \wedge c = 15°$, $Z \wedge a = 0°$. Strongest X-ray lines 8.85(80), 7.93(100), 6.85(50), 4.34(60), 3.509(90), and 3.421(80). In breccia or marble xenoliths(?).

UK76. $Mn_6Al_3(SO_4)_2(CO_3)_x(OH)_{17-2x} \cdot yH_2O$ (?) where $y = 5$–6, x unknown; water and CO_2 assumed and by difference. Rosettes of pale brown, tabular, hexagonal crystals; mild effervescence in HCl. Trigonal, $a = 3 \times 3.1$, $c = 11.14$ Å. Uniaxial negative, $\epsilon = 1.506(1)$; $\omega = 1.535(1)$. Strongest X-ray lines 11.05(100), 5.52(80), 3.684(50), 2.460(80), 2.204(80), and 1.949(70). In pegmatite(?).

UK77 group. $NaCaSi_3O_7(F,OH) \cdot 2\text{–}3H_2O$ (?); water assumed, by difference. Analytical totals vary, suggesting differences in hydration states. White, pale green, massive, botryoidal, radiating clusters of fibers and small elongate plates. An emerald-green variety became discolored completely in a few months under laboratory conditions. Strongest X-ray lines 14.97(100), 7.61(20), 4.16(30), 3.814(30), 3.045(50), and 1.823(60) Å. The most intense line varies between 14 and 15 Å. In SC.

UK78. Na-Mn silicate. Colorless to white needles. Strongest X-ray lines 10.06(100), 6.91(10), 3.008(10), 2.795(50), and 2.658(10) Å. In SX.

UK79. Na-Fe-Mn silicate. Pale green fibers. Strongest X-ray lines 8.39(100), 7.15(30), 6.18(20), 3.307(70), 2.808(100), and 2.160(20) Å. In SX.

UK80. Na-Mn-Al silicate. Dark brown, massive patches grading into fine yellowish brown fibers. Strongest X-ray lines 10.72(100), 7.34(20), 3.144(20), 2.806(80), 1.931(20), and 1.719(20) Å. In SX.

UK81. $NaLiSi_2O_5 \cdot 2H_2O$. Colorless, vitreous, transparent, tabular crystals, colorless needles, silky white fibrous groups; perfect {001} and distinct {010} cleavages, conchoidal fracture; $D_{meas} = 2.24$ g/cm^3. Monoclinic, $A2/n$, $a = 5.061(1)$, $b = 8.334(2)$, $c = 14.383(3)$ Å, $\beta = 96.67°$. Optically biaxial positive, $\alpha = 1.515(1)$, $\beta = 1.516(1)$, $\gamma = 1.518(1)$, $2V = 64(1)°$, $X = b$, $Y \wedge c = 16°$, $Z \wedge a = 23°$. Strongest X-ray lines 7.14(100), 4.24(80), 4.15(100), 4.02(80), 2.852(100), and 2.703(50). In SX.

UK82. $Cu_3FeS_4 \cdot 4H_2O$ (?); water assumed, by difference. Metallic, reddish brown, hexagonal crystal with perfect basal cleavage. Trigonal, $P3m1$, $P\bar{3}m1$, or $P321$, $a = 3.866(1)$, $c = 6.831(7)$ Å. Strongest X-ray lines 6.84(100), 3.349(50), 3.005(100), 2.390(80), 1.933(80), and 1.882(50). In SX.

UK83. Yellow needles of Th-Ca-Na-Mn-Ti silicate.

Strongest X-ray lines 12.68(100), 9.24(50), 5.17(40), 4.24(50), 3.651(25), and 3.077(30) Å. In SX.

UK84. $Na_4(Zn,Mn)_2Si_7O_{18}\cdot 5H_2O$. Colorless to mauve, vitreous, equant, pseudohexagonal crystals. Perfect {101}, {010}, and poor {120} cleavages; conchoidal fracture, $H = 6.5$, $D_{meas} = 2.52$ g/cm³, bright apple-green fluorescence in short-wave ultraviolet light. Orthorhombic, *F2dd*, $a = 10.211$, $b = 39.88$, $c = 10.304$ Å. Optically biaxial positive, $\alpha = 1.520$, $\beta = 1.521$, $\gamma = 1.524$, $2V = 61.3(4)°$. In SX. **J.L.J.**

New Data

Euchlorine

F. Scordari, F. Stasi (1990) The crystal structures of euchlorin, $NaKCu_3O(SO_4)_3$. Neues Jahrb. Mineral. Abh., 161(3), 241–253.

