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New Mineral Names*

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Andremeyerite*

TH. G. SAHAMA, JAAKKO SIIVOLA, AND PENTTI REHTIJÄRVI (1973) Andremeyerite, a new barium iron silicate, from Nyiragongo, Zaire. *Bull. Geol. Soc. Finland,* **45,** 1–8.

Microprobe analysis by J. S. (av. of 3 to 8), with analyzed fayalite and oligoclase and synthetic $BaSiO_3$ as standards, gave SiO_2 32.46, Al_2O_3 1.00, FeO (total iron) 31.55, MgO 0.75, MnO 1.33, CaO 0.52, BaO 32.55, Na_2O 0.10, K_2O 0.65, sum 100.91 percent, corresponding to $(Ba_{0.85}K_{0.06}Ca_{0.03}Na_{0.01})(Fe_{1.75}Al_{0.08}Mn_{0.08}Mg_{0.08})Si_{2.15}O_{7.24}$, or $BaFe_2Si_2O_7$. The excess Si may have been due to the trapping of silica-rich liquid.

Precession photographs showed the mineral to be monoclinic, $P2_1/c$, a 7.464 ± 0.008, b 13.794 ± 0.005, c 7.093 ± 0.005Å, β 118°15′ ± 10′, $Z = 4$, G. calc 4.14, meas 4.15 by centrifuging in Clerici solution. The strongest lines (25 given) are 4.63 (40) (021, $12\bar{1}$), 3.288 (60)(200), 3.122 (80, coincides with Si internal standard)(002, $20\bar{2}$), 3.055 (100)(140), 2.811 (40)($13\bar{2}$), 2.472 (55)($14\bar{2}$).

Color pale emerald-green. Vickers hardness 440 kg/sq mm = about 5½ Mohs. Crystals are less than 0.2 mm long, 0.1 mm in diameter, with {100} and {010} dominant, also {011}, {120}. Cleavages {100}, {010} perfect. Multiple twinning on (100). Optically biaxial, positive, ns (Na) $\alpha \sim \beta$ 1.740, γ 1.760 (all ± 0.005), X slightly bluish green, Y and Z colorless with faint brownish tint, absorption $X > Y \sim Z$. Dispersion very strong, $2V$ near 0° below 490 nm, increasing to a maximum of about 40° at about 540 nm, decreasing to nearly 0° at 580–585 nm, then increasing rapidly to about 80° at 670 nm. $Z = b$ for all, $X \wedge c = 2°$ at 670 nm to 61° at 470 nm.

The mineral was found in a single specimen in vesicles of melilite-leucite-nephelinite lava, Mt. Nyiragongo, eastern Zaire (formerly Belgian Congo). Associated minerals are nepheline, leucite, clinopyroxene, kirschsteinite, and melilite, along with a green glass (analysis given) with n 1.598.

The name is for the late André Meyer, geologist, who collected the specimens. Type material is at the Univ. of Helsinki. **M. F.**

Cuprospinel*

E. H. NICKEL (1973) The new mineral cuprospinel ($CuFe_2O_4$) and other spinels from an oxidized ore dump at Baie Verte, Newfoundland. *Can. Mineral.* **11,** 1003–1007.

The mineral was found in heavily oxidized material from an ore dump on the property of Consolidated Rambler Mines Limited near Baie Verte, Newfoundland. The copper-zinc ore had been exposed to the environment for some years, had ignited spontaneously, and had smoldered at intervals. Cuprospinel, as well as other spinels, is intergrown with hematite.

No discrete euhedral crystals were found. The mineral occurs as irregular grains up to 0.1 mm in diameter. Cuprospinel is black and opaque with a black streak. Optically, it is gray, isotropic, and similar in appearance to magnetite. It does not have the pinkish tint of magnetite. Reflectance values are: 22.7 percent (470 nm), 21.7 percent (546 nm), 21.0 percent (589 nm), and 20.0 percent (650 nm). The VHN using a 100g load is 920–1081 with an average of 985.

