NEW MINERAL NAMES*

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Apachite*, Gilalite*

Both new species are retrograde or mesogenetic minerals that occur in tactites at the Christmas mine, Gila County, Arizona.

For apachite the average of two closely agreeing analyses gave: CuO 43.6, FeO 0.3, MgO 1.7, CaO 1.8, SiO$_2$ 40.8, H$_2$O 13.8%, sum 102.0, close to Cu$_5$Si$_5$O$_{29}$·11H$_2$O. Apachite is blue, H = 2, D = 2.80. Biaxial (−), 2V small, α = 1.610, β = γ = 1.650. No single crystals were found, but the powder pattern was indexed on a monoclinic cell with a = 12.89, b = 6.055, c = 19.11 Å, β = 90.42°; strongest lines of the powder pattern are 13.49(10)(100), 7.663(7)(102), 3.168(7)(401).

For gilalite the average of two closely agreeing analyses gave: CuO 36.2, MgO 2.3, CaO 3.8, MnO 0.5, SiO$_2$ 41.5, H$_2$O 14.6, sum 98.8, close to Cu$_6$Si$_6$O$_{17}$·7H$_2$O. Gilalite is green, H = 2, D = 2.72. Biaxial (−). 2V small, α = 1.560, β = γ = 1.635. No single crystals were found, but the powder pattern was indexed on a monoclinic cell with a = 13.38, b = 19.16, c = 9.026 Å, β sensibly 90°; optics indicate the lower symmetry. Strongest lines of the powder pattern are 13.4(10)(100), 10.97(5)(110), 7.78(5)(120).

DTA shows a sharp loss of water at about 92°C for gilalite and a smooth loss curve for apachite. A. P.

Chukhrovite-(Ce), Rhabdophane-(Ce)
Kurt Walenta (1978) Chukhrovite-(Ce) and rhabdophane-(Ce) from the Clara Mine at Oberwolfach, Middle Black Forest. Chem. der Erde, 38, 331–339 (in German).

Chukhrovite-(Ce) occurs in white crystals up to a few mm on fluorite. X-ray data show it to be cubic with α = 16.80±0.005 Å (surprisingly, somewhat higher than for chukhrovite). Isotropic, n$_p$ = 1.44±0.002. The strongest X-ray lines (55 given) are 9.75(10)(111), 5.93(8)(220), 4.20(5)(400), 3.22(7)(333, 511), 2.56(6)(633), 2.24(5)(642), 2.17(6)(731, 553), 1.82(5)(842). No analysis is given. Electron microprobe analysis showed that Ce is dominant, Nd next, with La, Pr, Sm, Gd, and Eu present.

Rhabdophane-(Ce) occurs in white to pale brown crystals, aggregates of subparallel needles occurring in druses on barite, fluorite, chalcopyrite, and tetrathedrite. Optically uniaxial, positive, ω = 1.688, ε = 1.744 (both ±0.003) [both 0.03 higher than usually given for rhabdophane-(La)]. No analysis is given, but electron microprobe study showed Ce dominant, followed by Nd, La, Pr, Gd, Sm, Er, and Eu. X-ray powder data are given (28 lines); the strongest lines are 6.09(9)(1010), 4.41(8)(1011), 3.51(7)(1120), 3.03(10)(2020), 2.83(9)(2032), corresponding to a = 7.01, c = 6.40 Å, close to those for rhabdophane-(La).

Discussion
May be accepted provisionally. Nothing whatever is said of the presence or absence of Y in either mineral; previous analyses of chukhrovite are of chukhrovite-(Y), so the omission is a serious one. M. F.

Comblainite*

Electron microprobe analyses were made of 2 samples, giving Co$_2$O$_3$ 20.80, 20.20; NiO 39.30, 38.40; UO$_2$ 4.24, 5.20; MgO (calc.) 0.30, 0.37; P$_2$O$_5$ (calc.) 1.05, 1.29; H$_2$O (calc.) 1.07, 1.31, H$_2$O–11.59, 8.69; (H$_2$O + CO$_3$) 21.29, 20.96, sum 99.64, 96.42%. MgO, P$_2$O$_5$, and H$_2$O calc. were calculated from UO$_3$, known to be present as metasaleeite. TGA determinations (giving CO$_2$, H$_2$O, H$_2$O–, plus oxygen corresponding to CO$_3$O$_2$–2CO) gave 35.95, 32.79%, respectively. The valences of Ni and Co were determined by ESCA spectra. The infrared spectrum shows bands for H$_2$O.

