NEW MINERAL NAMES*

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Abelsonite*


A nickel porphyrin (C_{38}H_{44}N_{4}Ni) has been found as tiny flakes in a fissure in drill core from depth 2507-2509 feet, Uintah County, Utah. "The chemical identity of the mineral was established by microprobe analysis for Ni and C, and by matching of visible and IR absorption spectra with those of synthetic Ni porphyrin."

Cell dimensions calculated by D. E. Applemann and those obtained from Weissenberg photographs gave, respectively, a 8.51, 8.44; b 11.18, 11.12; c 7.29, 7.28 Å; α 90°53'; β 90°53'; γ 114°48'; γ 79°59'; 78°34'; Z = 1. Sp gr measured 1.45, calc. 1.428, 1.448. Triclinic.

Color purple, luster adamantine. Very soft and fragile. Cleavage {1T1}. Pleochroic, deep brown parallel to elongation, opaque normal to elongation.

The name is for Dr. P. H. Abelson, president of the Carnegie Institution, Washington, a pioneer in organic geochemistry. M.F.

Althausite*


Analysis by B. Bruun was made on 1.32 g of hand-picked material from which most of the magnetite was removed by magnetic separation. The Ca present was in apatite, as confirmed by probe analysis of pure material. Analysis: P_{2}O_{5} 43.59, MgO 43.38, MnO 0.07, CaO 4.50, Na_{2}O 0.22, Al_{2}O_{3} 0.53, FeO_{2} 1.37, SiO_{2} 0.11, F 2.86, Cl 0.19, H_{2}O 1.87, H_{2}O 0.07 - (O = Fe_{2}Cl_{4}) 1/24 = 99.52%. After deducting apatite, this gives Mg_{0.50}(POH)_{0.50}(OH)_{0.50}(F_{0.50},O_{0.50}), or Mg_{0.50}PO_{4}KOH_{4}F. The infrared spectrum shows the presence of OH and PO groups. The DTA and TGA curves show that dehydration proceeds rapidly at 70-460°, and continues at a slower rate to 710°. Small endothermic peaks were noted at 385° and 877°.

Oscillation and Weissenberg study showed althausite to be orthorhombic, space group Pnma, a 8.258, b 14.383, c 6.054 Å, Z = 8, sp gr calc 2.91, measured 2.97. The strongest X-ray lines (31 given) are 3.593 100 200, 3.316 90 211, 3.024 80 002, 2.786 60 211, 2.641 60 122.

Color gray (from magnetite inclusions), luster vitreous. H 3 1/2 on b, 4 on a. Cleavages {011} perfect, {001} distinct. Optically biaxial, positive, refr. ind. (white light) α 1.588, β 1.592, γ 1.598, 2V 70° est, 78.5° calc. X = b, Y = c, elongation negative.

The mineral occurs in cleavable masses up to several hundred grams in serpentine-magnesite deposits at Modum, Norway, closely associated with apatite and an unidentified Ca-Mg phos-

Borishanskiite*


Microprobe analyses gave Pd 29.8, Pb 50.4, As 21.4, and Pd 31.4, Ag 1.1, Pb 50.2, As 19.8, sums 101.6 and 102.5%. These correspond to Pd_{2.87}(As_{1.0},Pb_{0.4}) (As_{1.0},Pb_{0.4}) and the proposed ideal formula is Pd_{2+4}(As,Pb), where x < 0.2.

The powder pattern closely resembles that of polarite [Am. Mineral. 55, 1870 (1970)]. The strongest X-ray lines (12 given) are 2.65 10 004, 2.50 6 104, 2.25 6 311, 2.16 9 040, 1.677 6 150, 1.385 6 032, 1.169 6 602. The pattern has been indexed as orthorhombic a = 7.18(2), b = 8.62(2), c = 10.66(2). The calculated density is 10.2 g/cm³.

The mineral was found in massive and disseminated Cu-Ni sulfide ores in the Talnakh and Oktyabr deposits. It is usually observed as 20-30 micron grains in multimineralic assemblages with Pd and Ni arsenides, Au and Ag alloys, Pd,Pb, and (Pd,Pb),Sn, rarely as single grains (6-150 microns) enclosed in chalcopyrite, magnetite, and pyrrhotite.

* Minerals marked with an asterisk after the name were approved before publication by the Commission on New Minerals and Mineral Names, International Mineralogical Association.
Under the binocular microscope, the mineral has a dark steel-gray color and metallic luster. It is nonmagnetic and brittle. VHN\(_{\text{ro}}\) = 241(228-250) and VHN\(_{\text{uo}}\) = 242 for isotropic indentations; VHN\(_{\text{ro}}\) = 182 - 292 for anisotropic indentations. Cleavage cracks appear around the indentations, ranging from one set parallel to the imprint for isotropic indentations up to three intersecting cleavages for the anisotropic indentations.

