NEW MINERAL NAMES*

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Berdesinskiite*


A preliminary account. The average microprobe analysis gave V$_2$O$_5$ 64.3, Cr$_2$O$_3$ 1.4, Al$_2$O$_3$ 0.8, TiO$_2$ 34.1, MnO 0.01, sum 100.6%, corresponding to V$_2$TiO$_5$. X-ray study showed it to be monoclinic, space group not given a = 10.11, b = 5.084, c = 7.03 Å, β = 111.46°. Powder data are not given. Color black, luster metallic. Under the microscope yellow-brown to red-brown, birefringence weak, reflectance 20.2–21.1% at 589 nm. Weakly anisotropic. The mineral occurs at the Kornrupine mine near Lasamba Hill, Kenya, in weathered gneiss, with schreyerite (63, 1182, (1978)), tourmaline and kornrupine. The name is for Prof. Waldemar Berdesinski, Univ. Heidelberg. M.F.

Cechite*


Analysis gave V$_2$O$_5$ 19.98, As$_2$O$_3$ 0.25, Sb$_2$O$_3$ 0.14, PbO 47.14, FeO 13.23, MnO 3.99, ZnO 0.11, CaO 0.25, Fe$_2$O$_3$ 1.45, H$_2$O 2.41, insol. 10.90 (8.88% hematite, 2.02% quartz), sum 99.85%. This leads to the formula (Pb$_{0.95}$Ca$_{0.05}$)Fe$_{0.6}$Mn$_{0.4}$Zn$_{0.1}$ (V$_{0.9}$As$_{0.1}$)O$_{10}$(OH)$_{10}$, the ferrous iron analogue of pyrboleomite (Mn), descloiyte (Zn), and mottramite (Cu). Traces of Sn, Bi, Cu, Mg, and Al were found spectrographically. The mineral dissolves readily in HCl (1:1) or HNO$_3$ (1:1). The infra-red spectrum is very similar to those of descloiyte and mottramite, giving absorption bands characteristic of the VO$_4^{2-}$ group and (OH)$_{10}$ group.

X-ray study shows the mineral to be orthorhombic, space group Pnam or Pna2$_1$, a = 7.607, b = 9.441, c = 6.096 Å, a:b:c = 0.8057:1.06457, D calc. 5.94. The strongest X-ray lines (37 given) are 5.119(77) (011), 4.249(51) (111), 3.228(100) (201), 2.908(77) (130), 2.663(53) (221), 2.625(81) (131). The mineral was found in old mine dumps of a polymetallic ore deposit at Vranice, near Pribram, Bohemia, Czechoslovakia, mainly as granular masses up to 3 cm associated with calcite, hedyphane, and hematite. Rare crystals up to 3 mm long show forms {110} and {010}. Color black, luster submetallic to resinous, streak black. Brittle, fracture uneven to conchoidal. H 4½–5. Magnetic. Opaque, in reflected blue light it is gray-white with a yellowish tint, in yellow light brown-yellow to beige. Birefringence very weak to imperceptible. Anisotropy perceptible to strong with color shift from light gray to dark gray with brownish tint. Reflectances are given at 15 wavelengths (max. and min.): 460 nm, 18.5, 16.0; 540, 17.6, 14.8; 580, 17.7, 14.4; 660, 18.9, 15.1%.

The name is for Prof. Frantisek Čech, head of the Department of Mineralogy at Charles University, Prague, where type material is deposited. M.F.

Chameanite, * Geffroyite, * Giraudite*


Three new selenides occur in a complex quartzitic vein cutting granite at the Chaméane deposit 5 km north of Vernet-La-Varenne. Three stages of mineralization, separated by tectonic movements causing brecciation, are recognized. In the first stage pitchblende was deposited with copious barite gangue; in the second quartz with loellingite, arsenopyrite, pyrite, chalcoprite, tetrahedrite, tennantite and claushtalite, with partial replacements of barite by quartz, pitchblende by chalcopyrite, and chalcopyrite by claushtalite. In the third stage the selenides bukovite, athasbaasite, umangite, eucarait, eskebornite, more claushtalite, and the three new selenides occur with an ankerite gangue, followed by a second generation of chalcopyrite.

Geffroyite occurs in very fine-grained intergrowth (0.2–0.7 mm) with eskebornite, claushtalite and the other new selenides. Eight microprobe analyses, Cu 27.46–29.51, Fe 19.01–19.41, Ag 5.16–7.05, Se 34.42–38.54, S 8.23–10.06, Z 98.60–99.80, lead to the formula (Cu$_{Fe_{1/2}}$Ag$_{1/2}$Se$_{1/2}$)$_{Ge_{1/2}}$Se. Geffroyite is cubic, $Fm3m$, $a = 10.889\AA$, $Z = 4$, D (calc.) 5.39, with a pentlandite-like structure. The strongest lines of the X-ray powder pattern are: 3.282(9)(311), 3.145(9)(222), 2.094(6)(511,333), 1.925(10)(440), 1.660(5)(533), 1.112(6)(844). The Vickers hardness is 70 kg/mm$^2$, by reflected light the color is brown with a cream tint.

Chaméanite occurs in myrmekite-like intergrowths with giraudite, but mostly associated with eskebornite and geffroyite. Eleven microprobe analyses, Cu 33.93–36.38, Fe 2.58–6.25. As 10.81–11.98, Sb 0.22–0.56, Se 45.39–47.50, $Z$ 1.42–2.07, $\Sigma$ 98.43–100.02 lead to the idealized formula (Cu$_{Fe_{1/2}}$As$_{1/2}$Se$_{1/2}$), with the Cu:Fe ratio varying from 6 to 13. Chaméanite is cubic with a body-centered lattice, space group undetermined, $a = 11.039\AA$, $Z = 8$, D (calc.) 6.17. The strongest lines of the powder pattern are: 3.187(101)(222), 1.951(9)(440), 1.665(8)(622), 1.381(4)(800), 1.266(6)(622), 1.127(7)(844), and 1.062(5)(10,2,2,666). The Vickers microhardness is 265 kg/mm$^2$. Chaméanite is grey in reflected light; some grains show irregular zoning due to Cu:Fe variation. The name is for the type locality, Chaméane (Puy-de-Dôme), France.