Discussion
No data are given on methods of separation or treatment. The assemblage seems highly improbable, but more data are needed. M. F.
OH−, and (CO3)2−. The thermogravimetric curves show losses to 175° of 12.66 and 10.00% (molecular H2O); the hydroxy and CO2 are given off 250–340°. Infections at 480° and 710° correspond to the changes CoO to Co3O4 and Co3O4 to CoO. The analyses give, respectively, Ni~9:5Co~:i(3(CO3k3l5(OH)18.27'6.7H20, and Ni~9:5Co~1:9(CO3)L02(OH)1884.9.92H20. The mineral is a member of the hydrotalcite group.

The mineral occurs as turquoise-blue cryptocrystalline crusts on altered uraninite from Shinkolobwe, Zaire, associated with bequerelite, curite, rutherfordine, and heterogenite. Under the microscope, it is yellow-green, non-pleochroic, with ω' = 1.690, ε' = 1.684 (both ±0.002).

The name is for Gordon Comblain, of the Musee Royal de l’Afrique Central, Tervuren, Belgium, who discovered the mineral. Type material is at that museum. M. F.

**Deferrnite**


Electron microprobe analysis (average of 18 analyses on 3 samples) gave CaO 62.9, SiO2 1.2, CO3 13.4, Cl 3.3, total 80.8 − (O = Cl3) 0.74 = 80.06, H2O 19.94% by difference, corresponding to Ca5.62(CO3)2.52(SiO3)0.17(OH)0.73Cl0.67. 1.87 H2O, or Ca6(CO3)2(OH,Cl)0.2H2O, or Ca3(CO3)(OH,Cl)3H2O, for which Z = 8. Dissolved by cold HCl with effervescence.

Weissenberg and precession study show deferite to be orthorhombic, space group Pnam or Pnma, α = 17.860, b = 22.775, c = 3.658Å, D calc. 2.42, meas. 2.5. The strongest X-ray lines (30 given) are 11.37(100)(020); 8.29(35)(210); 5.68(30)(040); 3.045(40)(270,141); 2.899(50)(460); 2.418(35)(531,730); 1.962(35); 1.825(40).

The mineral occurs in fan-shaped forms 100–200 microns in size. Colorless, luster vitreous. Cleavage [010] perfect, [100] distinct. Forms [001], [010], [101], [001]. Optically biaxial, neg., α = 1.546, β = 1.572, γ = 1.576 (all ±0.001), 2V = 42°; dispersion ε < ν, medium; X = c, Y = b.

The mineral occurs in skarn at the contact of granite with Cre-taceous limestone near Gineyce-Ikizere, Trabson region, Turkey. Associated minerals include vesuvianite, wollastonite, andradite, diopside, calcite, rustumite, spurrite, and hillebrandite.

The name is for Jacques Deferne, Curator of Mineralogy, Museum d’Histoire Naturelle, Geneva, Switzerland, where type material is deposited. M. F.

**Fluckite**


Michele Catti, Giacomo Chiari and Giovanni Ferraris (1980) Fluckite, CaMn(HAsO₄)₂·2H₂O, a structure related by pseudo-


Microprobe analyses of deep rose and pale rose varieties gave, respectively, As₂O₅ 50.40, 50.49; CaO 13.01, 12.86; MnO 13.68, 16.65; FeO 0.11, 0.05; CoO 0.59, 0.03; NiO−0.03; MgO 0.93. Analysis of pale rose mineral by atomic absorption by B. Reynier on 80 mg gave As₂O₅ 56.60, CaO 12.98, MnO 17.17, MgO 0.04, H₂O (Penfield) 13.20, sum 99.9%. Analysis by J. Hucherot on material from the Giffruge gave As₂O₅ 57.4, CaO 13.6, MnO 16.8, MgO 0.3, H₂O 13.3, sum 101.4%. All these lead to the formula Ca₅(Mn,Mg,Co)(HAsO₄)₂·2H₂O. The DTA curve shows an endothermic break at 260° (dehydration).

