NEW MINERAL NAMES

MICHAEL FLEISCHER

Dzhezkazganite


High amounts of rhenium were found in lean copper and lead ores of the Dzhezkazgan deposits, Kazakhstan, prompting further studies (abs. in Econ. Geol. 55, 607–609, 1960). Microscopic study showed the presence of an unknown mineral as collomorphic aggregates and fine veinlets in bornite and blue chalcocite; it replaces bornite. Brownish-gray in reflected light, reflecting power 25.7% for green, 27.2% for yellow, 27.4% for red. Microhardness 230 kg/sq mm. The mineral turns brown with HNO₃ (1:1), does not react with HCl (1:1), KCN (20%), H₂SO₄, KOH (20%), FeCl₃, HgCl₂.

The mineral was concentrated by dissolving out bornite and blue chalcocite with KCN, galena with a solution of NaCl·FeCl₃. Electron probe analysis gave Re 40–50%, Cu 15–20% (Cu:Re = about 1:1), but some samples gave higher results (up to 80% Re), perhaps because they fused in the beam. The contents of Co, Fe, Ni, Zn, Mo, and Pb were less than 0.5–1.0%; Se and Te absent, As was present in thousandths of a percent. It is assumed that the third component is sulfur.

X-ray study of 3 samples gave lines only of associated minerals: bornite, galena, quartz, digenite, so the mineral is believed to be amorphous to x-rays.

The name is for the locality.

Discussion.—There is evidently a rhenium mineral present (first one known), but the name is premature.

Aksaite


The mineral was found in fine-grained rock salt containing kieserite, anhydrite, and preobrazhenskite (Am. Mineral., 42, 704, 1957) at Aksa-at (= white gulch), Kazakhstan. Analysis by M. M. Vil’ner gave B₂O₃ 61.4, MgO 13.8, H₂O 23.73, total 98.93%; by K. A. Baklanova B₂O₃ 61.13, MgO 13.44, H₂O 23.73, R₂O 0.56, Insol. 0.56, total 99.42%; these correspond to 2MgO·5BrO₃·8H₂O. Analysis of a sample from another, unstated locality by M. M. V. gave B₂O₃ 58.4, MgO 14.6, H₂O 22.2, CaO 2.15, SO₃ 2.75, total 100.1%, corresponding to 3MgO·7B₂O₃·10H₂O. DTA study by K. A. Kostryukova showed an endothermal effect at 246–254°C, an exothermal one at 662°C. Insoluble in water, readily soluble in HCl.

Laue and Weissenberg photographs showed the mineral to be orthorhombic, piezoelectric effects absent, D₄h₁₅—Pbca, with unit cells from the first locality a 12.54 ± 0.01, b 24.28 ± 0.02, c 7.49 ± 0.01 kX, from the second locality a 12.52 ± 0.01, b 24.27 ± 0.03, c 7.47 < 0.01 kX. The first contains Mg₁₀B₂O₅·4H₂O with G meas. 2.066, G calc. 2.072; the second contains Mg₁₀B₂O₅·4H₂O with G meas. 2.367, G calc. 2.293. X-ray powder data are given; the strongest lines are: 6.36 (10), 6.00 (8), 4.98 (6), 4.68 (9), 4.33 (6), 3.54 (9), 3.19 (9), 3.09 (7), 2.78 (8), 2.470 (5), 2.348 (6), 2.300 (5), 2.115 (5), 2.074 (5), 2.013 (6), 1.970 (7), 1.856 (6), 1.816 (6), 1.738 (5), 1.696 (5), 1.567 (5), 1.486 (6), 1.178 (6).

The mineral occurs in crystals elongated up to 7 mm on [001] and flattened on (100). Faces of the prismatic zone are striated parallel to [100]. The most characteristic forms are
{100}, {010} and {021}; faces of {001} are rare. There are probably cleavages on (100) and (010). Light-gray, colorless in small crystals. H about 2.5. Optically biaxial, negative, α 1.473, β 1.508, γ 1.528 (all ± 0.001), 2V 88°, Z = b, X = a, elongation negative.

The name is for the locality.