Analysis by electron microprobe gave: Fe_2O_3 65.7, FeO 1.7, CuO 27.8, MgO 1.8, ZnO 0.7, CoO 0.6, MnO 0.2, Al_2O_3 2.6, total 101.1 wt percent. These data give a formula of

$$(Cu_{0.80}Mg_{0.10}Fe_{0.05}Co_{0.02}Zn_{0.02}Mn_{0.01})(Fe_{1.89}Al_{0.11})O_4$$

Three other spinels from the same occurrence were analyzed. Of these, two have Cu as the dominant divalent cation and the other has Mg dominant. In all cases Fe is the dominant trivalent cation.

The X-ray powder diffraction pattern is that of a cubic spinel. Twelve indexed lines are given. In addition, two lines from hematite are present. Another three lines apparently could not be attributed to either cuprospinel or hematite. The six strongest lines (radiation not given) are: 4.79(3)(111), 2.96(5)(220), 2.517(10)(311), 2.100(3)(400), 1.613(4)(511), and 1.479(6)(440) all in Å. The unit cell has $a_o = 8.369$ Å. The cell edge for pure $CuFe_2O_4$ is 8.383 Å. No evidence of the presence of tetragonal $CuFe_2O_4$ was detected. No value is given for the density of the mineral. [Calculated from the composition and cell edge, however, the density of the natural material is 5.251 g/cc. The calculated density of the pure synthetic material is 5.396 g/cc.]

It is not stated where type specimens are deposited. **J. A. M.**

Heterogenite-2H

M. DELIENS, AND H. GOETHALS (1973) Polytypism of heterogenite. *Mineral. Mag.,* **39,** 152–157.

Detailed study of heterogenite samples from Mindigi, Shaba, Zaire, showed that this material had essentially the same properties and chemical composition as "normal" heterogenite, except for the X-ray powder diffraction pattern. "Normal" heterogenite should be considered as heterogenite-3R and this new type as heterogenite-2H.

The data for heterogenite-2H are similar to those for heterogenite-3R. The strongest lines in the X-ray powder diffraction pattern (in Å for Fe$K\alpha$ radiation) are: 4.39(VVS)(0002), 2.472(MS)($11\bar{1}0$) [Note: this must be $10\bar{1}0$], 2.158(S) ($10\bar{1}2$), 1.644(S)($10\bar{1}4$), and 1.236(VS)($20\bar{2}0$). A total of 17 indexed

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* Minerals marked with an asterisk after the name were approved before publication by the Commission on New Minerals and Mineral Names, International Mineralogical Association.

spacings are listed. The space group is $P6_3/mmc$, with a = 2.855 Å (= a of heterogenite-3R) and c = 8.805 Å (= 2/3c of heterogenite-3R). **J. A. M.**

Heyite*

SIDNEY A. WILLIAMS (1973) Heyite, $Pb_5Fe_2(VO_4)_2O_4$, a new mineral from Nevada. *Mineral. Mag.* **39,** 65–68.

The mineral was found at the Betty Jo claim, about eight miles south-east of Ely, White Pine County, Nevada. It occurs in a silicified breccia in limestone. Associated minerals are pyrite, chalcopyrite, galena, pyromorphite, cerussite, wulfenite, mimetite, shattuckite, and chrysocolla. Heyite occurs on and replaces corroded tungstenian wulfenite.

The mineral is yellow-orange with a yellow streak. The crystals are small (up to 0.4 mm) and simple in habit. They are monoclinic with {001}, {100}, {110} and {$\bar{1}$01} the only forms observed. Hardness is 4 and the measured specific gravity is 6.3 ± 0.2. The mineral is transparent and brittle and has an irregular fracture and no cleavage.

Three electron probe analyses totaling 96.1, 98.4, and 97.3 gave the following average values (recalculated to total 100.00 percent): PbO 77.52, ZnO 0.83, FeO 8.65, V_2O_5 13.00 wt percent. The ideal formula derived is $Pb_5(Fe, Zn)_2(VO_4)_2O_4$.

Heyite is monoclinic, space group $P2_1/m$, a = 8.910, b = 6.017, c = 7.734 all ± 0.004 Å, β = 111°53′ ± 4′. The cell volume is 380.88 Å^3. For Z = 1, the calculated density is 6.284 g/cc. The crystals are elongated parallel to [010] and are tabular parallel to {100}. Twinning on {110} is fairly common. Strongest spacings in the X-ray powder diffraction pattern (in Å for Cr$K\alpha$) are: 4.873(46)(110), 3.674(35)(111), 3.248(100)(11$\bar{2}$), 2.970(69)(30$\bar{1}$, 21$\bar{2}$), 2.767(61)(211), and 2.306(33). A total of 30 indexed and 11 unindexed spacings are listed.