The mineral is triclinic, P1, a = 8.459±0.002, b = 7.613±0.001, c = 6.98±0.001Å, α = 82.21±0.01, β = 98.25±0.01, γ = 95.86±0.02°; Z = 2; D calc. 3.11, measured 3.05±0.02. The strongest X-ray lines (36 given) are 8.323(44)(100), 7.512(100)(010), 3.767(56)(210,020), 3.528(90)(120,210), 3.266(91)(012), 2.975(81)(012), 2.688(61)(220), 2.671(43)(310).

The mineral is colorless to pale rose to deep rose. It occurs as radiating prismatic crystals with [100], [110], and [010] dominant and 6 other faces. Cleavages [010] perf., [100] easy, [001] difficult and imperfect. H = 3½–4. Optically biaxial, probably positive, 2V large, α' = 1.618, γ' = 1.642.

The mineral was found at the 60 m. and 100 m. levels of the Gabe Gottes–Saint Jacques vein at Sainte Marie-aux-Mines, Vosges, France, associated with pharmacolite and picropharmacolite. The name is for Pierre Fluck, mineralogist, Louis Pasteur University, Strasbourg. M. F.

**Giniite**


Microprobe analysis (H₂O by GA), using analyzed wyllyietite as standard, gave P₂O₅ 36.99, Fe₂O₃ (total Fe) 46.07, Al₂O₃ 1.20, MgO 0.68, MnO 0.63, H₂O 6.45, sum 92.02%. The pleochroism and blue-green color indicate the presence of both Fe⁺³ and Fe⁺²; the molecular weight from the unit cell dimensions suggests the formula Fe⁺³Fe⁺²(H₂O)₂(AsO₄)₂(PO₄)₄. Dehydration showed a loss of 4.0% to 330°, corresponding to 2H₂O, and a further loss of 2.4% at 510°. The formula then becomes, with x = 1, Fe⁺³Fe⁺²(PO₄)₄(H₂O)₂·2H₂O.

X-ray study showed giniite to be orthorhombic, space group Cmcm2, C222, or Cmmm, α = 10.365, b = 26.582, c = 5.162Å, Z = 4, D calc. 3.42, meas. 3.41.

The strongest X-ray lines (22 given) are 3.36(10)(260,061), 3.20(7)(330,241), 2.80(5)(261,081), 2.28(6)(371,421), 2.04(7), 1.679(6), 1.604(7).

The mineral occurs in idiomorphic crystals with [010], [150], and [041] dominant, present also [310], [001], [100]. Crystals are up to 0.5×0.2×0.05mm. Color blackish-green to blackish-brown, streak olive, luster vitreous to greasy. No cleavage, fracture conchoidal; H 3–4. Optically biaxial neg. 2V = 55°. α = 1.775, β = 1.803, γ = 1.812; pleochroic, X = c, light brown, y = d, dark brown, Z = a, dark blue green.

The mineral occurs in pegmatite at Sandamab near Usakos, Namibia, associated with hureaulite, tavorite, leucophosphite, and an unknown phosphate, formed by the alteration of triphylite. The name is for the author’s wife. M. F.
NEW MINERAL NAMES

Helmutwinklerite*


Microprobe analysis (H₂O by Karl Fischer method) gave (average): As₂O₅ 34.35, PbO 31.28, ZnO 27.50, CuO 1.48, H₂O 6.14, sum 100.75%, corresponding to Pb₂₀Cu₁₀Zn₂₁(S₂₂O₄)₂⁺. Two new minerals from Tsumeb, S.W. Africa. Dissolved by cold concentrated HCl.