Discussion.—Appears to be a valid mineral, but the data on composition and density are unsatisfactory, perhaps indicating that the samples contained preobrazhenskite. Miss Mary E. Mrose has kindly called my attention to a paper by Lehmann and Papenfuss, Zeit. anorg. Chem. 301, 228–232 (1959). These authors describe the synthesis of MgO·3B₂O₅·5H₂O and give x-ray powder data which agree fairly well with those for aksaite except that they give two strong lines of higher d spacing not given for aksaite and that their pattern includes lines of MgO·3B₂O₅·7.5 H₂O. They found G 1.88. Using the unit cell given for aksaite and the formula Mg₅B₂O₉·5H₂O, the unit cell contains Mg₅B₂O₉·5H₂O and the calculated G is 1.96. It seems probable that this is the true composition of aksaite.

Zavaritskite


Samples of bismuthinite crystals collected by K. A. Nenadkevich from the Sherlova Gory deposits, E. Transbaikal, and obtained from the Mineralogical Museum, Academy of Sciences, U.S.S.R., were found to be pseudomorphs of bismutite and an unknown gray mineral after bismuthinite. The gray mineral had semi-metallic to greasy luster, translucent in very thin layers. Cleavage and hardness could not be determined. Under the microscope it is colorless, weakly birefringent, n 2.213 ± 0.005.

Analysis (by V. M. S.) of material containing a little bismutite and bismuthinite gave Bi₂O₅ 94.91, H₂O ± 0.51, S 0.50, F 4.33, CO₂ 1.84, Pb, Cu, Cl not found, R₂O₃, CaO, SiO₂ trace, sum 102.11, (O: F = 2): (O:S) 2.07 = 100.04. After deducting bismuthinite and bismutite, this corresponds to BiOF.

X-ray powder data (by M. T. Y.) are given. The strongest lines are, in A., 3.18 (8)(011), 3.09 (5)(002), 2.63 (5)(110), 2.01 (6)(112), 1.614 (8, broad, diffuse)(113), 1.478 (5)(122), 1.438 (7)(014), 1.305 (7)(213), 1.248 (6)(005), 1.223 (8, broad)(301), 1.185 (7)(130), 1.141 (9)(124), 1.126 (8)(115), 1.108 (9)(233), 1.070 (7)(033), 1.037 (9)(006), 1.028, 1.025 (10, broad, doublet)(133), 0.998 (10)(224). These data, except for the high intensities of the low-spacings, agree well with the data of Aurivillius, Arkiv Kemi, Mineral, 26B(2) (1948) for synthetic BiOF. They are indexed on the space group I41/amd, P4/m mm. From the powder data, a 3.75, c 6.23, both ± 0.01 Å, Z = 2. G calc. 9.21, meas. 8.34, 7.88; measured by Aurivillius on synthetic, 9.0. The low values are explained as due to the fine-grained nature.

The mineral occurs in quartz-topaz-siderophyllite greisens.

The name is after Aleksandr Nikolaevich Zavaritskii, Russian petrographer.

Bearsite


Microchemical analysis by L. I. Polupanova gave As₂O₅ more than 25.5, BeO 16.75, Al₂O₃ 6.06, Fe₂O₃ 1.08, CaO 1.40, MgO 0.61, SiO₂ 1.64, H₂O more than 29.0%. Material was insufficient for a complete analysis. Spectrographic analysis showed also 0.0n% Mn, 0.00n% Ti. From the crystallographic similarity to moraesite, the formula is probably Be₃(AsO₅)(OH)·4H₂O.
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The mineral occurs as fine incrustations and tangled white fibrous aggregates of crystals tenths to hundredths of a millimeter in size. Electron microscope photographs show them to be prismatic with longitudinal striations. G meas. above 1.8, lower than 2.0; G calc. 2.199. Optically biaxial (−), α 1.490±0.001, β close to γ, γ 1.502±0.001, c: γ = 8–10°.

The x-ray powder pattern (49 lines) is nearly identical with that of mounalite (Am. Mineral. 38, 1126–1133, 1953); the strongest lines are 6.95 (10), 3.31 (8), 4.23 (6), 3.02 (5), 2.145 (5), 1.956 (5), 1.889 (5), 1.776 (5). From these, the unit cell is a 8.55, b 36.90, c 7.13, β 97°49′±0.30′, Z = 12.

