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# NEW MINERAL NAMES*

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### Balyakinite*, Unnamed tellurites

E. M. Spiridonov (1980) Balyakinite, $CuTeO_3$, a new mineral from the zone of oxidation. Doklady Akad. Nauk SSSR, 253, 1448–1450 (in Russian).

Electron microprobe of 3 samples gave Cu 26.7±0.3, Fe 0.06±0.03, Ag 0.24±0.06, Pb 0.58±0.09, Te 54.0±0.9, Se 0.02±0.01, Sb 0.94±0.17, O 19.5±0.4, sum 102.0%, corresponding to $(Cu_{1.01}Ag_{0.07}Pb_{0.01})(Te_{1.02}Sb_{0.02})O_{2.93}$, or $CuTeO_3$.

X-ray study showed the mineral to be identical with synthetic $CuTeO_3$. The strongest lines (23 given) are 4.34 (4)(111), 3.18 (4)(004), 3.09(5)(211), 2.85 (10)(212), 2.84 (8)(021), 1.711 (5)(225). Space group *Pmcn*, a = $7.60_2$, b = $5.83_9$, c = $12.69_7$,Å., Z = 8, D calc. 5.64g/cu.cm., measured 5.6 "kg/cu.cm".

Balyakinite occurs with tellurite, and two lead copper tellurites (see below) as veinlets in aggregates of tetrahedrite, chalcopyrite, and tellurides in the Pionersk deposit, eastern Sayan, and the Aginsk deposit, central Kamchatka. Balyakinite occurs as intergrowths up to 0.5mm. and as very small short prismatic crystals. Color grayish-green to bluish-green, streak pale bluish-green. Hardness 80–125, av. 105 kg/sq.mm. In transmitted light weakly pleochroic in shades of green, *ns* $\alpha$ = 2.11, $\beta$ = 2.18, $\gamma$ = 2.22, stated to be optically biaxial, positive, 2V = 80°, X = *a*, Y = *b*, Z = *c*. Cleavage not observed. The mineral alters to teineite.

The name is for "the remarkable teacher, G. S. Balyakina, who trained many generations of geologists at Moscow University". Type material is at the Fersman Mineralogical Museum, Academy of Sciences, USSR, Moscow.

Microprobe analyses of two associated minerals gave Cu 11.58, 14.24; Fe 0.08, 0.09; Ag 0.27, 1.21; Pb 33.7, 41.1; Te 39.3, 29.2; S –, 0.74; Sb 1.07, –; O 15.0, 14.0, sum 99.9, 100.9%, corresponding respectively to $PbCu(TeO_3)_2$ and $PbCu(TeO_3)O$. No other data are given.

*Discussion*

The *ns* given correspond to optically negative. **M.F.**

### Arsenohauchecornite*, tellurohauchecornite*

R. I. Gait and D. C. Harris (1980) Arsenohauchecornite and tellurohauchecornite: new minerals in the hauchecornite group. Mineral. Mag., 43, 877–888.

Minerals previously described as arsenian hauchecornite and tellurian hauchecornite (Gait & Harris, 1972, Can. Mineral. 11-819, M.A. 74–1429) are now given specific names.

Arsenohauchecornite, type locality, Vermilion mine, Sudbury District, Ontario; microprobe analysis, Ni 44.9, Fe 1.4, Co 0.3, Bi 26.5, As 4.4, Sb 0.1, S 22.0, sum 99.6%; ideal end-member formula $Ni_9BiAsS_8$; space group *P4/mmm*, *a* = 14.517, *c* = 10.803Å, Z = 8, D(meas.) 6.35, (calc.) 6.52; principal lines in the powder pattern, 2.771(100)(242), 2.381(90)(224), 2.284(80)(442,260), 1.854(80)(444); reflectance at 589nm 48.2–49.2; hardness $VHN_{50g}$ 516–655(kg/mm$^2$).

Tellurohauchecornite, type locality, Strathcona mine, Sudbury District, Ontario; microprobe analysis, Ni 44.1, Fe 0.9, Co 0.9, Bi 22.4, Te 8.5, S 21.9, sum 98.7%; ideal end-member formula $Ni_9BiTeS_8$; space group *P4/mmm*, *a* = 14.64, *c* = 10.87Å, Z = 8, D(calc.) 6.50; principal lines in the powder pattern, 2.80(100)(242), 2.405(50)(224), 2.314(60)(260), 1.868(40)(444); reflectance at 589nm 45.6–49.4; hardness $VHN_{50g}$ 182–825(kg/mm$^2$).