In the association at Chaméane giraudite is the best developed of the newly recognized phases, sometimes occurring alone and attaining dimensions of 400 μm. Three microprobe analyses: Cu

*Minerals marked with asterisks were approved before publication by the Commission on New Minerals and Mineral Names of the International Mineralogic Association.
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30.06–32.78, Zn 3.19–3.64, Ag 1.73–3.89, Hg 0.30–0.85, Fe 0.03–0.19, As 7.61–9.56, Sb 7.50–10.66, Se 40.62–41.09, S 2.73–4.12, \( \Sigma 99.83–100.17 \) lead to the formula (Cu,Zn,Ag)\(_{10}\) (As,Sb)\(_4\) (Se,S)\(_3\) \( \cdot \) Giraudite is cubic, \( \bar{h}3m \), \( a = 10.578 \) \( \AA \), \( Z = 2 \). Giraudite is a member of the tetrahedrite group; it is the arsenian analogue of hakite, and is light grey in reflected light.

The names jeffroyite and giraudite are for Jacques Jeffroy, metallurgist at the Commissariat à l’Energie atomique, and Roger Giraud, in charge of the microprobe laboratory of the BRGM-CNRS, respectively. A.P.

Furutobeite*


Microprobe analyses of 7 grains gave (range and av.): Cu 40.2–40.6, 40.4: Ag 15.5–15.8, 15.7; Pb 26.5–26.8, 26.6; S 16.6–16.9, 16.8, sum 99.0–99.7, 99.5%, corresponding (av.) to Cu\(_{11.2}\) Pb\(_{0.8}\) Ag\(_{0.2}\), or (Cu,Ag)\(_{12}\)Pb\(_4\). When heated, the mineral decomposes at 100–2°C into galena plus a solid solution of CuAgS and CuS, which when cooled forms stromeyerite and chalcoite. The mineral is etched iridescent by 20% FeCl\(_3\) solution and is blackened instantly by 20% KCN solution, negative to KOH, HCl 1:1, HNO\(_3\) 1:1 and HgCl\(_2\) solution.

Single crystal study showed it to be monoclinic, space group \( Cm \), \( C2 \), or \( Cm2 \), \( a = 20.025 \), \( b = 3.963 \), \( c = 9.705 \) \( \AA \), \( \beta = 101.57^\circ \). \( Z = 4 \), \( D, \) calc. 6.74. The strongest X-ray lines (19 given) are 3.43(5)(310), 2.95(9)(112, 403), 2.61(5)(312), 2.55(7)(512, 603), 2.50(5)(311, 132, 402) and 1.952(4)(133, 352). There is a closer relation between furutobeite and o’danilieite, Na(Zn,Mg)\(_2\)H\(_2\)(AsO\(_4\))\(_3\). Johillerite is violet and transparent. In radial aggregates thin (010) platelets elongated parallel to \( c \) are recognizable; average dimensions are 1.0 × 0.3 × 0.1 mm. Cleavage: [010] perfect, {100} and {001} good; H(Mohs) 3. The name is in honor of the late Professor Johannes-Erich Hilger of Stuttgart. A.P.

Plumbotellurite*


Electron microprobe analyses of 3 samples (E.M.S., analyst), with standards synthetic PbTeO\(_3\), TeO\(_3\), Sb, Se, and analyzed hessite, chalcopryte, and tellurobismuthite, gave Pb 54.0–54.5, Bi 0.44–0.57, Sb 0.05–0.21, Ag none–0.30, Te 33.4–33.8, Se none–0.10, S none–0.04, O 12.0–12.5, sum 100.7–101.2%. The average corresponded to the formula (Pb\(_{1.006}\) Ag\(_{0.013}\) Sb\(_{0.004}\) Ag\(_{0.003}\)) (Te\(_{1.012}\) Se\(_{0.004}\) O\(_{0.013}\) P\(_{0.955}\)), or PbTeO\(_3\). The DTA pattern shows inflections at 540–560° (transformation to \( \beta-\)PbTeO\(_3\)) and at 780° (oxidation to PbTeO\(_4\)).

The X-ray pattern coincides with that of synthetic \( \alpha-\)PbTeO\(_3\). The mineral is orthorhombic, \( a = 8.423, b = 13.739, c = 9.199 \) \( \AA \), \( Z = 12 \), D, calc. 7.16, meas. 7.2. The strongest X-ray lines (67 given) are: 3.21(32)(041), 3.17(100)(140), 3.099(35)(202, 230), 2.980(29)(141, 013), 2.857(25)(105). Weak spacings (not observed) were given, which corresponded to those of synthetic PbTeO\(_3\) ~PbTeO\(_4\). Plumbotellurite is a dimorph of trilincite fairbankite (65, 809 (1980)).

The mineral is gray, yellow-gray, to brown, streak yellowish-gray. In reflected light, gray to brownish-gray, distinctly anisotropic. Biaxial, positive 2V about 50°, \( \alpha = 2.19, \beta = 2.23, \gamma = 2.35 \). Microhardness 30–42, av. 38 kg/sq.mm. Cleavage not observed.

The mineral occurs as replacement rims and pseudomorphs after altaite in the Zhan–Tuybe deposit, northern Kazakhstan. The name is for the composition. Type material is in the Fersman Museum, Acad. Sci. USSR, Moscow. M.F.

Plumbosumite*


Electron microprobe analysis gave PbO 76.7, SiO\(_2\) 16.5, H\(_2\)O (loss of weight) 6.2, sum 99.4%, close to the theory. The mineral dissolves with difficulty in hot HNO\(_3\). The water is lost at 495° C.

Weissenberg and precession photographs show it to be orthorhombic, pseudo-hexagonal, space group \( C222_1 \), \( a = 18.575, b = 9.261, c = 29.364 \) \( \AA \), \( Z = 10 \), D. calc. 5.56, meas. (pycnometer) 5.6. The strongest X-ray lines (35 given) are 14.70(7)(002), 7.99(6)(110), 3.65(10b)(008, 025, 315), 3.12(8b)(027, 317), 2.47(7)(02.10.31.10), 1.63(63)(828, 916, 0.0.18), 1.47(6)(844). Colorless, transparent. Cleavage [001] perfect. H ~ 2. Optically biaxial, neg., 2V = 32°, \( r < v \), \( n s = 1.922, \beta = 1.933, \gamma = 1.938, \chi = c, Z = a \).

The mineral occurs in irregular to skeletal grains up to 1 × 1 × 0.5 mm. in size. Crystals are thick tabular on (001), commonly twinned. It occurs on alamosite and is incrustated by melanotekite. The exact locality in the Tsumeb mine is not known.
The name is for the composition and the locality. Type material is at the Univ. of Stuttgart, Germany, and the Smithsonian Institution, Washington. M.F.