The mineral occurs in the zone of oxidation of a polymetallic deposit in Kazakhstan, in which the hypogene ore contains arsenopyrite, molybdenite and galena, with lesser pyrite, sphalerite, realgar, and orpiment and a little pitchblende. The ores are associated with felsite porphyry containing beryllium. The mineral occurs at a depth of 15 m, coating pharmaceutical and arseniosiderite. Other arsenates present include scorodite-mansfieldite, conichalcite, tyrolite, sodium uranospinnite and metazeunerite. The exact locality is not given, as usual for deposits containing uranium.

The name is for the composition; this is the first known beryllium arsenate.

Discussion.—Despite the lack of complete data, the x-ray data appear to define the composition.

Fenghuangite


A preliminary report was abstracted in Am. Mineral. 45, 754–755 (1960). Additional data are given. Analysis by Chung Chih-Cheng gave SiO₂ 13.76, P₂O₅ 6.32, CO₂ 2.62, Al₂O₃ 1.36, Fe₂O₃ 0.31, ThO₂ 19.64, CeO₂ 12.98, Ce₂O₃ 20.07, Y₂O₃ 0.66, U₃O₈ 0.40, CuO 10.43, MgO 0.08, SrO 0.50, PbO 0.10, Na₂O 0.25, H₂O - 5.49, sum 99.79% (given as 99.97). Spectrographic analysis also showed Ti, Ba 0.03, Yb, B 0.003%. After deducting 0.31% Fe₂O₃ as hematite and 0.25% Na₂O, 0.41% Al₂O₃, and 0.48% SiO₂ as nepheline, and neglecting the H₂O -, this corresponds to (Ca₂,Be₄Ce₆Th₀.79)[(Si₃P₀.75C₀.4₈)₉Al₀]OH - 2.5H₂O (apatite type). The mineral dissolves slowly in cold dilute HCl, readily in concentrated HCl, HNO₃, and H₂SO₄.

Amorphous to x-rays. After being heated at 800–1050° it gives an apatite-like pattern with strongest lines 3.13 (10), 2.80 (10), 1.895 (5), 2.128 (5), corresponding to a 9.58±0.01, Å 7.01±0.03 c. G meas. 3.327, calc. 5.12.

The mineral occurs in urtite dikes in a biotite foyaite, part of an alkalic igneous complex intruded into Cambrian limestone. Associated minerals are nepheline, melanite, aegirine, orthoclase and sphene. The locality is not given, except for the statement that the mineral is named for the locality.

Discussion.—The authors call attention to the similarity to britholite, but consider their mineral to be different because of its high Th, the presence of CO₂, and the lack of F. Although the thorium content is higher than previously reported for britholite (max. ThO₂ 9.77%), it is still subordinate to Ca and Ce, and the name is an unnecessary one for thorian britholite.

Gugiaite


Two analyses by Lan-Chuan Chang and Feng-liang Chiang gave resp., SiO₂ 45.26, 44.90; Al₂O₃ 1.08, 2.17; Fe₂O₃ 0.03, 0.11; BeO 8.89, 9.49; MgO 0.39, 0.38; MnO 0.11, 0.07;
CaO 42.94, 40.09; Na₂O n.d., 0.72; K₂O n.d., 0.20; H₂O⁻ 0.02, 0.36, H₂O⁺ 0.40, 0.90; F n.d., 0.25, Cl 0.73, 0.18; P₂O₅ n.d., 0.08; TiO₂ 0.02, trace; (Zr, Hf)O₂ 0.45, n.d., sum 100.32, 99.94, (O−F, Cl⁻) 0.17, 0.15 = 100.15, 99.79%. These correspond to (Ca, Na)₃Be(Si, Al)₂(O, OH). The mineral is dissolved by hot 1:1 HCl, HNO₃, or H₂SO₄ with separation of some gelatinous silica.

The mineral occurs as thin tetragonal tablets with prominent base c {001}, and other forms e {011}, p {111}, and narrow faces of m {110}. Rotation and Weissenberg photographs show it to be tetragonal, space group P4₂, m, with a 7.48 ± 0.02, c 5.044 ± 0.003 Å, c/a = 0.6743. The crystals are strongly piezoelectric. Indexed x-ray powder data (37 lines) are given; the strongest lines are 2 765 (10), 1.7W (7), 1 4S5 (7).

Gugiaite is colorless and transparent, luster vitreous. Cleavages {010} perfect, {001} distinct, {110} poor, fracture irregular. H about 5, G 3.034, calc. from x-ray data 3.03. Optically uniaxial (+), ñ 1.664, é 1.672, b = ±0.001.