In polished section (air) the mineral is grayish-white with no noticeable bireflection. It is light gray next to (Ag, Au) alloys and light grayish-white next to chalcopyrite. Anisotropism varies from barely noticeable to moderate with polarization colors in yellowish-grey tones. Reflectance (percent) for R\(_d^*\), R\(_o^*\), and R\(_e^*\) are 43.2, 44.0, 45.2, respectively, with polarization colors in yellow-green, yellow-orange, and yellow, respectively.

The mineral occurs as fibers, either in spherules or matted, intertwining. Maximum length 0.5 mm, maximum width 0.05 mm. It occurs at Tiger, Arizona, in a breccia of andesite loosely cemented with iron oxides and wulfenite; also present, mordenite, mimetite, diopside, fluorite, willemite, descliozite. Also found in smaller amounts at Wickenburg, Arizona, with fluorite and ajoite, and at Caborca, Sonora, Mexico, in andesite breccia, where it is replaced by chrysocolla.

The name is for S. C. Creasey, geologist, U.S. Geological Survey, for his studies of Arizona mines. Type material (perhaps Ig) is at the British Museum of Natural History, London, and the University of Arizona, Tucson. M.F.

**Krautite**


Analyses by M.O. on 17 mg, carefully selected under the binocular, gave As\(_2\)O\(_5\) 53.7, MnO 33.0, H\(_2\)O 12.8, sum 99.5%, corresponding closely to the formula above. Qualitative tests showed very small amounts of Ca and Mg. The compound had been synthesized in 1886; it was prepared by reacting solutions of H\(_2\)AsO\(_4\) (in excess) with MnCO\(_3\), filtering, and evaporating slowly at a temperature below 100°C. The DTA curve shows an exothermic peak at 202°C (dehydration); the dehydration curve shows that the water is given off at 180-290°C; the product is Mn\(_3\)PO\(_4\).

X-ray study shows the mineral to be monoclinic, a 8.00 ± 0.2, b 15.93 ± 0.5, c 6.79 ± 0.02 Å, \(\beta\) 96°32' ± 5', \(Z\) = 8, sp. gr. calc. 3.29, measured 3.30, measured synthetic, 3.31. The strongest X-ray lines (32 given) for the mineral and the synthetic compound, respectively, are: 2.96 10, 2.99 9 020, 100, 3.84 7, 3.86 10 210; 3.27 5, 3.30 4, 3.273 10 022, 210; 3.17 7, 3.188 9 230, 112.

The mineral occurs as pale rose cleavage lamellae up to 2 mm in large dimension and as aggregates of these. H less than 4; cleavage 010 develops. {\(010\) good, {\(011\) distinct. Optically biaxial, positive, refr. ind. (Na), \(\alpha\) 1.620, \(\beta\) 1.639, \(\gamma\) 1.686 (all given as ± 0.02), \(2V\) ± 5°, \(X\) = \(b\), \(Z\) a trace of \(010\) = 16°, elongation positive.


**Magnesioaxinite**


Microprobe analysis, using “appropriate silicates, oxides, sulfides, and pure metals as standards,” gave SiO\(_2\) 44.0, TiO\(_2\) 0.03, B\(_2\)O\(_3\) not determined, Al\(_2\)O\(_3\) 17.9, V\(_2\)O\(_5\) 0.13, Cr, Fe, Ni, Co, Na not found, MnO 0.4, MgO 6.9, CaO 21.7, ZnO 0.06, K\(_2\)O 0.01, H\(_2\)O not determined, sum 91.3%. A qualitative test for B was positive.

X-ray powder data (27 lines) showed strongest lines 6.29 25 110, 110; 3.440 65 002, 3.139 65 220, 2.796 100 317, 2.556 25 272, 2.176 28 141, 2.150 32 110. These are indexed on cell dimensions \(a = 8.933\), \(c = 7.121\), \(\beta = 102.59°\), \(\gamma = 88.09°\).

The mineral is pale blue in daylight, pale violet under tungsten lighting. H greater than 6, less than 7, sp gr 3.178. Optically biaxial, positive (most axinites are negative), \(\alpha = 1.656, \beta = 1.660, \gamma = 1.668\) (all ± 0.01). \(2V\) and optical orientation could not be determined. Pleochroic pale blue to pale violet to pale gray. Fluoresces orange-red in long-wave U.V. (3650Å), duller red in short-wave U.V. (2537Å).
The mineral is a rough gemstone weighing 0.1577 g (0.78 carats). The name, for the composition, is proposed for the CaMg end-member of the axinite group. An axinite described by Vallance, J. Proc. Royal Soc. N.S. Wales, 99, 57-67 (1966), has the composition Ca2.5(Mg0.45Fe0.45Mn0.05). Type material is in the Geological Museum, London. M.F.

Parapierrotite*


Microprobe analyses by R. Giraud and C. Gilles, using as standards TiAsS3, Sb2S3, and pietrotite gave Ti 19.4, 19.3, 20.2; Sb 51.8, 50.8, 50.8; As 5.0, 5.3, 3.7, 3.7; S 25.4, 24.7, 24.5; sum 101.6, 100.1, 99.9%, corresponding to (average) Tl(100)(Sb3.2As3.2)S6.4, or ideally Tl(Sb,As)6. The mineral was synthesized by addition of thallium acetate solution to solutions of Sb2O3 and Na2S at pH 7-8 and heating the precipitate at 120°C for 2 hours.