Revdite*

Analysis of the mineral gave SiO₂ 45.21, Na₂O 22.25, K₂O 0.08, H₂O 32.50, sum 100.4%, corresponding to Na₂O 0.01, Si₂O₅ ≈ 1.79H₂O, or Na₂Si₅O₁₃H₂O. The mineral dissolves slowly in water at room temperature, giving an alkaline reaction to phenolphthalein, dissolves quickly in cold dilute acids. The DTA curve shows endothermic breaks at 160° and 860° C (dehydration and fusion) and an exothermic effect at 520° (Structural rearrangement?). The infra-red spectrum shows molecular H₂O.

X-ray study shows the mineral to be triclinic, space group P1 or P1 [], unit cell a = 27.470, b = 10.006, c = 6.995A., α = 90.00°, β = 97.29°, γ = 100.49°. Z = 8. The strongest lines (51 given) are 13.37(76)(200); 4.46(100)(600); 3.79(42)(421, 121, 221); 3.34(71)(800); 2.79(38)(121, 312); 2.50(48)(240).

The mineral occurs as irregular rounded deposits up to 1—2 cm in diameter in ussingite veinlets cutting nepheline syenites in deep workings on Mt. Karmasurt, Lovozero massif, Kola Peninsula. It is colorless, transparent, luster vitreous to pearly. Cleavages very perfect (100), perfect (110). H about 2 D 1.94 (hydrostatic suspension). 1.93 calculated from X-ray data. Optically biaxial, negative, ns α = 1.469, β = 1.482, γ = 1.490 (fall ± 0.002), 2V = 7°; 75°. 75°. 75°. The plane YZ is nearly parallel to (100), Y ∩ c = 0—10° in different sections.

The name is for the village Revda, Murmansk district, near the occurrence. Samples are preserved in the Mineralogical Museum, Acad. Sci. USSR, Moscow, and in the Geol. Museum, Kola Branch Acad. Sci. USSR, Apatite. M.F.

Sveite*

Analysis of material dried over silica gel gave N₂O₅ 18.26, Cl 8.50, SO₃ 2.65, P₂O₅ 0.17, C < 0.30, Al₂O₃ 37.12, K₂O 5.18, (NH₄)₂O₂ < 0.02, H₂O 29.25, insol. (quartz) 0.10, sum 101.23 — (O=C₁₂) 1.92 = 99.31%, corresponding to K₁₇Al₇(PO₄)₂Cl₂(OH)₁₆: 7.7H₂O or KAl₁₇(PO₄)₂Cl₂(OH)₁₆ · 8H₂O.

DTA study showed a strong broad endothermic peak at 240° C (loss of wt. 49%) and weak ones at 400° C (loss of wt. 6%), 1000° C (loss of wt. 3%), and 1150° C (loss of wt. 1%). Dissolved by HCl and HNO₃. In water dissolves at ten times its volume and leaves a gelatinous residue (aluminum hydroxide?) which is isotropic.

The strongest X-ray lines (54 given) are 10.20(100)(003), 5.995(35)(022), 3.692(40)(018), and 2.443(35)(040), indexed on a monoclinic cell with a = 10.89, b = 13.04, c = 30.71A., β = 92°10', Z = 6, D calc. 2.185, measured by sink-float 2.0.

Color: Very soft. The mineral forms aggregates of connected rhombohedrons with one perfect cleavage, probably {001}. Optically biaxial, positive, ns α = 1.503, γ = 1.535, 2V = 5°.

The Autana Cave is in a precipitous cliff (height 850 m) in quartzite; the mineral forms white crusts and efflorescences on the walls. These are believed to have formed by solutions trickling down from a bedded edge close to the ceiling. The name is for the Sociedad Venezuela de Espeleología, whose members collected the mineral. Type material is at the Univ. Central Venezuela and the Soc. Venezuela Espeleología, both in Caracas. M.F.

Taprobaneite (= Taaffeite)

Electron microprobe analysis gave Al₂O₃ 73.63, Cr₂O₃ 0.12, MgO 21.64, FeO (total Fe) 1.24, MnO 0.12, BeO (by difference) 3.33%, corresponding to Be₁₉₄(Mg₁₂Fe₆)(Al₁₅ Cr₁₀)O₄S₂, or BeMg₂Al₅O₁₆.

X-ray study shows the mineral to be hexagonal, space group P6₃mc, a = 5.684, c = 18.332Å., Z = 2, D calc. 3.588, meas. 3.609. The strongest lines are 4.58(50)(004), 2.595(60)(106), 2.415(100)(114), 2.043(60)(205), 1.469(50)(2.10), 1.421(50)(220).

The mineral is bright red, H = 8, fracture conchoidal. Optically uniaxial, neg., ω = 1.721, ε = 1.717, pleochroic, carmine red on O, yellow-rose on E.

The data were obtained on a single hexagonal-prismatic crystal from Sri Lanka, that was cut as a gemstone of 204 mg.

Discussion
After the mineral and name had been approved by the IMA commission, it was noted that the X-ray pattern, D, and optical properties were identical with those of taaffeite, described in 1951, (37, 360, (1952). The name taprobaneite (for the old Greek name for Sri Lanka) is therefore unnecessary. The Commission has voted 15—1 to use the name taaffeite. M.F.

Tolovkite*

Analysis by electron probe gave Ir 56.60, 55.00; Pt 0.25, 0,69; Os 0.12, 0.49; Ni 0.06, 0.06; Sb 35.00, 34.70; S 9.22, 9.20; sums 100.25, 100.14. This gives an average formula of (Ir₀.₉₀₉₃Pt₀.₀₀₀₉O₀.₅₁₄₉Sb₀.₉₉₃₉S₀.₉₉₃₉) or an ideal formula of Ir₅S₉S₁₃.

X-ray powder study suggests similar structure to ullmannite and the pattern is indexed as cubic with a = 6.027(3)Å, based on the (600), (531) and (440) reflections. The strongest X-ray lines (24 given) are 3.49(6)(111), 2.99(9)(200), 2.69(6)(210), 2.47(6)(211), 2.126(8)(220), 1.813(10)(311), 1.349(6)(420), 1.233(7)(422), 1.146(9)(511), 1.118(6)(520, 432), 1.065(9)(440), 1.019(6)(531), 1.005(8)(600, 442). With Z = 4, D calc. 10.30.

