

NEW MINERAL NAMES

MICHAEL FLEISCHER

Unnamed nickel arsenide

GERHARD FRENZEL AND JOACHIM OTTEMANN (1968) Über ein neues Ni-As-Mineral und eine bemerkenswerte Uran-mineralisation von der Anna-Procopi-Grube bei Příbram. *Neues Jahrb. Mineral., Monatsh.* 1968, 420-429.

The mineral occurs as fine tabular to fibrous material less than 1 μm thick, replacing nickeline (niccolite). Electron probe analysis showed Ni/As \sim 5:4. Fe was determined as 1.4%. The mineral is gray-black in oil immersion, extinction parallel or nearly so, anisotropy very large, reflectivity R_0 close to that of nickeline, R_E much lower.

It occurs in the Anna-Procopi mine near Příbram, Czechoslovakia, with rammelsbergite, safflorite, loellingite, maucherite, millerite, polydymite, pitchblende, and coffinite. It is probably a low-temperature decomposition product of nickeline.

Unnamed (Pb, Ag, Bi)Cu₄Bi₅S₁₁

V. KUPCIK AND E. MAKOVICKY (1968) Die Kristallstruktur des Minerals (Pb, Ag, Bi) Cu₄Bi₅S₁₁. *Neues Jahrb. Mineral., Monatsh.* 1968, 236-237.

A sample from Hodrusa, Czechoslovakia, was found to be monoclinic, $A2/m$, a 27.21, b 3.94, c 17.58Å., β 93°54', $Z=4$. Analysis (not given) gave the formula above. Atomic coordinates are given.

Teremkovite

D. A. TIMOFEEVSKII (1967) Owyheeite from the Ust-Teremki ore deposit, eastern Transbaikal. *Trudy Tsent. Nauchno. Issled. Geol. Razved. Inst.* 68, 130-137.

D. A. TIMOFEEVSKII (1967) Sulfantimonites of lead and silver of the owyheeite group from deposits in eastern Transbaikal. *Zap. Vses. Mineral. Obshch.* 96, 30-44 [From an abstract by E. M. Bohnstedt-Kupletskaia in *Zap. Vses. Mineralog. Obshch.* 97, 513-614 (1968)].

Analysis by A. V. Pukhova gave Ag 6.50, Cu 0.17, Fe 0.45, Pb 44.15, Sb 29.03, As 0.30, S 19.31, sum 99.91%, corresponding to Ag₂Pb₇Sb₈S₂₀. X-ray study showed the mineral to be orthorhombic, a 22.58, b 26.68, c 4.08 Å., $Z=3$; this is probably a pseudo-cell; c is probably 8.16 Å. for the true cell. ρ (calc) 6.65, (meas) 6.25. The strongest lines are 3.447 (10), 3.227 (10), 3.123 (4), 2.806 (4), 2.218 (8). Cleavage along the elongation, also sometimes perpendicular to the elongation.

Color steel-gray. Microhardness 83.3-154.8 kg/mm.² Brittle. In reflected light grayish-white with a greenish tint. Reflectivity 43.9 (green) 42.2 (yellow-orange), 39.6 (red). Birefringence weak, from grayish-white to greenish. Distinctly anisotropic, color effects absent. Deep dark brown inner reflections. Etch tests are given.

The mineral occurs in matted fibrous aggregates of fine acicular crystals with owyheeite, in quartz veins of the Ust-Teremki Ag-Pb-Zn deposit, Darasun ore region, eastern Transbaikal. The name is for the deposit.

DISCUSSION.—The composition and cell dimensions differ only slightly from those of owyheeite, and the name seems to be unnecessary.

Unnamed dimorph of Attakolite

CYNTHIA W. MEAD AND MARY E. MROSE (1968) Solving problems in phosphate mineralogy with the electron probe. *U. S. Geol. Surv. Prof. Pap.* 600-D, D204-D206.

A white mineral, occurring with pink orthorhombic attakolite at Västana, Sweden [*Amer. Mineral.* **51**, 534 (1966)], was found to be monoclinic with a 11.45 ± 0.01 , b 15.69 ± 0.02 , c 7.30 ± 0.01 Å., β $91^\circ 30' \pm 05'$; the cell dimensions being essentially identical with those of the orthorhombic attakolite. Electron probe analyses of the two phases (not given) show that they have approximately the same composition.

Bukovskýite

F. NOVÁK, P. POVONDRA, AND J. VĚLENSKÝ (1967) Bukovskýite, Fe_2^+ (AsO_4) (SO_4) (OH) $\cdot 7\text{H}_2\text{O}$, from Kaňk, near Kutná Hora — a new mineral. *Acta Univ. Carolinae—Geologica*, No. 4, 297–325.