Weissenberg and rotation photographs showed the mineral to be monoclinic, space group P21/a, a 8.02±.02, b 19.35±.05, c 9.03±.02Å, α 91.5°±2°, Z = 4, sp gr calc C4, measured on synthetic 5.07, a:b:c = 0.4146:1:0.467, measured goniometrically 0.413:1:0.466, β 91.5°±2°. The strongest X-ray lines (25 given) are 4.159 9 140, 3.696 9 032, 3.599 7 122, 3.493 10 150, 2.913 9 212, 2.222, 2.832 10 161, 2.356 0 72.

The mineral occurs as terminated prismatic crystals up to 3 mm long, but mostly less than 1 mm. Forms observed m (100), b (010), a (100) dominant, and 16 others. Color black, luster semimetallic. In reflected light white with a slight creamy tint. Pleochroism weak, X yellowish-green, Y and Z bluish-green, absorption Z > Y > X. Dispersion low. The mineral occurs in spherules tough and brittle. Optically biaxial negative, refr. ind. (Na) α 1.745, β 1.900, γ 1.920 (all ±0.005). -2V 41° calc. Pleochroic in bluish green, absorption Z > Y. Dispersion low.

The mineral occurs in spherules usually less than 0.15 mm in diameter; these consist of radial needles seldom more than 5 microns in width.

The name is for the Nahua word for grapes, in allusion to the clusters of green spherules. Pronounced zho-ko-mecatl-ait. Type material, perhaps 100 mg in all, will be at the British Museum (Natural History), London, and the University of Paris. M.F.

Xocomecatlite*, Tlalocite*


The minerals were found in the Bambollita Mine (La Oriental) on rhyolite adjacent to oxidized vein matter or in altered quartz-barite-sulfide vein material. The primary ores contained galena, bornite, hessite, and tellurian tetrahedrite; the zone of oxidation contains the two new minerals, and cerusite, teinite, linarite, quartzcalcite, carlavierite, and cesbronite. M.F.

Xocomecatlite

Microchemical analysis by Miss M. Duggan gave CuO 51.3, ZnO 2.4 (by atomic absorption), TeO2 38.7 (spectrophotometric), H2O 8.0, sum 100.4%, corresponding to Cu2.90Zn4.15TeO4.82(OH)1.2 or Cu2.9(TeO4)(OH)4. Spectrographic analysis showed traces of Fe and Ag. Microchemical tests were positive for tellurate.

The strongest X-ray lines (27 given) are 4.627 10 220, 3.439 4140, 3.099 4 330, 2.673 6 340, 2.434 4b 134, 342. Single crystals suitable for study were not found. The pattern was indexed as orthorhombic, a 12.140 ±0.06, b 14.318 ±0.10, c 11.662 ±0.06Å, Z = 12, sp gr calc 4.42, measured 4.65 ± 0.1.

Color rich green, near emerald-green, streak pale green. H 4, spheres tough and brittle. Optically biaxial negative, refr. ind. (Na) α 1.775, β 1.900, γ 1.920 (all ±0.005). -2V 41° calc. Pleochroic in bluish green, absorption Z > Y. Dispersion low.

The mineral occurs in spherules usually less than 0.15 mm in diameter; these consist of radial needles seldom more than 5 microns in width.

The name is for the Nahua word for grapes, in allusion to the clusters of green spherules. Pronounced zho-ko-mecatl-ait. Type material, perhaps 100 mg in all, will be at the British Museum (Natural History), London, and the University of Paris. M.F.

Tlalocite

Analysis, made as stated above, gave CuO 31.0, ZnO 19.3, TeO2 6.1, TeO4 15.0, Cl1.3, H2O 27.7 = 100.4 - (O = Cl) 0.3 = 100.1%. Traces of Ag were present; tests showed both Te4+ and Te6+, which were determined spectrophotometrically before and after reducing Te4+. The analysis leads to the formula above.

The X-ray pattern has strongest lines (25 given) 16.787 10, 8.394 8, 4.201 10, 3.355 6. Attempts to index it on an orthorhombic cell failed (2 axes appeared to be 12.06Å and 16.78Å), and the mineral may be monoclinic.

Color delicate blue, near Capri blue, streak very pale blue. H = 1, gummy, sectile. Sp.gr 4.55 ± 0.1 (sink-float). Optically biaxial negative, refr. ind. (Na) α 1.758 ±0.002, β 1.796 ±0.002, γ 1.810 (±0.005). -2V 64° measured, 61° calc. Pleochroic, X yellowish-green, Y and Z bluish-green, absorption Z > Y > X. Extinction parallel. The mineral occurs in spherules or arcuate bands of lath-shaped crystals from 0.5 to about 10 microns long. Z is parallel to elongation.

The name is in allusion to the high content of water; Tlaloc was the god of rain. Pronounced tla-lauk-ait. Type material as for xocomecatlite. M.F.