*Discussion*

The statement as to the space group for both minerals is based on the structure determination of hauchecornite by Kocman and Nuffield (1974, Can. Mineral. 12-269, M.A. 76–237). However, the cell dimensions now given for both minerals are double those given with the structure determination which corresponds to Z = 1. Though the authors surely were aware of this discrepancy they did not comment on it. **A.P.**

### Bismutohauchecornite*

J. Just (1980) Bismutohauchecornite—new name: hauchecornite redefined. Mineral. Mag., 43, 873–876.

The name bismutohauchecornite is applied to a mineral from the Oktyabr'skoe Cu-Ni deposit, Noril'sk District, USSR designated hauchecornite by Kovalenker *et al.* (1977, Trudy Min. Muzeya AN USSR, 26, 201–5). Its composition is represented by the structural formula $(Ni_{8.90}Co_{0.15}Fe_{0.04})(Bi)(Bi_{0.92}As_{0.08})S_8$, closest to the ideal end-member $Ni_9BiBiS_8$. (see following abstract) **A.P.**

### Hauchecornite redefined*

J. Just (1980) Bismutohauchecornite—new name: hauchecornite redefined. Mineral. Mag., 43, 873–876.

The name hauchecornite was given by R. Scheibe (1893) to a tetragonal sulfide of nickel and bismuth with various substituents from the Friedrich mine, Westphalia, which may be assigned the formula $Ni_9Bi(Sb_{0.7}Bi_{0.3})S_8$ on the basis of the original analyses confirmed by microprobe analysis and the structure determination (M.A. 76-237). This is closest to the ideal end member $Ni_9BiSbS_8$ of the hauchecornite-group minerals. Other end members are bismutohauchecornite, $Ni_9BiBiS_8$, arsenohauchecornite, $Ni_9BiAsS_8$,

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* Minerals marked with asterisks were approved before publication by the Commission on New Minerals and Mineral Names of the International Mineralogical Association.

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tellurohauchecornite, $Ni_9BiTeS_8$, (see accompanying abstracts) and tucekite, $Ni_9SbSbS_8$ (M.M. 42–278, A.M. 64–465). In addition, formulas are given for five hypothetical end members. **A.P.**

### Ekaterinite*

S. V. Malinko, B. P. Fitsev, N. N. Kuznetsova, and L. E. Cherkasova, (1980) Ekaterinite a new boron mineral, Zapiski Vses. Mineralog Obsh. v. 109, p. 469–476 (in Russian).

Analyses were made of 2 samples; (1) selected directly after being collected (analyst L. M. Panina, on 1 g.); (2) a powdery sample kept for a long time in a dry place, microchemical analysis by N.N.K. on 100mg. These gave $B_2O_3$ 38.47, 42.01; CaO 30.67, 32.43; MgO 0.11, none; MnO trace, none; $Na_2O$ 0.08, 0.02; $K_2O$ 0.16, 0.12; F none, none; Cl 11.07, 12.30; $CO_2$ none, none; $SiO_2$ 0.04, 0.51; $Fe_2O_3$ 0.04, none; $H_2O^+$ 14.17, 15.05; $H_2O^-$ 7.62; –; sum 99.93, 99.94%. Thermal analyses showed that for (1), the losses in weight were 20–165° 8.12; 165–335° 5; 335–410° 2.5; 410–500° 6.25; 500–600° 0.63; 600–960° 6.56, total 29.66% (=$H_2O$+Cl). Endothermic peaks were observed at 150° and 420°, a less clear one at 200°. An exothermal effect was noted at 620°. For (2), losses in weight were 40–155°, 1.9; 155–300° 4.5; 300–495° 10.3; 295–600° (error for 495–600° (?)M.F.) 0.5; 600–1000° 10.6, total 27.8% (=$H_2O$+Cl). Endothermic peaks were observed at 300° (weak) and 480°; an exothermic peak at 670°. The mineral melts at 940°. Sample 1 therefore contains adsorbed water. The analyses give the formula $Ca_2B_4O_7(Cl,OH)_2 \cdot 2H_2O$, with 0.3–0.5 adsorbed $H_2O$. The IR spectrum shows bonds of $H_2O$ and borate ion. The mineral is soluble in water.