Optically, the mineral is biaxial (+), $2V_\gamma$ = 82° (calc) and 89° (meas), α = 2.185, β = 2.219, γ = 2.266, all ± 0.01. The orientation is $Y = b$, $X \wedge$ [001] is 36° in obtuse β. Dispersion of the optic axes is weak with $r > v$.

The unit cell is strikingly similar to that of brackebuschite but because of the marked chemical difference, heyite is quite distinct from brackebuschite. Heyite strongly resembles descloizite in appearance.

The name is for Max M. Hey, eminent British chemist and mineralogist. A type specimen (one of three) is in the British Museum (Natural History), London. **J. A. M.**

Karibibite*

OLEG V. KNORRING, TH. G. SAHAMA, AND PENTTI REHTIJÄRVI (1973) Karibibite, a new FeAs mineral from South West Africa. *Lithos,* **6,** 265–272.

Analysis by O. V. K. on 100 mg gave As_2O_3 68.8, Fe_2O_3 (total Fe) 29.1, H_2O^+ 1.7, H_2O^- 0.2, sum 99.8 percent, corresponding to $Fe_{11.7}As_{22.3}O_{47.9}(OH)_{6.1}$ (unit cell content), or ideally $Fe^{3+}{}_2As^{3+}{}_4O_9$, Z = 6. Tests showed that the FeO content is low; solution in NaOH solution following by iodimetric titration indicated the As to be trivalent. A DTA curve showed a sharp endothermic break at 450°. A TGA curve showed no loss in weight to 320°; the loss becomes rapid at 450° and an X-ray pattern showed only lines of hematite. The infrared spectrum shows no arsenate groups. The mineral is readily dissolved by dilute acids or dilute alkali hydroxide solutions.

Electron diffraction patterns and rotation photographs show the mineral to be orthorhombic, space group not determined, a 27.91 ± 0.04, b 6.53 ± 0.02, c 7.20 ± 0.03 Å, G. calc 4.04, meas (Berman balance) 4.07. The strongest X-ray lines (21 given) are 6.35(40)(110), 3.496(50)(800, 202), 3.176(80)(220), 3.088(70)(320, 810, 212), 2.802 (80)(910, 10.00), 2.672(45)(620), 2.384(100)(820, 222).

The mineral occurs as brownish-yellow spindle-shaped bundles of fibers. Single fibers are less than one micron thick. The fibers are very soft and are readily bent. Paramagnetic. In U.V. light (2530 Å), fluoresces yellow. Optically biaxial, negative, $2V$ large, ns α 1.96, $\gamma > 2.10$. Weakly pleochroic, straw-yellow perpendicular to fiber-axis, light brownish-yellow parallel (= Z).

The mineral occurs in vugs in loellingite in the Karibib pegmatite, SW Africa, associated with eosphorite, scorodite, and quartz. The name is for the locality. Type material is preserved at the University of Leeds and University of Helsinki.

Note

A preliminary description was abstracted in *Am. Mineral.* **57,** 1315. **M. F.**

Larosite*

W. PETRUK (1972) Larosite, a new copper-lead-bismuth sulfide. *Can. Mineral.* **11,** 886–891.

Microprobe analyses on 2 grains gave Cu 49.7, 48.3; Ag 15.6, 15.6; Pb 9.0, 8.5; Bi 8.9, 9.6; S 18.5, 19.8; sum 101.7, 101.8 percent, corresponding to $(Cu_{17.7}Ag_{3.3})(Pb_{1.0}Bi_{1.0})Si_{13.1}$, and $(Cu_{17.6}Ag_{3.4})(Pb_{0.9}Bi_{1.1})S_{14.3}$, or $(Cu, Ag)_{21}(Pb, Bi)_2S_{13}$.