The mineral occurs near the village of Gugia in skarn rocks, as tablets mostly 2-3 mm. across and 0.3-0.5 mm. thick in cavities and disseminated in melanite. Other minerals present are orthoclase, vesuvianite, aegirine, sphene, apatite and prehnite.

The name is for the locality.

DISCUSSION.—The authors point out that this is a member of the melilite group close to meliphanite, (Ca, Na)₂ Be(Si, Al)₂(O, F)₂, differing in containing much less Na and F. Since the analyses of meliphanite show a considerable range, but always with Ca=Na, it would seem simpler to extend this name to this near end-member; this would make the new name unnecessary.

Beta-alumohydrocalcite


Analysis of an air-dried fibrous mineral occurring in fissures of Carboniferous shales gave Al₂O₃ 28.87, Fe₂O₃ none, Cr₂O₃ 0.37, V₂O₅ 0.06, TiO₂ 0.01, MgO, MnO none, FeO 0.16, CaO 17.42, Na₂O 0.01, CO₂ 26.28, H₂O⁺ 25.78, insol. in HCl 1.20, SiO₂ 0.06, sum 100.22%, corresponding to CaAl₂(CO₃)₄(H₂O)₄·3H₂O. H 3.5, G 2.218–2.45. DTA showed a strong endothermal effect at 200–350° with peak at 270°, and a small endothermal effect at 800–900°. The ns are 1.553 and 1.567, elongation positive, symmetry from the optical properties orthorhombic. This corresponds closely to alumohydrocalcite (Dana’s System, 7th Ed., 2, 280) except in being orthorhombic.

DISCUSSION.—Requires verification by x-ray study.

Fabianite


Analysis of separated crystal fragments gives CaO 32.1, B₂O₅ 57.9, H₂O 5.2, SO₄ 2.2, Fe₂O₃ 0.6, sum 98.0%. After deducting some CaSO₄ and Fe₂O₃ this corresponds to 2CaO·3B₂O₅·H₂O or to CaB₂O₅(OH). The mineral is nearly insoluble in water, soluble in HCl and HNO₃.

Good crystals, 0.3–25 mm in size. Goniometric measurements show monoclinic symmetry with axial ratio a : b : c = 0.7960 : 1.0626, β = 113° 10'; habit prismatic, forms (001), (100), (120), (110), (320), (011), (021). Colorless, brownish-yellow fluorescence. Cleavage (011). H 6, G 2.796. Optically biaxial, (−), with ñ 1.608, β 1.637, γ 1.650, 2V 65°. Dispersion v > r, very low, Y = b, Z = a, X ≈ c 23.3°. X-ray powder data are given, the
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strongest lines are 3.27(10), 2.075(7), 2.026(7), 3.97(4), 3.04(4), 2.926(4), 2.149(4), 2.020(4), 1.944(4). Fabianite is not isotypic with synthetic CaB₃O₆(OH) (see Acta Cryst. 15, 207, 1962). No single crystal x-ray-data are given.

Occurs in a rock-salt drill core at Rehden near Diepholz, Germany, associated with halite, anhydrite, howlite and szalibyite.

The name is for Hans-Joachim Fabian, geologist, Wintershall AG., Erdölwerke Niedersachsen.

Hugo Strunz

Wenkite


Analysis by H. Schwander on purified powder gave SiO₂ 31.0, Al₂O₃ 19.8, CaO 10.0, SrO 0.8, BaO 27.6, Na₂O 0.6, K₂O 0.7, H₂O 2.3, SO₃ 6.7, Cl trace, sum 99.5%. This corresponds to the slightly simplified formula (OH)₅(SO₄)₂Ba₄Ca₄Si₄Al₂Sr₃O₃₀ or 3x[Ca₃₄(OH)₅]₅(SO₄)₂[Al₂Si₂O₅₆].

The new mineral occurs in light gray prismatic crystals, up to 5 cm in length. Hexagonal with a 13.528, c 7.471 Å, c/a 0.5523, probable space group D₃₃h-P6/mmm. Optically uniaxial (−), in some cases anomalously biaxial, 2V up to 100°, ε 1.589, ω 1.595. H 6.

The name is for Professor E. Wenk, University of Basel, Switzerland.

Some of the above mentioned data have already been published as belonging to an unnamed new mineral (see Am. Mineral. 45, 255, 1960).