Triclinic, pseudo-monoclinic, P1 or P1. Forms [010], [110], and [111]. Color sky-blue. G = 5.3, H = 4%, α = 1.72(5), β = 1.80(5), γ = 1.98(5); biaxial positive. Luster vitreous to resinous. No cleavage. The mineral occurs in cavities in tennantite, associated with quartz and willemite.

The name is for Helmut Winkler, University of Göttingen. M.F.

Jungite*, Matulaite*


Jungite Analysis by J. I. gave P₂O₅ 31.0, Al₂O₃ 0.08, Fe₃O₄ 28.4, ZnO 14.6, MgO 0.9, MnO 2.80, CaO 5.89, Na₂O 0.04, K₂O 0.01, H₂O (loss on ign.) 8.70, sum 100.68%, corresponding to (Ca₁.₃₅Al₁.₆₅)(PO₄)₂(OH)₀.₅. H₂O. Triclinic, pseudo-monoclinic, Pm 2 or Pm 2₁. Forms [001], [010], [110], and [111]. Color dark green, streak yellow. Luster vitreous to resinous. Optically biaxial negative. Cleavage perfect {010}. Colorlesstowhite, luster pearly. H=1; D=2.330. Optically biaxial, negative. Under the microscope crystalline. Difficultly soluble in HCl, easily in hot H₂SO₄.


Microprobe analyses of 5 samples gave Cu 36.54, 36.74, 36.25, 36.70, 40.10, Fe 2.94, 2.39, 2.84, 2.21, 1.43, Zn 1.73, 2.17, 2.50, 2.10, 0.91; Sn 30.05, 29.30, 29.50, 31.77, 28.36; Mn 0.21, 0.31, 0.33, 0.24, 0.51; S 28.02, 27.65, 28.04, 27.86, 27.75, sum 99.50, 100.18, 99.46, 100.87, 99.06%. These correspond to Cu₃SnS₄(Cu⁺Fe³⁺SnS₄)ₙ, n = 1, 2, 3, 4. The mineral occurs in the oxidized zone of the Cu–Co deposit of Kolwezi-Kamoto-Musono, southern Shaba, Zaire, as nodules (1–10 mm) and microcrystalline crusts. H = 1, 2, 3; D = 2.330. Optically biaxial, negative. The name is for the locality. Type material is at the Musee Royal Afrique Centrale, Tervuren, Belgium. M.F.
Partheite*

Electron microprobe analyses (standards, analyzed vaugnaitite, wollastonite, albite, orthoclase) gave SiO$_2$ 40.24, 38.83, 38.10; Al$_2$O$_3$ 31.99, 30.46, 29.68; CaO 16.38, 16.31, 16.22; Na$_2$O 0.32, 0.32, 0.32; K$_2$O 0.23, 0.23, 0.23; H$_2$O 10.83, 13.85, 15.45%, corresponding to the formula above.

Weissenberg photographs show partheite to be monoclinic, space group probably $C2/c$, $a = 21.59$, $b = 8.78$, $c = 9.31\AA$, $\beta = 91.47^\circ$, $Z = 8$; D calc. 2.37, meas. 2.39. The strongest X-ray lines (36 given) are 10.79(100)(200), 8.12(80)(110), 6.10(70)(111), 3.740(50)(221), 3.600(40)(312.511), 3.190(40)(022).

Partheite occurs as white fibers of vitreous luster in rodingite of the Taurus Mts., S. W. Turkey. Associated minerals are prehnite, thomsonite, and augite. The mineral is optically biaxial, positive, $2V = 48^\circ$, $\alpha = 1.547$, $\beta = 1.549$, $\gamma = 1.559$ (all ± 0.001); the rare med., elongation negative, extinction 23–30°, XA elongation; cleavage distinct parallel to fibers.

The name is for Edwin Parthè, Professor of Crystallography, University of Geneva. M.F.

Pianlinite

Chemical analysis gave Al$_2$O$_3$ 42.63, SiO$_2$ 50.10, TiO$_2$ 0.32, Fe$_2$O$_3$ 0.10, FeO 0.50, CaO 0.06, MgO 0.06, Na$_2$O 0.03, ZrO$_2$, 0.008, MnO tr., P$_2$O$_5$ 0.005, H$_2$O+$+$ 4.55, H$_2$O– 1.63, sum 100.083, corresponding to Al$_2$O$_3$·2SiO$_2$··H$_2$O.