The X-ray pattern is indexed on a hexagonal cell with $a = 11.86$, $c = 23.88$Å. The strongest lines (61 given) are 2.51(93)$(40\bar{4}2)$, 2.31 (100)$(32\bar{5}2)$ 2.09(98)$(41\bar{5}4)$, 2.047 (99)$(50\bar{5}1)$, 1.916 (100)$(42\bar{6}2)$, 1.281 (97)$(54\bar{9}4)$, 1.166 (87)$(64.\overline{10}.3)$. (These indices seem very improbable M.F.)

The mineral is white, sometimes with a slight rose tint. Luster pearly. H. slightly above 1. G. (micro-flotation) 2.440±0.005. Bluish luminescence and phosphorescence at 300°K and 77°K. Optically biaxial, negative, 2V very small, *ns* $\alpha = 1.574$, $\gamma = 1.577$ (both ±0.001). After the mineral has been in immersion preparations 10–15 minutes, the *ns* decrease by 0.030 and the grains become nearly isotropic.

The mineral was found in 3 drill cores at depths of 820–1260 meters in carbonate- and carbonate-anhydrite rocks of the Korshunov skarn iron ore deposit, Lower Ilim region, Irkutsk district. Siberia. It forms finely-foliated aggregates of hexagonal crystals(1mm or less) associated with halite and szaibelyite.

The name is for Professor Ekaterine Vladimirovne Rozhkova (1898–1979), mineralogist. **M.F.**

### Johnsomervilleite*

A. Livingstone (1980) Johnsomervilleite, a new transition-metal phosphate mineral from the Loch Quoich area, Scotland. Mineral. Mag., 43, 833–836.

The average of eight closely agreeing microprobe analyses is FeO 26.2, MnO 5.2, MgO 12.9, CaO 6.2, $Na_2O$ 4.7, $P_2O_5$ 44.7, total 99.9%, leading to the ideal formula $Na_{10}Ca_6Mg_{18}(Fe,Mn)_{25}(PO_4)_{36}$. Johnsomervilleite is rhombohedral; its cell dimensions (hexagonal), based on electron diffraction studies and X-ray powder diffraction data, are:- $a = 15.00$Å and $c = 42.75$Å, very close to the cell dimensions reported for fillowite; Z = 3, D(obs.) 3.35, D(calc.) 3.41. Principal lines of the powder patterns are: 11.20(50)(102), 3.70(70)(10.11,306), 3.55(70)(20.10,00.12), 2.965(70)(10.14), 2.764(100)(31.10), 2.501(40)(330). Johnsomervilleite is dark brown, brittle, and glassy, H = $4\frac{1}{2}$, with perfect basal (?) cleavage. It is brown, nonpleochroic in transmitted light, anomalously biaxial with 2V *ca.* 10°, *ns* are given as $\alpha(\simeq\beta)$ 1.655, birefringence low.

Johnsomervilleite occurs in two phosphate-bearing metamorphic segregation pods in Moine gneiss of kyanite-sillimanite grade. Together with green, anhedral apatite, graftonite and an unidentified "mineral A", it is considered primary; associated, secondary phosphates include jahnsite, phosphosiderite, rockbridgeite, mitridatite and vivianite. The name is for Mr. J. M. Somverville who provided the specimen in which the new mineral was found. **A.P.**

### Kovdorskite*

Yu. L. Kapustin, A. V. Bykova, and Z. V. Pudovkina (1980) Kovdorskite, a new mineral. Zapiski Vses. Mineralog Obsh., 109, 341–347 (in Russian).

Analyses by A.V.B. gave $P_2O_5$ 29.10, 29.18; $CO_2$ 9.32, 10.00; MgO 41.00, 41.00; FeO 0.21, none; MnO none; $H_2O$ 20.18, 19.58; sum 99.81, 99.76%. Traces of Mn, Ca, Zn, and Cu (0.001–0.01%) were found spectrographically. These analyses correspond closely to $Mg_5(PO_4)_2(CO_3)(OH)_2 \cdot 4.5H_2O$. The DTA curve shows sharp endothermic effects at 120 and 270°C, corresponding to weight losses of 10 and 11%, respectively, probably loss of water of crystallization and $CO_2$. At 300–400° there is an elongated endothermic peak, with weight loss 8%, probably corresponding to loss of hydroxyl water.