Tolovkite occurs as intergrowths included in Os—Ir alloys which come from Quaternary placer deposits associated with the Ust′—Bel′skii (Alpine-type) hyperbasite-gabbro massif in the basin of the Tolovka river in northeastern U.S.S.R. The inclusions are anhedral (18 × 18 μm) and also form aggregates with a skeletal isometric crystalline outline (up to 50 × 72 μm). The grains are corroded on the surface. Under the binocular, particles of tolovkite have a steel-gray color, metallic lustre, concoidal fracture, and are non-magnetic. The mineral is very hard, with VHN₉₀ = 1522 (1431—1703). Under reflected light tolovkite is gray, distinctly paler than laurite but has a very pale-brown
tint. Bireflection is absent and it is isotropic. Reflectance measurements (R%, nm) gave 36.7(442), 39.0(468), 39.9(484), 42.0(525), 42.5(554), 42.9(586), 43.5(621), 43.8(666), and 44.0(699).

The name is for the locality. Type material (polished section) at the Mining Museum, Leningrad Mining Institute.

Discussion: The 1.182 line of the X-ray pattern should be the (510). The wavelengths chosen for reflectance are unusual.

L.J.C.

Vanmeerscheite*, Meta-vanmeerscheite*


Microprobe analyses of vanmeerscheite (VM) by J. Wantier (5 analyses) gave \(P_2_1\), \(a = 17.06\), \(b = 16.76\), \(c = 7.023\). For VM, orthorhombic, space group \(Pdd\), \(a = 34.18\), \(b = 33.88\), \(c = 14.074\), \(Z = 32\); D calc. 4.49. The strongest lines for VM (27 given) are 8.39(100)(020), 5.96(80)(220), 4.18(70)(040), 3.069(70)(501), 2.887(70)(521). For MVM, the strongest lines (25 given) are 8.49(100)(040), 6.01(90)(440), 5.38(50)(260), 4.23(50)(080), 3.516(50)(004), 3.073(70)(10.0.2), 2.886(60)(10.4.2).

Both minerals occur as plates elongated on [001], forms noted \(010\), \(100\), \(110\). Cleavage \(010\) good, \(100\) less so. Weakly pleochroic, yellow to pale yellow. For VM, optically biaxial, neg., \(2V = 56°\), \(\alpha = 1.704\), \(\beta = 1.715\), \(\gamma = 1.718\) (both ±0.002); for MVM, biaxial, neg., \(2V = 83°\), \(\alpha = 1.67\), \(\beta = 1.68\), \(\gamma \sim 1.69\). Strongly fluorescent in green in short- or long-wave UV light.

The minerals occur in the Kobokobo pegmatite, Kivu, Zaire, associated with studite. The name is for Maurice Van Meerssche, professor of crystallography, Louvain Univ. Type material is at the Univ. of Louvain and at the Royal Museum of Central Africa, Tervuren, Belgium. M.F.

Vismirnovite*, Natanime*


These minerals were found in the Trudov and the Mushistin deposits. Central Asia, as oxidation products of stannite, associated with varlamoffite, malachite, azurite, goethite, and other secondary minerals. Natanime also occurs as an oxidation product of hocartite in the Chat-Karagai tin ores.

Microprobe analyses of vismirnovite (6) gave (range and average) Sn 41.0–42.2, 41.8; Fe 0.6–1.4, 0.9; Zn 19.6–21.4, 20.45; Cu 0.1–0.5, 0.3; OH 35.7–36.6, 36.0, sum 99.0–100.1, 99.5%, corresponding (av) to \((Zn_0.09Fe_0.06Cu_0.01)Sn_1.00(OH)_{6.04}\). Microprobe analyses of natanime (3) gave Sn 42.9–44.8, 43.6; Fe 18.7–20.5, 19.8; OH 36.0–36.6, 36.3, sum 99.6–100.1%. Corresponding (av) to \((Fe_0.99Sn_1.0)OH_{3.0}\). The minerals are dissolved by dilute HCl, insoluble in conc. Na\(_2\)CO\(_3\). When heated to 300°, both minerals become amorphous. At 750–800°, natanime yields hematite + cassiterite; vismirnovite Zn–Sn spinel + cassiterite.

The minerals are cubic, \(Pm3n\), \(a = 7.69±0.01\), for natanime, \(Z = 4\); D calc. 4.035, \(a = 7.72±0.02\) for vismirnovite, \(Z = 4\); D calc. 4.073. The strongest X-ray lines for natanime (18 given) are 3.729(9)(200), 2.709(7)(220), 2.221(5)(222), 1.710(10)(420), and 1.563(7–8)(422); for vismirnovite the strongest lines (15 given) are 3.840(10)(200), 2.217(7)(222), 1.728(9)(420), 1.570(8)(422), 1.031(6)(624).

Vismirnovite is pale yellow, natanime greenish-brown. Luster vitreous, cleavage not observed. Isotropic, \(n = 1.735\) for vismirnovite, 1.755 for natanime. Hardness, natanime 315 kg/sq.mm, mm = 4.7; vismirnovite 173 kg/sq.mm, mm = 3.9.

Vismirnovite is named for Vladimir Ivanovich Smirnov, one of the first investigators of tin deposits of Central Asia, natanime for Professor Natan Il’ich Ginsburg, who aided studies of the zone of oxidation of tin deposits. Type material is at the Fersman Mineralogical Museum, Acad. Sci. USSR.

Discussion

These minerals may be grouped as members of the Schönfliesite group, along with schonfliesite, MgSn(OH)\(_6\), butrite, CaSn(OH)\(_6\) (see above), wickmanite MnSn(OH)\(_6\), and the unnamed Cu analogue. This and natanime had previously been described (without names), Am. Mineral., 56, 1488 (1971), 65, 1069–1070 (1980). M.F.

Wicksite*


Wicksite occurs with wolfeite, satterlyite, maricite, pyrite and quartz in nodules found in the Big Fish River area, Yukon (the type locality for wicksite is at latitude 68°28’30”N and longitude 136°29’W’).

The mineral is dark blue, almost black, and has a green streak and submetallic luster. Cleavage \(010\) is good, \(H = 4\) to 5. Wicksite is non-fluorescent under ultraviolet light. It occurs as masses and as plates parallel to \(010\), striations parallel to \(100\) are developed on many plates. No forms other than \(010\) were observed. Single-crystal X-ray diffraction study gave the following data: orthorhombic, space group \(Pbc\), \(a = 12.91(2), b = 12.54(2), c = 11.64(2)\). Least squares refinement of the Guinier powder data gave: \(a = 12.896(3), b = 12.511(3), c = 11.634(4), Z = 4 (V = 1877.05 Å\(^3\), JAM). The five strongest lines in the Guinier-deWolff powder pattern are (in Å for CuKa): 3.015(80)(411), 2.910(80)(004), 2.571(40)(422) and 2.118(60)(343, 610). D calc. from the unit cell parameters and the ideal composition is 3.58 compared to D meas. 3.54. (If the empirical formula is used, the density is 3.563 g/cm\(^3\), J.A.M.).