X-ray single-crystal structural study ($R = 0.048$) of euchlorine from fumarolic deposits at Mount Vesuvius, Italy, indicates that the mineral is monoclinic, space group $C2/c$, $a = 18.41(5)$, $b = 9.43(3)$, $c = 14.21(5)$ Å, $\beta = 113.7(3)°$, $D_{meas} = 3.28$, $D_{calc} = 3.28$ g/cm³ for $NaKCu_3O(SO_4)_3$ with $Z = 8$. The structural results are an elaboration of data previously reported by the authors [abstracted in *Am. Mineral.*, 75, p. 1214, 1990]. **J.L.J.**

Nacaphite

E.V. Sokolova, Yu.K. Egorov-Tismenko, A.P. Komyakov (1989) The crystal structure of nacaphite. Doklady Akad. Nauk, 304(3), 610–615 (in Russian).

X-ray crystal-structure study of nacaphite gave triclinic symmetry, space group $P1$, $a = 13.387(7)$, $b = 13.383(5)$, $c = 7.072(3)$ Å, $\alpha = 90.25(3)$, $\beta = 89.73(4)$, $\gamma = 133.12(3)°$. Elimination of a block of nine weak reflections and adoption of the non-standard space group $C1$ reduces R to 7.54%; parameters for the $C1$ cell are $a = 10.656(4)$, $b = 24.443(6)$, $c = 7.102(2)$ Å, $\alpha = 89.99(2)$, $\beta = 90.01(2)$, $\gamma = 90.01(2)°$. The structural formula is $Na_5(Na_{0.97}Mn_{0.03})_3(Na_{5.17}Ca_{4.92})(Ca_{0.97}Sr_{0.03})_3[PO_4]_8F_8$; $D_{calc} = 2.88$ g/cm³ with $Z = 2$. The formula, cell, and symmetry are new. **J.L.J.**

Platynite

S.A. Nikitin, Ye.B. Anderson, N.V. Petrova (1989) New data on platynite and lead isotopism in associated selenides. Zapiski Vses. Mineral. Obshch. 118(3), 22–28 (in Russian).

Fifteen electron-microprobe analyses of three grains gave the following averages for each grain: Pb 20.8, 17.7, 27.1, Bi 49.3, 52.4, 43.1, Se 25.5, 26.2, 25.8, S 2.91, 2.18, 2.5, sum 98.63, 98.48, 98.5 wt%, corresponding to $Pb_{0.93}Bi_{2.19}(Se_3S_{0.84})_{\Sigma 3.84}$, $Pb_{0.77}Bi_{2.27}(Se_3S_{0.61})_{\Sigma 3.61}$, and $Pb_{1.2}Bi_{1.89}(Se_3S_{0.71})_{\Sigma 3.71}$, suggesting solid solution of the type $Pb_xBi_{3-x}(Se,S)_4$. The mineral forms aggregates, up to 1.5–2.0 cm across, of allotriomorphic grains. Color white, luster metallic, cleavage perfect in two directions, brittle, conducts electricity, $H = 100–140$ kg/mm² (mean 112), but possibly only 70–100 kg/mm² because of hardening during polishing. White in reflected light, highly reflecting and distinctly anisotropic. R_1 mostly 44.5–45.5%, R_2 47.5–43.5% (400–750 nm) [specific values are not tabulated, but reflectance is illustrated in a diagram]. The strongest powder X-ray diffraction lines (20 given) are: 5.45(20), 3.965(100), 2.971(40), 2.598(20), 2.549(20), and 1.981(20) Å.

The mineral occurs in pitchblende-selenide mineralization in a zone of faulting and folding in a lower Proterozoic volcanogenic sedimentary complex in the Baltic Shield, USSR. The mineral is closely associated with the first generation of pitchblende dated at 1760 Ma, and is partly replaced by clausthalite and paraguanajuatite. Associated minerals include pyrite, chalcopyrite, and more rarely, magnetite, chalcocite, sphalerite, galena, and native iron. **E.S.G.**

Sobolevite

E.V. Sokolova, Yu.K. Egorov-Tismenko, A.P. Khomyakov (1988) Crystal structure of sobolevite. Doklady Akad. Nauk SSSR, 302(5), 1112–1118 (in Russian).

Single-crystal X-ray structural study of sobolevite gave triclinic symmetry, space group $P1$, $a = 7.078(1)$, $b = 5.4115(7)$, $c = 40.618(10)$ Å, $\alpha = 90.01(2)$, $\beta = 93.19(2)$, $\gamma = 90.00(1)°$, $D_{calc} = 3.03$ g/cm³, $Z = 2$. Cell dimensions are similar to those previously attributed to a monoclinic cell. The structural formula is $Na_{11}(Na,Ca)_4(Mg,Mn)Ti_4[Si_2O_7]_2[PO_4]_4O_3F_3$. The symmetry and formula are new. **J.L.J.**