Laue, oscillation, and diffractometer study show kovdorskite to be monoclinic, $a = 4.74 \pm 0.02$, $b = 12.90 \pm 0.04$, $c = 10.35 \pm 0.04$Å, $\beta$ 102°00′±30′, Z = 2, D calc. 2.609, meas. 2.60, 2.60. Space group $P2_1/c$. The strongest X-ray lines (55 given) are 7.96(100)(011), 5.44(46)(021), 4.32(36)(110), 2.821(59)(122), 2.258(64)(150).

Kovdorskite is pale rose, in part transparent, in part turbid from very fine gas-liquid inclusions. H 420–450 kg/sq. cm or about 4 (Mohs). Optically biaxial, negative, $\alpha = 1.527$–$1.528$, $\beta = 1.542$, $\gamma = 1.549$, 2V = 80–82°, elongation pos., $Z{:}c = 1$–$3°$, $r > v$ very weak. Fracture conchoidal or uneven.

The mineral occurs in magnetite–forsterite rocks of the Kovdor massif, Kola Peninsula, associated with magnesite and hydrotalcite in nests of dolomite.

The name is for the massif. Type material is at the Fersman Mineralogical Museum, Academy of Sciences, Moscow. **M.F.**

### Morozeviczite*, Polkovicite*

Czeslaw Haranczyk (1975) Morozeviczite and Polkovicite, typochemical minerals of Mesozoic mineralization of the Fore-Sudeten monocline Rudy Metalle 20, 288–293 (in Polish).

These minerals form a solid solution series from $(Pb,Fe)_3Ge_{1-x}S_4$ (Morozeviczite) (Pb > Fe) to $(Fe,Pb)_3(Ge,Fe)_{1-x}S_4$ (Polkovi-

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cite). Probe analyses by Eva Ksiasek gave

|  | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|---|
| Pb | 58.6 | 47.0 | 44.8 | 39.2 | 27.0 | 23.0 | 14.6 |
| Fe | 8.6 | 14.5 | 15.5 | 21.8 | 24.3 | 25.2 | 29.3 |
| Cu | 1.2 | 1.9 | 1.7 | 1.6 | 6.5 | 2.6 | 3.6 |
| Ge | 9.0 | 6.8 | 6.0 | 6.5 | 5.9 | 4.8 | 4.5 |
| As | 0.8 | 0.9 | 1.3 | 0.9 | 1.0 | 1.1 | 1.8 |
| S | 21.0 | 25.3 | 25.8 | 26.9 | 31.0 | 34.2 | 34.2 |
|  | 99.2 | 96.4 | 95.1 | 96.9 | 95.7 | 90.9 | 92.0 |
| x = | 0.18 | 0.47 | 0.51 | 0.51 | 0.62 | 0.69 | 0.69 |

The X-ray powder pattern (46 lines) of sample 2 has strongest lines 3.08 (10)(222), 2.80 (6)(123), 2.15 (9)(224), 2.047 (6)(015,134), 1.791 (5)(135), 1.565 (5)(136), 1.467 (5)(117,155), 1.109 (5)(448), corresponding to a cubic cell with $a_0 = 10.61$Å, Z = 8, D calc. 6.62. The X-ray data resemble those for germanite.

The minerals are opaque. Color brownish-gray, streak dark gray. Color in reflected light white with cream-red tint, lighter than germanite. Bireflectance low. Anisotropy distinct, with colors yellow to red. No internal reflections. Reflectances are given at 9 wavelengths (436–686nm), including: 470, 43.5–44.5; 535, 43–44; 591, 44–45; 658, 45.5–46.5%. The optical properties change little with composition in the series. Hardness (50g load) 119–124 kg/sq mm. Cleavage was not observed.

The minerals occur in ores that replace the matrix in brecciated sandstones that underlie Zechstein copper-bearing shales, Lower Silesia. The ores contain chalcopyrite, bornite, chalcocite, tennantite, sphalerite, and galena. The new minerals, intimately intergrown with marcasite, occur in epigenetic veinlets and metasomatic replacement zones that replace sandstone and older sulfides.