Wicksite is optically biaxial (+), \(2V = 66°\) (meas.) and 72° (calc.), \(\alpha = 1.713(3), \beta = 1.718(3), \gamma = 1.728(3). Dispersion of the optic axes is strong, \(r < v\). It is strongly pleochroic with absorption \(X = Y > Z; X\) blue, \(Y\) greenish blue, \(Z\) pale yellowish brown. The orientation is \(Z = c\) and \(Y = a\). Some grains show anomalous optical effects with extinction angles up to 5°, but
single-crystal X-ray study showed that these grains are orthorhombic.

Chemical analysis (FeO by titration with potassium dichromate, H2O by TGA, others by electron microprobe analysis using analyzed willemite as a standard) gave: Al2O3 0.51, Fe2O3 7.98, Na2O 3.08, FeO 22.66, MgO 3.77, MnO 4.72, CaO 11.05, P2O5 41.64, H2O 3.70, total 99.11 wt. %. The general formula is given as:

Na11.00 Ca1.96 (Fe61.16 Mn1.58)66.56(Mg3.94(Fe1.00 Al1.00)5.11) Fe5.86 O13.52 • 2.06H2O or, ideally, Na2Ca2(Fe6+Mn4+)MgFe2+PO46•3H2O. (Calculating an empirical formula on the basis of 26 oxygen ions gives: Na1.01 Ca2.00 (Fe61.20 Mn5.88)66.88(Mg3.88)2H2O or, ideally, Na2Ca2(Fe6+Mn5+)MgFe2+PO46•2H2O, J.A.M.).

The name is for Frederick John Wicks, Curator of Mineralogy at the Royal Ontario Museum, Toronto. The name is preserved at the Royal Ontario Museum, the Smithsonian Institution and the National Mineral Collection, Geological Survey of Canada, Ottawa. J.A.M.

**Zhonghuacerite**


Chemical analyses of three samples gave BaO 44.26, 45.93, 45.74; CaO 2.33, 2.76, 3.05; SrO 1.79, 1.81, 1.93; MgO 0.85, 0.06, 2.23; Ce2O3 10.96, 10.67, 10.11; (LaNd)2O3 13.89, 12.23, 11.91; Fe2O3 2.52, 2.40, 2.10; Al2O3 0.06, 0.16, 0.08; ThO2 0.41, 0.38, 0.29; CO2 21.10, 20.98, 20.77; F 3.21, 4.00, 3.77; (sums after −O = F) 100.03, 99.70, 99.90%. The analyses correspond to 

\[(\text{Ba1.69Ca1.24Sr0.08})(\text{La0.48Ca0.33Sr0.11})\text{Fe0.17Al0.01} \text{Th0.01} \text{Ce0.28} \text{O8.00} \text{F0.95}}\\]

and

\[(\text{Ba1.73Ca0.25Sr0.11})(\text{La0.44Ce0.41} \text{Fe0.17Al0.01} \text{Th0.01} \text{Ce0.27} \text{O8.58} \text{F1.15})\]

The ideal formula is Ba2Ce3(CO3)4F. The mineral dissolves readily in HCl, HClO4, HNO3 and H2SO4.

The mineral is trigonal, a = 5.07, c = 9.82 Å, Z = 1. The principal X-ray lines are: 3.92(8), 3.419(4), 3.216(10), 2.123(3), 2.103(10), 1.979(10), 1.638(3), 1.572(3).

The mineral occurs as aggregates of small grains in a metamorphosed dolomite in Bayan Obo, northern China, associated with cebaite, ferro-dolomite, phlogopite, riebeckite, magnetite, and quartz. It is yellow, transparent with vitreous to resinous lustre. VHN (aggregates) = 289-309 kg/sq. cm, H = 4.6. D meas. (pyrometer) 4.20–4.40, calc. 4.66. Optically the mineral is uniaxial negative, ω = 1.745, ε = 1.565.

The name is for the locality and composition, meaning a cerium mineral for China.

**Discussion**

Important discrepancies exist in the empirical chemical formulas given in the Chinese original and its English abstract. The number of oxygen atoms is too high in all formulas. The formulas in this abstract are those given in the Chinese original. The English abstract also reported pronounced endothermic peaks at 645° and 800°C on the DTA curve. No reference is given to the name “cebaite” used in the English abstract. The Chinese name for “cebaite” refers to the mineral Ba3Ce2(CO3)4F2 reported by Wang et al. (Geochemica, 1, 31–38, 1973) which was translated to “barium parsite” in the English translation journal (Plenum) Geochemica (1, 30–37, Sept. 1974). "Barium parsite", however, was earlier used by Flink for cordylite (Medd. Grønland 24, 42–49, 1901). The principal X-ray lines of zonghuacerite are very close to those of huanghoite (Am. Mineral., 48, 1179, 1963).

**Unnamed CaZn (CO3)2**


The mineral occurs in two varieties; (A) rhombohedral microcrystals, 0.5 mm, with curved faces, milk-white, pearly luster; (B) smaller, distorted rhombohedral crystals. The average of 4 microchemical analyses by atomic absorption of type A gave CaCO3 43.97, ZnCO3 51.56, MgCO3 2.52, FeCO3 1.78, MnCO3 0.16, total 99.99%, giving Ca1.28 (Zn0.97Mg0.07Fe0.07Mn0.02)(CO3)2. It had a = 4.8183±0.0004, c = 16.0295±0.001Å, D calc. 3.445, meas. 3.45±0.02, ns (Na) ω = 1.750, ε = 1.550 (each ±0.002).

For type B, microanalysis gave CaCO3 50.65, SrCO3 0.01, ZnCO3 40.67, MgCO3 5.24, FeCO3 3.67, MnCO3 0.46, total 100.70%, corresponding to Ca1.19(Zn0.70Mg0.26Fe0.01Mn0.01)(CO3)2. It had a = 4.8355±0.0004, c = 16.1433±0.0012Å, D 3.306 calc., meas. 3.32±0.02, ω = 1.734, ε = 1.542, each ±0.003. No X-ray powder data are given.

The mineral occurs perched on diopside. M.F.

**Unnamed Cu(Re3Mo)SS**


Electron microprobe analyses of 3 grains gave: S 26.25, 27.59, 26.78; Re 54.11, 53.48, 52.87; Mo 11.38, 9.36, 10.01; Cu 5.75, 8.64, 7.82; Co 0.08, 0.70, 2.40; Ni 0.12, 0.35, 1.19; Fe 1.56, 2.09, 1.53; sum 99.25, 102.21, 101.86%. After subtracting pyrrhotite from the first, and chalcopyrite and siegenite from the second and third analyses, these give the formulas Cu0.95 (Re2.94Mo1.20)S8.00, Cu1.01(Re0.97Mo0.16)S8.00, and Cu1.09(Re2.94Mo1.20)S8.00. The mineral occurs in sulfide-rich Precambrian ultramafic rocks from Njuggtrasklinden and from U-mineralized Caledonian quartzites from Sölvbacktjärn, both in Sweden. The mineral appears to differ from dzhezkazganite. M.F.