X-ray powder data were indexed by A. Kato on an orthorhombic cell with a 22.15, b 24.03, c 11.67 Å, Z = 10, G. calc 6.19 for anal. 1, 6.31 for anal. 2. The strongest lines (20 given) are 3.206 (5)(631), 2.917 (9)(004), 2.846 (6)(731), 2.471 (6)(344), 1.982 (10)(265).

Color whitish buff in reflected light. Moderately anisotropic, with gray and greenish-buff colors, weakly pleochroic. Reflectances (Si standard) max. and min.: 470 nm., 32.2–32.7, 31.0–31.7; 546 nm, 31.3–32.0, 29.7–30.1; 389 nm, 30.5–31.7, 29.1–30.0; 650 nm, 30.3–32.0; 29.1–30.0 percent. Vickers microhardness, 25g load = 87–124, av. 106 kg/sq mm.

The mineral occurs as acicular to flame-like crystals, the largest 25 microns wide and 300 microns long, occurring with chalcocite and stromeyerite in the central part of a vein, Foster Mine, Cobalt, Ontario. The name is for Mr. LaRose, one of the discoverers of silver ore at Cobalt. Type material is preserved at the Geological Survey of Canada, Ottawa. **M. F.**

Mattagamite and Tellurantimony

R. I. THORPE, AND D. C. HARRIS (1973) Mattagamite and tellurantimony, two new telluride minerals from Mattagami Lake mine, Matagami area, Quebec. *Can. Mineral.* **12,** 55–60.

Mattagamite*

Mattagamite occurs as equidimensional grains (up to 110 microns) and as blade-like grains in altaite. It also forms rims (up to 30 microns in width) on pyrrhotite and sphalerite in contact with altaite. The rims are sometimes associated with hessite. In reflected light (oil immersion) the color is violet. Anisotropism is weak, varying from pinkish-violet to greyish-violet. The microhardness (VHN) for a 15 g load is 630 kg/mm^2 and for a 25 g load the VHN is 383 and 404 kg/mm^2. Reflectance measurements gave 53.1 (470 nm), 51.4 (546 nm), 51.7 (589 nm), and 52.7 (650 nm).

Electron probe analyses of three grains gave the following average weight percentages: Co 10.3, Fe 6.7, Te 82.4, total 99.4. This gives a formula of $Co_{0.54}\ Fe_{0.37}\ Te_{2.00}$. This is therefore, ferroan mattagamite. Other specimens from another part of the mine were analyzed and these show appreciable amounts of antimony (up to 29.5 wt percent). The Sb content varies inversely with the Fe content.

The Gandolfi X-ray pattern is practically identical to that of synthetic $CoTe_2$. The strongest lines (Å) in the Gandolfi pattern (radiation not given, but probably Fe-filtered Co) are: 3.31(3)(011), 2.805(10)(111), 2.703(8)(120), 2.066(6)(211), 1.843(4)(012), and 1.583(3)(040). This mineral is orthorhombic with cell parameters (refined from the powder pattern of synthetic $CoTe_2$): $a = 5.305$, $b = 6.289$, and $c = 3.866$ Å. The space group is not given, but it may be the same (*Pmnn*) as for frohbergite ($FeTe_2$) which has similar cell dimensions ($a = 5.29$, $b = 6.27$, and $c = 2.86$Å).

Type specimens are preserved in the National Mineral Collection, Ottawa, and in the Royal Ontario Museum, Toronto.

Discussion

A problem arises with respect to the name. The authors state that the name ". . . is proposed for the locality, Mattagami Lake, Quebec . . .". The official Province of Quebec spellings for the lake, village, mine, and railroad station are all "Matagami". The official company name of the mine is spelled "Mattagami". If the authors do, indeed, mean Matagami Lake, a "t" must be dropped. This is a completely understandable situation, but the abstractor feels that the official gazetteer (*Répertoire Géographique du Québec,* 1969) must be respected. **J. A. M.**

Tellurantimony*

The mineral occurs as lath-shaped crystals (up to 175 microns x 350 microns) in altaite. In reflected light (oil immersion) the mineral is weakly pleochroic from pink to cream. Anisotropism is moderate, varying from pink to dark grey. The microhardness (VHN) for a 15g load is 40.2 to 73.9 with an average of 54.9 kg/mm^2. For a 25g load, the VHN is 39.6 to 61.3 with an average of 49.8 kg/mm^2. Twinning perpendicular to the elongation of the laths is common. The mean reflectance percentages are: 65.1 (470 nm), 63.6(546 nm), 63.8(589 nm), and 63.7(650 nm).