Discussion.—A recalculation of the formula gives 53.3 oxygen in the unit cell, on the basis of 54 oxygen: (Ba, K)₄(Ca, Na₄)[(OH)₅(SO₄)₂][Al₂Si₂O₅₆].

Hugo Strunz

Sudoite


A mixture of a new non-expanding clay mineral with an irregularly interstratified clay mineral from the Knollenmergel-Keuper at Lützelbach near Plochingen was investigated.

From d₀₀₁ = 14.23 Å it was determined to be a chlorite, and from the position of the 006 reflection, giving b = 8.94–9.02 Å, and from the strong intensity of the 003 reflection, it was determined to be a dioctahedral chlorite. From an unpublished analysis of this mixture and from the position of the 001 reflection, the authors give the formula

\[
\begin{aligned}
\{ (Al, Fe^{2+}, Mg, Fe^{3+})X \} & \{ (OH)₂ \} & \{ Al₂ Si₂ O₆ \} \\
\{ (Al, Fe^{2+}, Mg, Fe^{3+}) \} & \{ (OH)₆ \}
\end{aligned}
\]

with X and Y between 2 and 2.5.

This mineral forms a series with an unnamed dioctahedral phyllosilicate of the chlorite group, published by G. Müller, Neues Jahrh. Min., Monatsh. 1961, 112–120:

\[
\begin{aligned}
\{ Al₂ [(OH)₂, Si₄O₁₃] \} & \\
\{ Al₆(OH)₆ \}
\end{aligned}
\]

a 5.14, b 8.95, d₀₀₁ 14.22; α 1.574, β~γ 1.580, 2Vₐ small. Analysis and thermal behavior
were published. Formed by hydrothermal alteration of a Permian quartzporphyrytuff of the Kesselberg area near Triberg in the Black Forest.

G. Müller (1962) proposes “sudoite” as a name for this diocathedral series of phyllosilicates, as chlorite is the name of the analogous trioctahedral series. Both series are the sudoite-chlorite group.

Named in honor of Prof. T. Sudo, Tokyo.

Discussion.—Brydon (1961) has published results on a similar mineral from alberni soils in Canada and S. Caillere (1962) from bauxites in France. A further publication of G. Müller is announced.

Hugo Strunz

Hydrohalloysite


A specimen from Baia Mare (Nagybánya), collected by M. Palfy in 1913, is a porcelain-like white material with conchoidal fracture. H 1.5, G 2.35, n 1.537. Analysis: SiO₂ 42.16, Al₂O₃ 36.86, Fe₂O₃ 0.09, CaO 0.15, H₂O 6.03 (up to 150°), 0.04 (150–200°), 0.81 (200–300°), 12.94 (300–700°), 0.67 (700–1000°C), P₂O₅ 0.24, sum 99.99%. The water up to 300° (6.88%) is regarded as adsorption and interlayer water, between 300–700° as OH in octahedral coordination, above 700° (0.67%) as OH in tetrahedral coordination, corresponding to the formula 

\[
\text{Al}_4\text{Fe}^{3+}\text{Fe}^{2+}\text{Si}_{12}\text{O}_{40}\text{(OH)}_8\cdot\text{Al}_9\text{Si}_{18}\text{O}_{48}\text{(OH)}_2\cdot2\text{H}_2\text{O}
\]

From powder diagrams a 5.136, b 8.904, c 9.758 Å, β 92°18′, Z=1; d values are given.

G calc. 1.9.

The specimen from Mátraháza, Mátra mountains, recently collected by Gy. Varga, from a fissure in andesite, is a yellowish-green collomorphic mass. H 1–1.5, G 2.30, n 1.547. SiO₂ 42.34, TiO₂ 0.03, Al₂O₃ 34.49, Fe₂O₃ 1.55, FeO 0.15, CaO 0.21, H₂O 8.11 (up to 150°), 12.81 (150–700°), 0.54 (700–1000°C), P₂O₅ 0.04, sum 100.27%. Formula

\[
\text{Al}_4\text{Fe}^{3+}\text{Fe}^{2+}\text{Fe}^{2+}\text{Fe}^{2+}\text{Si}_{18}\text{O}_{48}\text{(OH)}_8\cdot\text{Al}_9\text{Si}_{18}\text{O}_{48}\text{(OH)}_2\cdot2\text{H}_2\text{O}
\]

Discussion.—In most silicates, for instance in unaltered olivine, there is always some (O, OH) substitution, even greater than in these halloysite specimens, and no new names are necessary (see Am. Mineral. 44, 1328, 1959).