**Unnamed Cu(Re2Mo)SS(Ni, Pd)Se**


Microprobe analyses of three grains (first from Njuggtrasklinden, others from Sölvbacktjärn) gave S 26.25, 27.59, 26.78; Re 54.11, 53.48, 52.87; Mo 11.38, 9.36, 10.01; Cu 5.75, 8.64, 7.82; Co 0.08, 0.70, 2.40; Ni 0.12, 0.35, 1.19; Fe 1.56, 2.09, 1.53; sum 99.25, 102.21, 101.86%. After deducting pyrrhotite from the first, chalcopyrite and siegenite from the second and third analyses, these correspond to Cu0.95(Re2.94Mo1.20)S8.00, Cu1.01(Re0.97Mo0.16)S8.00, and Cu1.09(Re2.94Mo1.20)S8.00. The mineral occurs in sulfide-rich Precambrian ultramafic rocks from Njuggtrasklinden and from U-mineralized Caledonian quartzites from Sölvbacktjärn, both in Sweden. The mineral appears to differ from dzhezkazganite. M.F.
(Ni,Pd)\(_5\)(Te,Bi)\(_g\), as a composite inclusion in pyrrhotite. Five small grains (largest 5 x 5 \(\mu m\)) were found in U-mineralized quartzites from Sölvbacktjärn, at the contact between sigeitene and chalcopyrite.

The mineral may be related to synthetic Cu(Mo\(_2\)Re\(_2\))S\(_8\). It appears to be different from the only previously described rhenium mineral, dzhezkazganite (CuRe\(_2\)S\(_7\))(48,209(1963)). M.F.

**Unnamed Ni–S–Sn–Te–Sb mineral**


The average of 3 electron microprobe analyses of inclusions in heazlewoodite gave S 17.0, Te 6.6, Sb 4.0, As none, Sn 8.3, Ni 60.2, Cu 2.9, Fe 0.9, Co 0.1, sum 100.0%, corresponding to (Ni\(_{1.75}\)Cu\(_{0.03}\)Fe\(_{0.05}\)Co\(_{0.01}\)Sn\(_{0.03}\)Te\(_{0.32}\)Sb\(_{0.32}\)) or approximately Ni\(_4\)S(Sn,Te,Sb). This occurs in serpentinized peridotites. M.F.

**Unnamed Rh\(_2\)Te\(_3\)**


Analysis by electron probe gave Rh 22.6, Pt 3.5, Ir 1.2, Te 37.5, Bi 31.3, Sb 2.4, sum 98.5. Formula is (Rh\(_{2.74}\)Ir\(_{0.27}\)Pb\(_{0.00}\)Ru\(_{0.00}\)Sn\(_{0.00}\)S\(_{0.00}\)Te\(_{0.00}\)Sb\(_{0.00}\)) or more simply (Rh\(_2\)Te\(_3\)). A single grain (16 x 22 \(\mu m\) in size) was found in a Pt–Fe alloy nugget from the Joubdo stream, Birbir River, Ethiopia. The mineral is grey and without apparent bireflection but it is moderately anisotropic, with bluish grey rotation tints. Reflectance measurements (\(R(\%\), \(imR(\%\), \(nm\)) gave 46.7, 32, 46.1, 32(400); 46.9, 32.2, 46.7, 32.6(420); 47.1, 32.4, 47.2, 32.8(440); 47.4, 32.6, 47.7, 33.0(460); 47.7, 32.8, 48.3, 33.4(480); 47.9, 33.0, 48.5, 33.6(500); 48.1, 33.3, 48.9, 33.8(520); 48.3, 33.4, 49.1, 34.1(540); 48.4, 33.5, 49.4, 34.3(560); 48.5, 33.5, 49.5, 34.4(580); 48.7, 33.6, 49.6, 34.5(600); 48.8, 33.7, 49.7, 34.6(620); 49.0, 33.8, 49.8, 34.6(640); 49.2, 33.9, 49.9, 34.7(660); 49.5, 34.1, 50.1, 34.7(680); 49.8, 34.3, 50.3, 34.8(700). Color values (air, oil) are: 0.313, 0.315(x), 0.319, 0.323(y), 0.561, 0.57, 574 (\(\alpha\)d), 1.6, 3.1(\(\alpha\)e).

**Discussion**

Probably equivalent to synthetic Rh\(_2\)S\(_3\) (orthorhombic \(a = 8.462, b = 5.985, c = 6.138A\)) and to unnamed (Rh\(_{1.93}\)Ir\(_{0.93}\)S\(_3\)) from Gusevogorskiy pluton, Urals, (Begizov et al., 1975, Doklady Akad. Nauk SSSR, 225, 134–137) and from ultramafic rocks at Gaoitai, Hebei, China by Chen et al., see above. L.J.C.

**Unnamed Ir mineral**


Analyses of two grains by electron probe gave Ir 33.2, 43.8; Fe 12.2, 4.0; Rh 8.8, 5.1; Ru 5.7, 6.3; Pt 8.3, 8.3; Os 2.4, 1.9; Sh 2.7, 0.58; Ni 0.30, 0.25; sums 73.60, 70.23. Pd, Co, Cu, and As were also sought for but not found.

The mineral is found as an alteration product completely or partly replacing euahedral osmium (> 80 at % Os) inclusions in Pt–Fe alloy nuggets from the Joubdo stream, Birbir River, Ethiopia. The mineral is dark grey, internally reflecting and isotropic. Reflectance measurements (\(R(\%\), \(imR(\%\), \(nm\)) gave 18.2, 7.5(400); 18.2, 7.4(420); 18.1, 7.2(440); 18.1, 7.1(460); 18.0, 7.0(480); 17.9,
Discussion

Probably a new mineral species requiring complete analysis and X-ray data. L.J.C.

Unnamed Pt(Rh,Ir)CuS₄


Analyses of three grains by electron probe gave Pt 39.5, 39.2, 39.8; Rh 17.3, 17.3, 18.4; Ir 6.3, 6.5, 5.2; Cu 12.0, 12.2, 12.4; S 24.6, 24.7, 24.9; sums 99.7, 99.9, 100.7, corresponding to a general formula Pt(Rh,Ir)CuS₄.