Morozeviczite is for Josef Morozewicz, 1865–1941, professor of mineralogy, Jagellonian Univ. Polkovicite is for the Polkovice mine. Type material is at the Jagellonian Univ., Krakow, Poland. **M.F.**

## Olgite

A. P. Khomyakov and others (1980) Olgite, $Na(Sr,Ba)PO_4$, a new mineral. Zapiski Vses. Mineral Obsh., 109, 347–351 (in Russian).

Four electron microprobe analyses gave $Na_2O$ 13.9–14.9, $K_2O$ 0.43–0.46, SrO 20.4–21.6, BaO 23.4–28.7, CaO 0.52–0.81, MnO 0.37–0.89, $La_2O_3$ 2.3–6.14, $Ce_2O_3$ 0.43–0.96, $Pr_2O_3$ 0.03–0.07, $Nd_2O_3$ 0.02–0.09, $P_2O_5$ 31.6–32.0, $SiO_2$ 0.06–0.15%, close to $Na(Sr,Ba)PO_4$ with Sr > Ba. The mineral is insoluble in water, dissolved by cold 10% HCl. The IR spectrum shows bands characteristic of phosphates.

X-ray study shows olgite to be hexagonal, space group $P\bar{3}m1$, $P3m1$, or $P321$, $a = 5.558$, $c = 7.037$Å (both±0.001); Z = 2. D calc. 3.96, meas. 3.94. The strongest X-ray lines (40 given) are 3.97(41)$(01\bar{1}1)$, 2.842(100)$(01\bar{1}2)$, 2.763(100)$(11\bar{2}0)$, 1.982(63)$(02\bar{2}2)$, 1.647(30)$(01\bar{1}4)$, 1.607(37b)$(03\bar{3}0)$.

The mineral is bright blue to bluish-green, luster vitreous. Optically uniaxial, negative, $\omega = 1.623$, $\epsilon = 1.619$ (both±0.002). Hardness 343 kg/sq.mm. (= $4\frac{1}{2}$ Mohs). Terminated crystals showed the faces $(10\bar{1}0)$ and $(10\bar{1}1)$ dominant, also (0001), $(11\bar{2}0)$, $(11\bar{2}1)$.

Olgite occurs in nepheline syenite pegmatite, Mt. Karnasurt, Lovozero massif, Kola Peninsula, as grains up to 1–2 mm. in diameter in analcime and natrosilite.

The name is for Professor Ol'ge Anisimovne Vorob'eva (1902–1974), investigator of the mineralogy of alkalic rocks. Type material is at the Fersman Mineralogical Museum, Academy of Sciences, Moscow. **M.F.**

## Olympite*

A. P. Khomyakov, A. V. Bykova, and Yu. A. Malinovskii (1980) Olympite, $Na_3PO_4$, a new mineral. Zapiski Vses. Mineralog. Obsh. 109, 476–479 (in Russian).

Analysis on 150 mg. by A.V.B. gave $P_2O_5$ 42.50, $CO_2$ 2.30, $Na_2O$ 54.50, MnO 0.50, sum 99.80%. Ca, Cl, and sulfate were absent; traces of Mg were found. After deducting admixed sidorenkite (*64,* 1332(1979)), this gives $Na_{2.98}P_{1.02}O_4$ or $Na_3PO_4$. The mineral is readily soluble in cold water, giving a strongly alkaline solution. In air alters rapidly to sodium carbonate plus hydrated sodium phosphates.

Laue and oscillation data (on crystals coated with rubber cement) showed it to be orthorhombic, space group *Pnma* or $Pn2_1a$, $a = 10.154$, $b = 14.819$, $c = 10.143$Å., Z = 16, D meas. 2.8, calc. 2.85. The strongest lines (69 given) are 4.18 (9)(022,220); 3.58 (6)(202); 2.582 (10)(242); 2.531 (7)(004,400); 2.433, (7)(341); 1.472 (7)(642).

Olympite is colorless, translucent, luster vitreous, fracture conchoidal. Hardness 274–395, average 310kg/sq mm. (= about 4, Mohs). Brittle. Optically biaxial, positive, *ns* $\alpha - \beta = 1.510$, $\gamma = 1.512$ (both ±0.002), 2V = 46±1°.