The mineral is almost X-ray amorphous and gives many lines on long exposures. The X-ray pattern of the better crystallized variety is characterized by the lack of very intense lines and of low-angle lines. The strongest lines (30 given) are 4.62(3, diffuse), 3.37(3), 2.56(7), 2.42(5), 2.21(6), 1.53(4), 1.48(3), 1.27(5), 1.25(3), 0.967(3), 0.846(4). Powder patterns for materials heated to 950°, 1245°, and 1385° Ç are also given. Powder and single-crystal electron diffraction studies show the mineral to be semi-crystalline but not crystalline (no details given, GYC). The mineral is considered to be “semi-crystalline” due to strong c-axis disorder as in metakaolinite. Diffraction patterns of coarsely crushed material (1963) show a broad peak centered at 15° 2θ and two sharp peaks at 20.16 and 2.336Å, thought to be due to preferred orientation effect.

The mineral is pure white and grayish white with vitreous luster to gray and earthy. The mineral occurs as dense massive aggregates that are bristle, hard (6–7), with uneven to subconchoidal fracture. The true density is 2.45 g/cm$^3$. In thin section, the aggregates are mostly phanocrystalline, displaying colloform, myrmekitic (up to 2mm), petal-like, and fine to coarse scaley structures. The mineral is colorless. Some specimens are weakly pleochroic with $X =$ colorless, $Z =$ pale yellow. The mineral has a perfect (001) cleavage and shows straight extinction with the cleavage parallel to the vibration direction of the slow ray. $\alpha = 1.532(2)$, $\beta = 1.539(4)$, $\gamma = 1.541(4)$, $2V =$ to 5° or less. Electron microscopy shows the crystals to be irregular to nearly hexagonal plates.

Discussion
The data show the mineral to be unique. The non-crystalline nature and the thermal behavior of the mineral are similar to those of allogenite but it may be distinguished from allogenite by its lower water content and higher refractive indices and density. It may also be distinguished from the minerals of the kaolinite group by its lower water content and the characteristic absence of a well-defined endothermic reaction at 500°–700°C on its DTA curve. However, the sharp reflections of 2.016 and 2.336Å, observed on the diffractometer tracings of the nearly amorphous material, do not match the X-ray lines given for the better crystallized material, suggesting the presence of another phase. Further study of the mineral, especially on its homogeneity and the range of composition variations, is desirable. The mineral should not have been given a name at the present stage (see Bailey, Can. Mineral., 18, 143–150, 1980). G.Y.C.