Four grains of the unnamed mineral was found as subhedral inclusions (from 15 × 15 to 15 × 20 μm) with rounded “hexagonal” outlines in a Pt–Fe alloy nugget from the Joubdo stream, Birbir River, Ethiopia. The mineral is isotropic and pale grey in air, darker grey in oil. Reflectance data are given for all 3 analysed grains and measurements for the first analysed grain (R%, mR%, nm) are 40.2, 26.7(400); 41.1, 27.0(420); 41.6, 27.2(440); 41.8, 27.3(460); 41.9, 27.4(480); 42.0, 27.5(500); 42.0, 27.2(520); 42.0, 27.1(560); 42.0, 27.0(580); 42.1, 26.9(600); 42.1, 26.9(620); 42.1, 26.8(640); 42.1, 26.7(660); 42.1, 26.6(680); 42.1, 26.5(700). Color values (air, oil) are: 0.311, 0.309, 0.317, 0.316, 42.0, 27.1(Y), 572, 488(Ad), 0.5, 0.6(Pe).

Discussion

Synthesis desirable to determine whether ideal formula is PtRhCuS₄ as suggested by the relatively constant compositions. May be isosstructural with melanite (newly proposed as Cu(Fe₃.43Ni₃.93Rh₁.07Cu₇.92,(Fe₄.55Ni₃.0,Rh₁.11COO.36P₅O₃₀.9₈S₁₈.90S₈.₀₂, Cu, Ru, and Pd were also sought for but not found.

The mineral was found as inclusions in two Pt–Fe alloy nuggets from the Joubdo stream, Birbir River, Ethiopia where it occurs as micron-sized blebs up to a 10 × 15 μm rounded inclusion or as larger lenticular inclusions (up to 25 × 110 μm) with angular and scalloped margins. In the latter case it is found closely associated with unnamed RhS and erlichmanite. It is light brown in color and isotropic. Reflectance measurements (R%, mR%, nm) gave 39.7, 39.0(400); 41.5, 39.6(420); 42.6, 39.4(440); 43.5, 39.6(460); 44.3, 39.8(480); 45.1, 39.5(500); 45.9, 39.3(520); 46.6, 39.2(540); 47.4, 39.0(560); 48.2, 38.9(580); 48.9, 38.7(600); 49.5, 38.6(620); 50.1, 38.6(640); 50.5, 38.4(660); 50.9, 38.2(680); 51.3, 38.0(700). Color values (air, oil) are: 0.312, 0.322(χ), 0.326, 0.325(γ), 47.3, 43.4(Y), 659, 659(Ad), 3.2, 4.5(Pe).

Discussion

X-ray data required to confirm pentlandite structure and crystal structure determination to establish whether Rh atom has significant structural significance requiring species status and pentlandite-argento-pentlandite. L.J.C.

Unnamed Rhodian “pentlandite”


Analyses of three grains by electron probe gave Fe 23.0, 31.3, 32.5; Ni 27.7, 21.7, 21.2; Rh 13.2, 14.1, 13.3; Co 4.0, 2.6, 2.6; Pt 1.9, nd, nd; Ir 0.17, nd, nd; S 30.5, 31.5, 31.9; sums 100.47, 101.2, 101.5, corresponding to (Fe₄.4₁Ni₃.9₁Rh₁.0₇Cu₇.₉₂,(Fe₄.₅₅Ni₃.₀,Rh₁.₁₁COO.₃₆P₅O₃₀.₉₈S₁₈.₉₀S₈.₀₂, Cu, Ru, and Pd were also sought for but not found.

The mineral was found as inclusions in two Pt–Fe alloy nuggets from the Joubdo stream, Birbir River, Ethiopia where it occurs as micron-sized blebs up to a 10 × 15 μm rounded inclusion or as larger lenticular inclusions (up to 25 × 110 μm) with angular and scalloped margins. In the latter case it is found closely associated with unnamed RhS and erlichmanite. It is light brown in color and isotropic. Reflectance measurements (R%, mR%, nm) gave 39.7, 39.0(400); 41.5, 39.6(420); 42.6, 39.4(440); 43.5, 39.6(460); 44.3, 39.8(480); 45.1, 39.5(500); 45.9, 39.3(520); 46.6, 39.2(540); 47.4, 39.0(560); 48.2, 38.9(580); 48.9, 38.7(600); 49.5, 38.6(620); 50.1, 38.6(640); 50.5, 38.4(660); 50.9, 38.2(680); 51.3, 38.0(700). Color values (air, oil) are: 0.312, 0.322(χ), 0.326, 0.325(γ), 47.3, 43.4(Y), 659, 659(Ad), 3.2, 4.5(Pe).

Discussion

X-ray data required to confirm pentlandite structure and crystal structure determination to establish whether Rh atom has significant structural significance requiring species status and pentlandite-argento-pentlandite. L.J.C.

Unidentified Rh–Fe–Ni sulfides


Analyses of five grains by electron probe gave Rh 29.9, 30.1, 25.1, 24.8, 24.5; Ir 5.1, 5.3, 11.0, 12.0, 11.9; Pt 1.5, 1.5, 0.35, nd, 0.10; Fe 13.1, 13.5, 14.5, 18.8, 18.8; Ni 11.5, 10.9, 12.3, 8.9, 9.2; Cu 5.6, 5.5, 6.3, 6.0, 5.7; Co 1.15, 1.1, 0.57, 0.46, 0.49; S 31.1, 30.9, 29.4, 29.3, 29.4; sums 98.95, 98.8, 99.52, 100.26, 100.09. These analyses correspond to MeO•S₁₀₆, MeO•S₁₀₅, MeO•S₁₀₄, MeO•S₁₀₃, and more simply MeS. The mineral(s) occur as inclusions (as large as 35 × 80 μm in size) in Pt–Fe alloy nuggets from the Joubdo stream, Birbir River, Ethiopia. The grains are subhedral to rounded with mixed rounded and angular outlines. They appear grey in air, darker in oil, and are not noticeably bireflectant. Reflectance spectra for the first two analyzed grains are very similar; measurements for the first analyzed grain (R%, mR%, nm) are 38.6, 26.2, 39.1, 25.9(440); 39.2, 26.1, 39.5, 26.2(420); 39.5, 26.1, 39.8, 26.4(440); 39.8, 26.1, 40.1,
NEW MINERAL NAMES