F. NOVÁK (1967) Kaňk, near Kutná Hora—the locality of a new mineral bukovskýite. *Čas. Nar. Mus. (Prague)*, **136**, 63–66 [in Czech, with English abstract].

The mineral occurs as a weathering product of sulfides (mainly arsenopyrite and pyrite) in medieval dumps at Kaňk, near Kutná Hora, Bohemia, Czechoslovakia. It forms nodules, similar to those of destinezite, up to 60 cm. in diameter. Color pale yellowish-green to grayish-green; streak pale yellowish-white to dirty yellow. Fracture uneven, earthy. Soft, nearly powdery on the surface. $\rho = 2.334$. Readily soluble in HCl.

Microcrystalline; in transmitted light appears as colorless to yellowish minute crystals with average size 0.05×0.007 mm and maximum size 0.11×0.015 mm, often in radiating aggregates. Probably monoclinic. n 's: $\gamma' = 1.626$ – 1.631 , $\beta' = 1.570$ – 1.582 , extinction angle 22° . Optically very similar to destinezite, morphologically to gypsum. Electron micrographs of bukovskýite revealed, besides its crystals, an amorphous(?) phase with irregular outlines, partially translucent.

Recalculation of chemical analyses of four different specimens of bukovskýite—first analysis (numbers) by A. Bukovský, the other three by P. Povondra—(Fe_2O_3 30.84, 31.40, 30.71, 32.42; Al_2O_3 —, 1.43, —, —; SO_3 14.70, 14.69, 15.68, 16.50; As_2O_5 20.81, 22.10, 21.62, 22.10; P_2O_5 0.40, —, —, —; SiO_2 —, 0.90, —, —; MgO —, 0.11, —, —; CaO —, 0.17, —, —; H_2O 28.73, 29.41, 31.61, 28.12; insol. 0.22, —, —, —; total 95.70, 100.21, 99.62, 99.32%) leads to the formula $\text{Fe}_2^{3+} (\text{AsO}_4) (\text{SO}_4) (\text{OH}) \cdot 7\text{H}_2\text{O}$. Theoretical composition of bukovskýite requires Fe_2O_3 32.60, As_2O_5 23.46, SO_3 16.35, and H_2O 27.59 %. The water content varies due to the metacolloidal nature of this mineral; the number of crystal water molecules is derived from the analysis No. 4 made on the best crystallized material. Water in excess of 7 molecules is considered to be adsorbed. Qualitative spectrographic analysis of specimens Nos. 2 and 4 revealed minor amounts of P, Zn, Si (admixture of quartz) and traces of Al, Ca, Cr, Cu, Mg, Mn, Na, Sn, Ti.

Infrared absorption bands at 851 (very strong), 1099 (very strong), 1408 (very weak), 1648 (medium), and 3300 cm^{-1} (weak).

TGA shows two distinct weight losses, 50–350°C (30.1%; loss of H_2O and probably also of OH groups) and 630–760°C (15.3%; escape of SO_3). DTA records these as strong endothermal effects, with peaks at 125–135, 180, and 720–725°C; besides those strong exothermal peaks at 615–630, 645–660, and weak ones at 835–840, 925, and 975°C appear. When heated at 200°C in air, bukovskýite transforms into a brownish-red substance that is soft and plastic while hot; after cooling this substance becomes massive, with conchoidal fracture, yellow streak, vitreous luster; it is semi-transparent, brittle, X-ray amorphous, and resembles pitticite.

Because of metacolloidal and microcrystalline nature of bukovskýite no single-crystal data could be obtained. The strongest X-ray powder lines are: ~ 9.6 (10), ~ 9.2 (10), 8.84 (5–8), 5.30 (6–8), 4.667 (3–7), 4.59 (3–7), 4.47 (6–9), 3.90 (7–9), 3.67 (6–8), 3.59 (7–9), 3.315 (5–8), 3.27 (3–7), 3.21 (2–7), 3.066 (4–7), 2.745 (3–7), 2.718 (2–7), 2.658 (2–7), and 2.443 \AA (4–7). The X-ray investigation of higher hydrated forms of this mineral (also of

destinezite) indicates their poor crystallinity (low number of reflections, low intensities, diffuseness of reflections).

The name was approved before publication by the Commission on New Minerals and Mineral Names, IMA. Type specimens are deposited in the Collection of the Department of Mineralogy, Charles University, Prague, and in the Collection of the Department of Mineralogy, National Museum, Prague. Bukovskýite is named for Professor A. Bukovský (1865–1950) in recognition of his contributions to mineralogy of Kutná Hora; Bukovský was the first to analyze chemically this mineral already in 1914 without giving it any mineralogical name.