Ruarsite

Ruarsite is reported as a new mineral found in heavy mineral concentrates from and in polished sections of ochra ore from an Alpine-type ultramafic, northern Tibetan, as well as in placers derived from the weathered ultramafics. Eight probe analyses for seven grains gave Ru 42.45 (35.74–49.84), Os 5.94 (nil to 14.84), Ir 1.67 (nil to 2.8), Pt 0.07 (nil to 0.32), Cu 0.00 (nil to 0.01), As 36.25 (33.09–39.2), Sb 0.00 (nil to 0.01), and S 14.08 (13.7–15.0); sum 100.36 (98.3–102.3), corresponding to an average of (Ru$_{0.93}$Os$_{0.04}$Hf$_{0.008}$Pr$_{0.001}$As$_{0.029}$S$_{0.954}$) or, ideally, Ru$_{0.93}$As$_{0.07}$. An X-ray powder pattern (43 lines, plus lines ascribed to laurite and irarsite) of a ruarsite grain, of composition (Ru$_{0.89}$Os$_{0.04}$Hf$_{0.016}$Pr$_{0.003}$As$_{0.065}$S$_{0.985}$), was indexed as monoclinic, $a = 5.931$, $b = 5.915$, $c = 6.003\AA$, $\beta = 112°27'$ which corresponds with data for synthetic Ru$_2$As$_3$ (Hulliger, Nature, 201, 381–382, 1964). The strongest lines are: 3.79(50)(111), 2.77(100)(002), 2.74(200), 1.890(70)(302), 1.870(90)(311), 1.690(90)(131), 1.660(90)(202), 1.580(50)(103) and 1.149(50)(340). Ruarsite occurs as irregular grains or as aggregates (100–150 µm). It is lead-grey to dark-grey grey with a metallic lustre and a rough-textured surface. The streak is greyish black; it is brittle, non-magnetic and is not soluble in 1:1 HCl. In polished sections it is greyish white, pale yellow next to irarsite or laurite. The mineral
polishes reasonably well, better than irarsite and laurite. It is bireflectant, in oil; pleochroism varies from pale yellowish white to light greyish yellow-white. The mineral is distinctly anisotropic; with nicols 1–2° off 90° bluish grey to light-reddish. Reflectance on a grain with minor Os gave: 42.0, 43.0, 42.5 (480 nm), 42.6, 43.8, 42.73 (546 nm), 42.9, 43.3, 42.6 (589 nm), and 43.4, 44.3, 43.3 (656 nm), and on a grain with 14% Os: 43.4 (480 nm), 44.1 (546 nm), 43.8 (589 nm) and 45.1 (656 nm). YHN_{90} = 982.1–1030.2 for two low-Os grains while the grain with 14% Os gave YHN_{90} = 804. YHN_{90} = 893, and YHN_{100} = 734. Internal reflection, cleavage and twinning were not observed. In the Cr-ore associated platinum-group minerals are iridosmine, ruthenian iridosmine (= rutheniridosmine?), sperrylite, and laurite; the latter occurs as relics in ruarsite. The principal metallic minerals of the ore are Cr-spinel (85–95%) with minor pyrite, pyrrhotite, loellingite, magnetite, chalcopyrite, molybdenite, galena, and millerite found in the intersets of the Cr-spinel. Principal gangue minerals are serpentine with minor chlorite. In the placer deposits, which occur on the western part of the ultramafic, the major PGM are Os-Ir-Ru alloys, such as ruthenosmiridium (or osmiridium?), iridosmine, (Pt,Ir) alloy, (Ru,Fe) alloy, osmium, gold, trace amounts of sperrylite, and the heavy minerals chromite, magnetite, ilmenite, rutile and garnet. The ruarsite occurs on the peripheries of some Os-Ir minerals, closely associated with PG-sulfide, -sulfarsenide or -arsenides which occur as exsolution in the Os-Ir-Ru alloys as well as inclusions in sperrylite and replacing irarsite and laurite. In addition to ruarsite, ruthenarsenite, irarsite, platinian irarsite, iridarsenite, and anduoite (Am. Mineral., 64, 464, 1979) occur with these sulfarsenides and sulfides.

The mineral is named after its composition, as were osarsite and irarsite. Type specimens of ruarsite are deposited in the Museum of Geology.

**Discussion**

A very complete description of a new mineral species. L.J.C.

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**Schlossmacherite**


A preliminary report. Analysis gave \( \text{SO}_3 29.3, \text{As}_2\text{O}_3 13.4, \text{Al}_2\text{O}_3 36.3, \text{Fe}_2\text{O}_3 0.6, \text{Ca} 3.5, \text{Sr} 0.3, \text{Ba} 0.3, \text{K}_2\text{O} 0.5, \text{Na}_2\text{O} 0.5, \text{H}_2\text{O} \sim 15, \text{sum} 100.9\%\), corresponding to the formula \( (\text{H}_2\text{O},\text{Ca})\text{Al}_4(\text{SO}_4,\text{As}_2\text{O}_3)_2(\text{OH})_8 \) with \( \text{H}_2\text{O} \geq \text{Ca} \) and \( \text{SO}_2 \geq \text{As}_2 \). It is a member of the beudantite group.

The mineral is hexagonal, \([\text{trig}?!\text{MF}]\), \( a = 6.998, c = 16.67\AA; \) strongest X-ray lines 4.92(70), 2.98(50), 2.96(100). Av. \( n = 1.597 \).