Hugo Strunz

Nordstrandite


These two papers report occurrences of nordstrandite, Al₂O₃·3H₂O, first synthesized by R. A. van Nordstrand et al., Nature, 177, 713 (1956) and named by Papeo et al., Bull. soc. chim. France, 1958, p. 1301. Analyses: Sarawak (P. J. Moore, analyst), material containing a little goethite and quartz, Al₂O₃ 60.0, Fe₂O₃ 4.35, H₂O 32.7, CaO 0.66, MgO 0.44, SiO₂ 1.24, total 99.39%; Guam; (A. Sherwood, analyst) Al₂O₃ 63.97, Fe₂O₃ 0.25, H₂O 1.59, H₂O²+ 29.05, total 99.00%. Loss on ignition 31.92%. The mineral is optically biaxial (+); Sarawak, α 1.580, β 1.581 (calc.), γ 1.613, 2V 18°, Z:ε = 32°; Guam, α 1.580, β 1.580, γ 1.596 (all ± 0.004), 2V low. H 3 (Guam). G 2.43 (Sarawak), 2.436 (Guam). Cleavage basal, perfect (Sarawak). Colorless to coral-pink and reddish-brown (due to goethite). Forms thick tabular crystals (10 to 75 microns, and up to 250 microns), which
Mackinawite


A mineral very similar to valleriite in physical properties but containing no copper has been identified from the Mackinaw Mine, Snohomish County, Washington. It is tetragonal, space group $P4/nmm$, $a = 3.68$, $c = 5.03$ Å, containing 2FeS. It is probable that much of the valleriite reported in the literature is mackinawite. Valleriite is rhombohedral, space group $R3$ or $R3m$, $a = 3.80$, $c = 34.3$ Å, formula close to CaFeS$_2$.

The name is for the mine.

**DISCUSSION.**—The data given are inadequate to characterize a new species.

Djurleite


These papers describe the same mineral, shown by x-ray study to be identical with Djurle’s synthetic Cu$_{196}$S-III. Additional data given by Morimoto are $G = 5.63$. Probably orthorhombic. An analysis of material containing digenite gave Cu$_{196}$Fe$_{90}$S. Additional localities are Ani Mine, Akita Pref., Japan; Osarizawa Mine, Japan; Rendaije Mine and Nakauri Mine, Shizuoka, Japan.

Westgrenite


Analysis of pink material gave Ta$_2$O$_6$ 45.49, Nb$_2$O$_5$ 5.65, Bi$_2$O$_3$ 40.40, CaO 1.46, SrO 0.92, Na$_2$O 0.08, K$_2$O 0.09, Al$_2$O$_3$ 0.80, FeO + MnO 0.22, Li$_2$O 0.25, SiO$_2$ 0.36, H$_2$O + 4.16, H$_4$O$^+$ 0.04, sum 99.92%. Z = 8, isostructural with the pyrochlore group. The strongest x-ray lines are 3.038 (100), 6.06 (71), 3.16 (50), 2.620 (35), 1.855 (35), in excellent agreement with synthetic BiTa$_2$O$_4$F.

The mineral occurs as yellow, pink, or brown veinlets, formed by replacement of bismuthotantalite during late hydrothermal crystallization of the lithium pegmatite at Wampewo Hill, Busiro County of Buganda, Uganda. It has dull resinous luster, uneven fracture, H 5, G approx. 6.5 meas., 6.83 calc. Isotropic, with $n > 2.00$. Infusible and insoluble in acids.

The name is for Professor Arne Westgren of Sweden, who synthesized BiTa$_2$O$_4$F.
DISCUSSION.—The name was approved before publication by the Commission on New Minerals and Mineral Names, I.M.A.

Waylandite

Oleg Von Knorring and Mary E. Merose, Westgrenite and waylandite, two new bismuth minerals from Uganda (abs.). Geol. Soc. Am. Program 1962 Meeting, p. 156A-157A.