Eight grains were analyzed by electron probe. The average values in wt percent are: Sb 37.5, Bi 0.3, Te 61.8, total 99.6. These data give a formula of $Sb_{1.91}\ Te_{3.00}$, or ideally Sb_2Te_3.

The X-ray diffraction Gandolfi pattern is identical to that of synthetic Sb_2Te_3. The strongest lines (in Å for Fe-filtered Co radiation) are: 3.156(10)(015), 2.348(7)(01.10), 2.129(8)(110), 1.980(7)(01.13), 1.769(6)(025), 1.577(5)(02.10), and 1.359(5)(125). The mineral is isostructural with tellurbismuth, Bi_2Te_3. It is hexagonal, space group $R\bar{3}m$, with $a = 4.258$ Å and $c = 30.516$ Å. The unit cell parameters were refined from the Gandolfi data.

The name is for the composition, in analogy with tellurbismuth. Type material is in the National Mineral Collection, Ottawa, and the Royal Ontario Museum, Toronto. **J. A. M.**

Osumilite-(K,Mg)

G. A. Chinner, and P. D. Dixon (1973) Irish osumilite *Mineral. Mag.* **39,** 189–192.

An osumilite from Tieveragh, Co. Antrim, Ireland, gives the following chemical analysis: SiO_2 64.35, TiO_2 0.06, Al_2O_3 19.38, FeO 2.16, MnO 0.24, MgO 9.46, CaO 0.13, Na_2O 0.27, K_2O 3.98, total 100.03 wt percent. These data show the following relationships: K > Na, Mg > Fe, Si/Al < 7. The authors, using criteria proposed by Bunch and Fuchs in 1969, show the following relationships for the osumilite minerals:

osumilite K > Na, Fe > Mg, Si/Al < 7
yagiite Na > K, Mg > Fe, Si/Al < 7
osumilite (K,Mg) K > Na, Mg > Fe, Si/Al < 7.

They prefer not to give a new name to the Irish material because: "It seems, however, an unnecessary complication to assign new names to only slightly disparate members of relatively obscure solid solution series not readily differentiated by ordinary petrographic methods. We therefore propose that the Tieveragh osumilite be known simply as osumilite-(K,Mg)."

Discussion

I think they are to be commended for their feelings, but they are still naming a mineral, and I believe that the nomenclature of this series has not been simplified but has been further complicated. The matter should be decided by the Commission on New Minerals and Mineral Names of the I.M.A. Until such a decision is made, this abstractor is loathe to list the complete description of something that may be re-named. **J. A. M.**

Tulameenite*

L. J. Cabri, D. R. Owens, and J. H. G. Laflamme (1973) Tulameenite, a new platinum-iron-copper mineral from placers in the Tulameen River Area, British Columbia. *Can. Mineral.* **12,** 21–25.

Several electron probe analyses of grains were performed. The analysis for the grain used for X-ray diffraction is:

Pt 73.98(73.56–74.78), Ir 1.99(1.98–1.99),
Fe 10.38(9.80–11.09), Cu 13.13(12.18–13.99),

Ni not detected, Sb not detected, total 99.48 wt percent. (The unbracketed figures are averages, the bracketed figures are ranges). The formula for this grain is $(Pt_{1.04}Ir_{0.06})(Cu_{1.06}Fe_{0.94})$. In seven grains the atomic percent of Fe was greater than that of Cu; the eighth grain showed Cu > Fe. The general formula is given as Pt_2FeCu. Tulameenite is considered an alloy of Pt, Fe, and Cu.

X-ray powder diffraction data were obtained for Fe-filtered Co radiation. Debye-Scherrer and Gandolfi cameras were used. The six strongest spacings (in Å) are: 2.179 (10)(111), 1.946(7)(020), 1.317(5)(022), 1.163(8)(131), 1.093(8)(113), and 1.016(6)(023,132). A total of 17 indexed spacings are given. The data are essentially identical to the power data for synthetic Pt_2FeCu. No single crystal studies were performed, but from the powder data, tulameenite is tetragonal (space group?) with $a = b = 3.891$ Å and $c = 3.577$ Å, $Z = 2$. The calculated density is 15.6 g/cc. The highest measured density of synthetic Pt_2FeCu is 14.9 g/cc.