This mineral has been known for a long time and used by local inhabitants, because of its high arsenic content, for poisoning mice; it was named "arsenic," "arsenite," "the Kaňk powder," "the Kutná Hora earth," "the poisonous earth of Kutná Hora."

DISCUSSION.—The recently described new aluminum mineral sanjuanite [M. E. J. de Abeledo *et al.*, *Amer. Mineral.*, **53**, 1–8, (1968)] appears to be very close to bukovskýite and destinezite. All three minerals have analogous formulas, but differ by their H₂O contents. The formula for destinezite is given with 5 H₂O, for bukovskýite with 7 H₂O and for sanjuanite with 9 H₂O. However, most analyses of destinezite and bukovskýite can be recalculated into formulas with more water than indicated above. All three minerals have very similar physical properties and might be isostructural. A further study is essential as well as a study of sarmientite.

F. Čech

Matorolite (= Chalcedony)

ANON. (1967) Matorolite, new mineral found in Rhodesia after 2 year's search. *Chamber Mines (Rhodesia)* **J. 9**, no. 7, 30–31.

The material occurs in veins one-fourth to two inches wide in decomposed serpentinite, near the contact of granite with the Great Dyke. Color deep emerald green, translucent. Contains no nickel, but is high in Cr. Dr. E. Gübelin, Lucerne, Switzerland, is quoted as describing this as chromium-colored chalcedony, *n* 1.538, *G*. 2.570–2.584, with the absorption spectrum showing the typical chromium absorption spectrum with a sharp line at 6800Å. and a rather broad band from 6200 to 5650Å. Turns red under the Chelsea color filter. The name is for the locality.

Ilimaussite

E. I. SEMENOV, M. E. KAZAKOVA, AND V. J. BUKIN, (1968) Ilimaussite, a new rare-earth-niobium-barium silicate from Ilimaussaq, South Greenland. *Medd. Grønland* **181**, no. 7, 3–7.

Analysis by M. E. K. gave SiO₂ 31.28, TiO₂ 1.64, Nb₂O₅ 13.20, RE₂O₃ 10.60, Fe₂O₃ 3.18, BaO 23.62, Na₂O 7.00, K₂O 3.80, loss of weight 6.43, sum 100.75%. The alkalies were determined by flame photometry by E. A. Fabrikova. Spectrographic analysis by I. P. Toyushev showed the presence of Mn, Mg, Al, and Ca. The formula is given as Ba₂ Na₄ CeFeNb₂Si₈O₂₈ · 5H₂O [perhaps might be generalized to (Ba, Na, K, Ce)₈(Nb, Ti, Fe)₃ Si₈O₂₈ · 5H₂O.—M. F.]. The proportions of rare earths by X-ray fluorescence are La 23.6, Ce 55, Pr 6.7, Nd 14.7.

X-ray study showed the mineral to be hexagonal, space group *P6₃/mcm*, *P6₃cm*, or *P6̄c2*, *a* 10.80 ± 0.04, *c* 20.31 ± 0.07 Å, *Z* = 3. A relationship to cerite (*a* 10.78, *c* 38.03 Å.) is suggested. An indexed X-ray pattern (14 lines) is given; the strongest lines are 3.25 (6) (112̄5), 3.12 (5) (303̄0), 2.98 (4) (303̄2), 2.67 (10) (224̄1). Polysynthetic twins are occasionally observed.

The mineral forms lamellar aggregates, $15 \times 10 \times 3$ mm. Color brownish-yellow, luster resinous. Fracture conchoidal. $H.$ about 4, $\rho.$ 3.6. Optically uniaxial, positive, ω 1.689, ϵ 1.695.

The mineral occurs in a hydrothermal ussingite-analcime vein cutting sodalite syenite on Nakalaq, Ilimaussaḡ alkalic massif, South Greenland. Associated minerals are chkalovite and epistolite. The mineral alters easily, becoming dull and non-transparent.

The name is for the alkalic massif. It was approved before publication by the Commission on New Minerals and Mineral Names, IMA.

Blanchardite

MARY F. STRONG (1964) The Blanchard claims, Bingham, New Mexico. *Mineralogist* **32**, no. 3, 5-9.

A name given without data.

NEW DATA

Mimetite

ULRICH KEPPLER (1968) Monokliner Mimetesit, $Pb_5(AsO_4)_3Cl$. *Neues Jahrb. Mineral. Monatsh.* **1968**, 359-363.