Analysis gave $P_2O_5$ 22.15, $SiO_2$ 4.68, $Al_2O_3$ 29.27, $Bi_2O_3$ 28.28, $CaO$ 2.93, $H_2O^+ 12.3^+$, $H_2O$ 0.55, total 100.20%, corresponding to $(Bi, Ca)Al_3[(PO_4, SiO_4)]_2(OH)_6$. X-ray study shows it to be rhombohedral, $R$ $m$, $a$ 6.9649 ± 0.0008, $c$ 16.256 ± 0.001 Å, $Z$ = 3, isostructural with the plumbogummite group. The strongest x-ray lines are 2.93 (100), 5.66 (71), 3.48 (50), 1.88 (40), 2.16 (35).

Waylandite is white, compact, fine-grained, luster vitreous to dull, fracture uneven, $H$ 4–5, $G$ 3.86 (calc.). Optically uniaxial (−), $n_s$ not determinable. It occurs as veinlets and marginal crusts as a replacement of bismutotantalite in the lithium pegmatite at Wampewo Hill, Busiro County of Buganda, Uganda.

The name is for E. J. Wayland, first director of the Uganda Geological Survey.

DISCUSSION.—The name was approved before publication by the Commission on New Minerals and Mineral Names, I.M.A.

NEW DATA

Ixiolite


Ixiolite, first described in 1857, has generally been considered to be tapiolite. X-ray study of material from the type locality, Skogbøle, Finland, shows it to be orthorhombic, $a$ 5.163, $b$ 5.738, $c$ 4.747 Å, space group $P$ $nab$, $G$ 7.14, unit cell content $(Ta, Nb, Sn, Mn, Fe)_4 O_8$. The unit cell is similar to that of tantalite, but with $c$ one-third as large, and the cations are disordered, whereas in tantalite they are ordered in A (Fe, Mn) and B (Ta, Nb) positions.

Melanophlogite


Melanophlogite, previously thought to be a pseudomorph of quartz, containing S, after cristobalite or fluorite, is found to be a new form of $SiO_2$, cubic, space group $P$ 42 $32$, $a$ 13.402 ± 0.004 Å, $G$ 2.05; the unit cell contains approximately 48 $SiO_2$. Infra-red study shows that the S, C and H reported are present as $H_2S$, $CO_2$, $H_2O$ and hydrocarbons trapped in vacuoles. When the material is heated to 800°, the hydrocarbons decompose to give black amorphous carbon; the $G$ and $a$ are unchanged, but the $n$ changes from 1.467 to 1.425 ± 0.003.

Heterogenite


Heterogenite, which has about 60 years' priority over "stainierite", has been restudied. New analyses confirm the fact that the cobalt is present as $Co^{2+}$ as reported in the original description of Frenzel in 1872. The formula is given as $CoO$·$OH$, not $Co(OH)_2$ as stated by Orcel et al. (see Am. Mineral. 43, 1223–4, 1958).

X-ray powder data (20 lines, Co-$K_\alpha$ radiation) are indexed according to the unit cell of
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synthetic CoO·OH determined by Kondrashev and Fedorova (Compt. Rend. Acad. Sci. U.S.S.R. 94, 229, 1954). Strongest lines (in Å) are: 4.40 (vvs), 2.315 (vs), 1.804 (s), 1.427 (ms), 2.428 (m) and 1.356 (m). Synthetic CoO·OH is rhombohedral, $R\bar{3}m$ with $a$ 4.676 Å, $\alpha$ 35°28', and contains one formula unit (hexagonal cell has $a$ 2.849, $c$ 13.130 Å). The mineral is isostructural with NaHFeO, not with goethite, lepidocrocite, manganite or groutite.

For the synonymy of heterogenite, see the abstracts on Discredited Minerals which follow.

J. A. Mandarino

DISCREDITED MINERALS

Stainierite, transvaalite, mindigite, trieuite, boodtite
(all = heterogenite)
Heubachite (=nickelian heterogenite)
Schulzenite (=cuprian heterogenite)
Winklerite (=mixture of heterogenite, basic cobaltous)
(carbonate, malachite, and pharmacolite.)


On the basis of x-ray powder patterns, both new and in the literature, the names listed above are relegated to the synonymy.

J. A. Mandarino

Prof. Hans Schneiderhöhn, born February 6, 1887, died May 8, 1962.

Anatolii Georgievich Betekhtin (1897-1962), prominent Russian mineralogist and economic geologist, died April 21, 1962.

Herbert E. Merwin, died January 28, 1963, at the age of 84.

G. B. Lemmlein, Russian crystallographer, died November 15, 1962.