The mineral occurs with ceruleite and chenevixite at the Emma Luisa mine, Guanaco, Chile. M.F.

**Silver-4H, Silver-2H, Silver-3C**


Electron diffraction patterns of native silver from northeastern USSR showed, in addition to cubic silver, \( a = 4.08\AA, \) the presence of two hexagonal forms, Ag-4H \( (a = 2.94, 2.93, 2.88; c = 10.11, 10.18, 9.62\AA; \) D calc. = 9.53) and Ag-2H \( (a = 2.94, 2.93, 2.92; c = 4.80, 4.79, 4.74; \) D calc. = 10.11). X-ray powder data are given. Microprobe analyses of 6 samples by A. I. Tsypin showed Ag 98.21–99.93, Au 0.04–0.33, Sb 0.04–0.37, Bi 0.18–0.26, Cu up to 0.50, and traces of Fe, Cr, and Ni. M.F.

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**Sinjarite**


A hygroscopic, soft, pink mineral was discovered in the dry bed of an intermittent stream in Sinjar town, west of Mosul city. Wet-chemical analysis gave Ca 25.84, Cl 46.64, H_2O 26.55, Na 0.85%, sum 99.88; trace elements K 226 ppm, Mg 5 ppm, Sr 141 ppm, Fe 9 ppm. The X-ray powder pattern agrees well with that recorded for CaCl_2·2H_2O (JCPDS card 1-0989). The mineral is granular (massive), white streak, vitreous to resinous luster; \( H = 1\frac{1}{2}; \) elongated prismatic crystals have parallel extinction and positive elongation, \( n = 1.54 \).

It may be assumed that sinjarite has been precipitated within recent sediments from the slow evaporation of ground water saturated with Ca and Cl ions. The mineral is ephemeral, and dissolves quickly during wet seasons. Alternatively, because of its hygroscopic nature it may change to the hexahydrate CaCl_2·6H_2O, which melts at 30°C and will not survive hot seasons. A.P.

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**Tarnowskite (= Tarnowitzite)**


Tarnowitzite was named by Breithaupt for the locality in Upper Silesia. The Polish name is Tarnowskie Gory. Electron microprobe analyses showed Pb 2.93–4.60%; X-ray and infrared data are given.

**Discussion**

Unnecessary name for plumboanaragonite. M.F.

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**Unnamed analogue of schoenfliesite**


The Mushiston tin deposit, Central Asia, contains stannite-chalcopyrite-spaleriterite-galena mineralization. The stannite has been altered to fine-grained earthy aggregates of brownish-green color. X-ray study showed the mineral to be cubic, \( a = 7.71\pm0.02\AA; \) the strongest lines (17 given) are 3.840(10)(200), 2.719(8)(220), 1.722(6)(400). Microprobe analyses of 5 grains gave the formulas:

\[
\begin{align*}
& (\text{Cu}_{0.68}\text{Fe}_{0.31}\text{Zn}_{0.14})\text{Sn}_{0.87}\text{(OH)}_{3}\cdot 2.95\; \text{H}_2\text{O} \\
& (\text{Cu}_{0.52}\text{Fe}_{0.48}\text{Zn}_{0.36})\text{Sn}_{0.82}\text{(OH)}_{3}\cdot 2.50\; \text{H}_2\text{O} \\
& (\text{Cu}_{0.41}\text{Fe}_{0.59}\text{Zn}_{0.32})\text{Sn}_{0.25}\text{(OH)}_{3}\cdot 0.79 \\
& (\text{Cu}_{0.30}\text{Fe}_{0.23}\text{Zn}_{0.41})\text{Sn}_{0.16}\text{(OH)}_{3}\cdot 0.69 \\
& (\text{Cu}_{0.28}\text{Fe}_{0.42}\text{Zn}_{0.36})\text{Sn}_{0.65}\text{(OH)}_{3}\cdot 0.69 
\end{align*}
\]
Discussion

Note that the first four of these have Cu dominant; the last has Fe dominant. Material with Fe dominant had previously been described by Grubb and Hannaford, *Mineralium Deposita*, 2, 148-171 (1966) and by Geier and Ottemann, abstract in *Am. Mineral.*, 56, 1488 (1971). M.F.