Precession study shows that mimetite is monoclinic, space group $P2_1/b$, a 10.24 ± 0.01 , b 20.48 ± 0.02 , c 7.45 ± 0.01 Å, γ $120 \pm 0.1^\circ$, $Z=4$. This explains the biaxial optical nature commonly observed. Other members of the group may also prove to be monoclinic (chlorapatite is also monoclinic).

Calcioferrite, Montgomeyrite

CYNTHIA W. MEAD AND MARY E. MROSE (1968) Solving problems in phosphate mineralogy with the electron probe. *U. S. Geol. Surv. Prof. Pap.* **600-D**, D204-D206.

Electron probe analysis of calcioferrite from Battenberg, Bavaria, and of montgomeyrite from Fairfield, Utah (both type localities) gave, respectively: Fe 19.0, Ca 10.0, P 14.8%; Al 11.1, Ca 13.0, P 16.5%. "These data, together with crystallographic considerations led to the following formulas: $Ca_2Fe_2(PO_4)_3(OH) \cdot 7H_2O$ for calcioferrite; $Ca_2Al_2(PO_4)_3(OH) \cdot 7H_2O$ for montgomeyrite. These satisfied the space-group criteria established by single-crystal x-ray work. X-ray powder patterns indicated the minerals to be isostructural."

Chrysocolla

F. V. CHUKHROV, B. B. ZVYAGIN, A. I. GORSHKOV, L. P. ERMILOVA, AND E. S. RUDNITSKAYA (1968) Chrysocolla. *Izv. Akad. Nauk SSSR, Ser. Geol.*, **1968**, no. 6, 29-44 [in Russian].

New data include 6 new analyses, showing Al_2O_3 0.46 to 5.87%, Fe_2O_3 none to 5.66%; CuO is low in samples containing appreciable Al or Fe, indicating replacement of Cu by Al and Fe. DTA curves show endothermic breaks at 60-120° (loss of H_2O^-), an exothermic peak at 660-730°. About half the water is lost up to 200°, the remainder from 200 to 700°. Infra-red absorption curves show the presence of hydroxyl.

Electron diffraction patterns are diffuse and difficult to interpret. A long discussion of possible structures is given; the model suggested has a unit cell with a 5.7, b 8.85, c 6.7 Å., with a dioctahedral net of octahedra joined to a net of tetrahedra rotated to different sides from the plane of their base. The formula is $Cu_2H_2(Si_2O_5)(OH)_4$, or with substitution by Al or Fe, $(Cu_{2-x}(Al,Fe)_x)H_{2-x}(Si_2O_5)(OH)_4$.

DISCREDITED MINERALS

**Arsendestinezite, arsenical destinezite,
arsenian destinezite = bukovskýite**

F. NOVÁK, P. POVONDRA, AND J. VTĚLENSKÝ (1967) Bukovskýite, $\text{Fe}_2^{3+}(\text{AsO}_4)(\text{SO}_4)(\text{OH}) \cdot 7\text{H}_2\text{O}$, from Kaňk, near Kutná Hora — a new mineral. *Acta Univ. Carolinae—Geologica*, No. 4, 297–325.

“Arsendestinezite” [J. Kratochvíl, *Topographical Mineralogy of Bohemia*, 2, 136, (1958) Prague (in Czech)], “arsenical destinezite” (see F. Slavík, *Mineral. Abstr.*, 5, p. 86, 1932), and “arsenian destinezite” (see Winchell and Winchell, *Optical Mineralogy*, 1951) are unnecessary and unsuitable old names for bukovskýite (see above abstract). The name “arsenian destinezite” should be restricted only to arsenic-rich varieties of destinezite with $\text{As} < \text{P}$.

F. Čech

Medmontite = Chrysocolla + Mica

F. V. CHUKHROV, B. B. ZVYAGIN, A. I. GORSHKOV, L. P. ERMILOVA, AND E. S. RUDNITSKAYA (1968) The nature of medmontite. *Izv. Akad. Nauk SSSR, Ser. Geol.* 1968, no. 7, 67–71 [in Russian].

Medmontite was described in 1950 by Chukhrov and Anosov [*Amer. Mineral.* 36, 793 (1951)], as the Cu member of the montmorillonite group and has been generally accepted. However, the variable alkali content and the lack of swelling in glycerol raised doubts.

New analyses, DTA, infra-red spectra, and electron diffraction patterns show that medmontite is a mixture of fibers of chrysocolla (see abstract above) with plates of a mica or hydromica mineral, the amount of the latter increasing with the alkali content.

The name medmontite is therefore to be discarded.