Tulameenite is white in reflected light in oil and air. It is very weakly anisotropic. Minimum and maximum reflectance values are: 65.3 and 61.0(470 nm), 66.5 and 60.0(546 nm), 65.5 and 61.5(589 nm), and 64.9 and 61.1(650 nm). The microindentation hardness (50g load) varies from 420 to 456 kg/mm² with an average value of 442. The mineral is distinctly ferromagnetic and is attracted to a steel needle.

Tulameenite occurs as rounded to irregular grains up to 400 μm and is associated with cubic iron-bearing platinum, a new Ir(Rh)-Sb-S mineral, and other platinum group minerals in the placers of the Tulameen River area, British Columbia.

No mention of preservation of the type specimens is made. **J. A. M.**

Unnamed Ag-Sb Telluride

R. I. Thorpe, and D. C. Harris (1973) Mattagamite and tellurantimony, two new telluride minerals from Mattagami Lake mine, Matagami area, Quebec. *Can. Mineral.* **12,** 55–60.

A 15 micron bleb along a contact of pyrrhotite and altaite is anisotropic and has a pinkish tint. Electron microprobe analysis gave: Ag 20.1, Sb 25.3, Te 53.2, total 98.6 wt percent. These data give a formula of $Ag_{0.9}Sb_{1.0}Te_{2.0}$. The authors state that the mineral is too sparse for proper characterization of the phase. **J. A. M.**

NEW DATA

Hematophanite

R. C. Rouse (1973) Hematophanite, a derivative of the perovskite structure. *Mineral. Mag.* **39,** 49–53.

From the crystal structure determination, hematophanite is considered to have an ideal chemical formula of $Pb_4Fe_3O_8Cl$. The mineral is tetragonal, space group $P4\,mm$, $a = 3.92$ Å, $c = 15.31$ Å. **J. A. M.**

Schirmerite

S. Karup-Møller (1973) New data on schirmerite. *Can. Mineral.* **11,** 952–957.

Study of specimens obtained from the U. S. National Museum, Royal Ontario Museum, and Professor P. Ramdohr, provided new data for schirmerite which was described by Genth in 1874. (Dana, 7th Ed., v. 1, p. 424).

Six microprobe analyses give data indicating an ideal formula of $AgBi_3Pb_2S_7$. There is considerable evidence that Ag and Cu substitute for Bi and that there are consequent deficiencies of sulfur.

Schirmerite is orthorhombic, space group $Bbmm$, $Bb2_1m$, or $Bbm2$; $a = 13.448 \pm 0.026$, $b = 44.386 \pm 0.100$, and $c = 4.022 \pm 0.012$ (all in Å); $Z = 8$. The calculated density is 7.58g/cc. The six strongest lines (in Å for Cu$K\alpha$) of the Guinier powder pattern are: 3.662(6)(141), 3.207 (9)(440), 2.923(9)(331, 1.10.1), 2.878(7)(480), 2.837 (7)(351), and 2.786(7)(1.11.1). A total of 17 indexed spacings are given.

Optically, schirmerite is similar in color to galena. Reflection pleochroism is weak in air and weak to distinct in oil. Anisotropism is weak to distinct in air and distinct to strong in oil. Reflectivity values are given for 12 wavelengths. These vary from Rg 44.4 percent and Rp 40.4 percent (at 440 nm) increasing to Rg 46.2 percent and Rp 42.1 percent (at 500 nm) and decreasing to Rg 40.6 percent and Rp 37.9 percent (at 660 nm).

Microindentation tests with a 50g load gave values from 150 to 206. Etch tests gave negative results with HNO_3(1:1), KOH(40%), KCN(20%), $FeCl_3$(20%), and Hg_2Cl_2(5%). Concentrated HNO_3 gives a gray precipitate. **J. A. M.**

ERRATA

Am. Mineral. **56,** 640. The X-ray line given as 3.795 Å should be 3.975 Å.