Unnamed chlorite


Drill cores in chloritized andesites and skarns have veins with calcite, quartz, and fibrous green chlorite. Analyses show ZnO 6.0-30.5%. Microprobe analysis by P.K.S. gave SiO2 32.0, Al2O3 12.4, FeO (total Fe) 12.9, ZnO 30.5, MgO 4.6, MnO 0.15, CaO 1.0, sum 93.5%, corresponding to (Zn2.9Fe1.1Mg1.0Ca0.1Mn0.1Al0.6)Al(Si0.52Al0.48)O10(OH)8. The strongest X-ray lines (9 given) are 14.2(8), 7.15(10), 3.57(4), 2.66(3), 1.54(4). The mineral had α = 1.582, γ = 1.614. M.F.

Unnamed Na2HPO4, unnamed Na2HPO4 · 2H2O


Natrophosphate was described [see *Am. Mineral.*, 58, 139 (1973)] as Na2H(P04)2F · 17H2O, and is here stated to be Na2(H2P04)F · 19H2O. Material from Mt. Karna, Lovozero, massif, and from Ykuspor and Koashva, Khibina massif, is altered to dense, porcelain-like, or friable powder aggregates of snow-white color, with dull luster. X-ray powder data show that these consist of mixtures of villiaumite (NaF), Na2HPO4 (ASTM 10-184), and Na2HPO4 · 2H2O (ASTM 1-0232). M.F.

Unnamed V mineral of the montmorillonite group


Analysis of material saturated with Na, then dried to constant weight at 105°C, gave Si 18.78, V 20.90, Al 2.52, Mg 0.93, Fe 0.92, Ca 0.62, Na 3.09%. This can be calculated as V2+ and Fe3+ or as V3+ and Fe2+ respectively, giving SiO2 40.18, V2O5 30.75 or V2O5 34.03, Al2O3 4.76, MgO 1.54, FeO 1.18 or Fe2O3 1.32, CaO 0.87, Na2O 4.26, loss on ign. 14.92, sum 98.46 or 101.88%. The X-ray diffraction pattern of the oriented <2 micron fraction shows a very strong reflection 15.0±0.1 Å. The material saturated with Na has a basal spacing of 12.6±0.1 Å, which expands to 16.7±0.1 Å on saturation with glycol. Randomly oriented powder indicated b = 9.02±0.2 Å. SEM photographs are given. M.F.

NEW DATA

Metavivianite = partly oxidized vivianite (?)


Metavivianite was described in *Am. Mineral.*, 59, 896-899 (1974) as the triclinic dimorph of monoclinic vivianite. The present note, without giving any data, states that powder data, single-crystal study, and infrared study of metavivianite from the Yukon show that they are identical with those of naturally or artificially oxidized vivianite.

Discussion

Since Poullen did not examine type metavivianite from South Dakota, his conclusions have no standing. M.F.

DISCREDITED MINERALS

Hydrophilite


Hydrophilite was described by J. F. L. Hausmann (*Handb. Mineral.*, 875, 1813), as a coating on gypsum from the Lüneburg borate deposit. He reported its constituents to be calcium chloride and water, and that it is hygroscopic, deliquescent, very soluble in water, soluble in alcohol, and has an intensely bitter taste. Hydrophilite was evidently one of several hydrates of CaCl2, and may have been an early find of antarcticite (6H2O) or sinjarite (2H2O), but remains undefined. A.P.

Slavyanskite = Tunisite


Slavyanskite, described as CaAl2O4 · 8-8.5H2O (*Am. Mineral.*, 63, 599, 1978) is shown by infrared spectrum to be a carbonate. Its X-ray and optical data correspond closely to those of tunisite (*Am. Mineral.*, 54, 1-13, 1969), described as HNaCa2Al2(CO3)4(OH)10.

In a footnote, Povarennykh states, without giving his evidence, that the correct formula for tunisite is CaAl2(CO3)2(OH)4. M.F.