26.5(460); 39.9, 26.0, 40.4, 26.6(480); 39.9, 25.8, 40.6, 26.5(500); 39.8, 25.8, 40.5, 25.8, 40.6, 26.6(520); 39.9, 25.8, 40.6, 26.5(540); 39.8, 25.8, 40.6, 26.5(560); 39.8, 25.8, 40.6, 25.8, 40.6, 26.6(580); 39.7, 25.8, 40.6, 25.8, 40.6, 26.6(600); 39.7, 25.8, 40.6, 25.8, 40.6, 26.6(620); 39.7, 25.8, 40.6, 25.8, 40.6, 26.6(640); 39.7, 25.8, 40.6, 25.8, 40.6, 26.6(660); 39.7, 25.8, 40.6, 25.8, 40.6, 26.6(680); 39.7, 25.8, 40.6, 25.8, 40.6, 26.6(700). Color values (R1, air, oil, R2, air, oil) are: 0.311, 0.310, 0.312, 0.310; 0.317, 0.316, 0.319, 0.317; 39.9, 25.7, 40.7, 26.5 (1'); 571, 457, 573, 562 (Ad); 0.4, 0.3, 1.0, 0.2 (Pe).

Discussion
These grains have apparent mutual replacement between Rh, Ni, and Fe but may be divided into three groups, two of which have apparent constant compositions; Rh > Fe > Ni, Rh = Fe > Ni, and Fe > Rh > Ni. X-ray data are essential. The first two grains analyzed may be equivalent to unnamed Rhs from Hokkaido, Japan (Urashima et al., 1972, Sci. Reps. Kagoshima Univ., 21, 119-135) and from the Witwatersrand, South Africa (Feather, 1976—see Am. Mineral., 1977, 62, 598) but Rhs is not known in the Rh-S system and the nearest synthetic compound is Rh17S5, which is cubic. These sulfides may also be rhodian varieties of pyrrhotite. L.J.C.

Unidentified Fe-Ni-Ir-Rh sulfide
Analysis of one grain by electron probe gave Fe 11.3, Ni 11.7, Ir 30.9, Rh 9.4, Pt 5.3, Cu 4.7, Co 0.76, S 21.7, sum 95.76 corresponding to (Fe0.28Ni0.27Ir0.22Rh0.13Cu0.10Pt0.04Co0.02)S1.06. The small size (5 x 7 μm) of the analyzed grain is considered to contribute to the low total.

The mineral was found in a Pt-Fe alloy nugget from the Joubdo stream, Birbir River, Ethiopia. It is dark brownish grey and slightly anisotropic. L.J.C.

NEW DATA

Liujianginite, Uytenbogaardtite

New powder X-ray data of liujininite (Am. Mineral., 65, 810, 1980) from Guangdon, China were indexed to a tetragonal cell with a = 10.01, c = 11.11 Å, Z = 8. Extinctions indicate the space group to be $P4mmc$, $P42c$ or $Pmcn$. The strongest lines (25 given) are: 7.13 (8) (110), 3.57 (9) (220), 3.063 (7) (311), 2.708 (8) (321), 2.585 (10) (114), 2.104 (5) (314), 1.543 (4) (326). New powder X-ray data of Ag2.53Au1.16S2 synthesized in China are similar to those of Uytenbogaardtite (Barton et al., Can. Mineral., 16, 651-657, 1978) and the synthetic Ag3AuS2 of Graf (Am. Mineral., 63, 496-500, 1978) but contain additional lines, including 2.527 (1) (004). The presence of 004 confirms the space group $P422$ or $P41$ deduced by Barton et al. (1978) for uytenbogaardtite. Thus, liujininite is polymorphous with uytenbogaardtite.

Discussion
Single-crystal data are needed to settle the problem. G.Y.C.

Jeremejevite
Specimens of jeremejevite from the two known localities (Mt. Soktuj, Transbaikal, U.S.S.R. and Cape Cross, Swakopmund, Namibia) have been restudied. Electron microprobe analyses show that the mineral is high in F rather than OH with an ideal formula of $Al_bSbO_3F_3$. The empirical formula for the Namibian material is $(A_{2b}O_{22}F_{21}O_{15}H_1)O_{22}F_{21}O_{15}H_1$. The strongest lines (19 and 20 given) are: 5.35 (6) (111), 2.95 (5) (311), 2.50 (10) (400), 1.90 (8) (333), 1.75 (10) (440), 1.05 (7) (844), 0.783 (8) (12.4 0).

Re-analysis of dayingite by electron probe gave Pt 45.33, 45.45, 46.41, 44.56; Co 11.79, 12.09, 11.78, 12.47; Cu 12.99,
12.71, 13.10, 14.78; S 29.15, 29.10, 28.35, 26.41; sums 99.26, 99.35, 99.64, 98.22, corresponding to an average of (Pt1.06Co0.934S4.031)22.06Co0.965S4.031. Structure analysis confirmed the cubic symmetry, Fd3m, a = 9.725 Å. The strongest X-ray lines (25 given) are: 2.93(6)(311), 2.43(5)(400), 1.86(9)(333), 1.710(10)(440), 1.265(5)(731), 0.993(5)(844). Reflectance measurements (R%, nm) gave 38.8(480), 40.2(546), 40.6(589), 41.6(656). The author proposes that dayingite be re-named cobaltian malanite on the grounds that the X-ray data and composition are essentially the same after allowance is made for more Co, resulting in a smaller unit cell.

Both minerals are found at the same locality (as well as carrollite) but occur in different Pt-bearing rocks. They occur in oxidized portions which have high magnetite contents. The minerals are deposited at the Geological Institute, Academy of Geological Sciences of China.

Discussion

The Commission on New Minerals and Mineral Names, I.M.A., disapproved the mineral dayingite (in 1976 after publication) and, in view of Co > Pt reported in the early analyses, the mineral was considered to be possibly platinin carrollite. The present Chinese text refers to dayingite as "cobalt-malanite" and the English abstract refers to the term "cobaltmalanite". There is no doubt that the author means "cobaltian malanite" as he specifically states it to be a variety of malanite. The new data give Pt > Co so that the mineral may be correctly referred to as cobaltian malanite as long as there is no structural significance to Pt = Co. G.Y.C.

DISCREDITED MINERALS

Grothine = Norbergite


Grothine, described by Zambonini in 1913 as “a silicate of calcium with aluminum and a little iron” (Dana’s System, 6th Appendix, p. 34 (1910) has been re-examined on a specimen of type material from the Roebling collection. Analysis by E. Jarosewich gave SiO2 28, MgO 61, CaO 0.6, FeO 0.6%. Optically biaxial, positive, 2V = 52°, ns, α = 1.554, β = 1.557, γ = 1.579. The X-ray pattern shows it to be norbergite. M.F.