The mineral occurs in alkalic pegmatites of Mt. Rasvumchorr, Khibina massif, Kola Peninsula, in close association with sidorenkite, villiaumite, aegirine, and a new (unnamed) mineral, $Na_2MnSi_2O_6 \cdot H_2O$. It occurs as oval grains of diameter 1–3mm.

The name is in honor of the Olympic games at Moscow in 1980. Type material is at the Fersman Mineralogical Museum, and the museum of the Institute of Mineralogy and Geochemistry of Rare Elements (IMGRE), both in Moscow. **M.F.**

## Tugarinovite*

V. G. Kruglova, A. A. Poteryaikina, G. A. Sidorenko, L. S. Dubakina, and E. G. Ryabeva (1980) Tugarinovite, ($MoO_2$), a new hypogene molybdenum mineral, Zapiski Vses. Mineralog. Obsh. 109, 465–468 (in English).

Qualitative analysis showed Mo and O with traces of Fe, Ti, Ca, and Si. Microprobe analyses of 5 crystals gave $MoO_2$ 99.76, 100.0, 100.19, 99.87, 99.46%. The mineral is insoluble in hot HCl or $H_2SO_4$, but is dissolved very slowly by boiling concentrated $HNO_3$.

X-ray study showed it to be identical with synthetic $MoO_2$. It is indexed on a monoclinic cell with $a = 5.59$, $b = 4.82$, $c = 5.51$ (all ±0.01Å), $\beta = 119°32'$, D calc. 6.58. The strongest x-ray lines (34 given) are 3.391 (10)(110), 2.412 (8)(020,111), 1.716 (6)$(33\bar{1},220)$, 1.703 (8)(222,112), 1.398 (6)(131,202).

The mineral occurs as crystals 0.5 to 1.5mm, prismatic or thick tabular, color dark lilac-brown, streak greenish-gray, luster greasy to metallic. H 300kg/sq mm. (=4.6, Mohs). Optically strongly birefringent and anisotropic, with color effects from pale yellowish to bluish-olive-brown. Reflectances are given at 14 wave lengths (440–700nm); 460, 24.9 and 15.5; 540, 20.3 and 14.7; 580, 19.7 and 18.8; 600, 19.6 and 21.3; 660, 20.6, 30.7%. The sign changes at 588nm; elongation negative in the blue region, positive in the red.

The mineral occurs in eastern Siberia in quartz metasomatites;

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it is associated with uraninite, molybdenite, zircon, and galena, and is considered to be of hypogene origin, formed in a reducing medium with deficiency of sulfur.

Type material is at the Fersman Mineralogical Museum, Moscow. The name is for Aleksei Ivanovich Tugarinov, geochemist of the Vernadskii Institute, Moscow. **M.F.**

### Unnamed $Bi_2Te$

G. N. Gamyanin, N. V. Leskova, L. N. Vyal'sov, and I. P. Laputina (1980) Bismuth tellurides—$Bi_2Te$ and BiTe—in deposits of northeastern USSR. Zapiski Vses. Mineralog. Obsh. 109, 230–235 (in Russian).

The mineral $Bi_2Te$ was found associated with wehrlite, tellurobismuthite, and joseite-A in the Ergelyakh deposit, Yakutia. Probe analyses gave Bi 76.8, 76.44; Te 22.6, 22.04; sum 99.4, 98.48%; ratio Bi/Te = 2.07, 2.11. The X-ray pattern (Fe radiation) has strongest lines (11 given): 4.16(3), 3.57(3), 3.25(10), 2.37(5), 2.25(4), 1.631(3), 1.316(3). Reflectances are given in a diagram; they increase with wavelength; as read from the graph they are approximately: 460nm, 55%; 540, 62%; 580, 64%; 660, 67%. Hardness (on PMT-3 with 10g load) max. 93.4, min. 75.4, av. in 2 directions 84.8 and 87.2 kg/sq mm. Anisotropy and birefringence higher than that of joseite-A. **M.F.**

### Unnamed Cu Mineral

Ewald Müller (1974) Primary and secondary copper minerals in the Gratlaspitz near Brixlegg, Tyrol. Karinthin, 80, 99–104 (in German).

Secondary minerals formed on ores containing luzonite, tetrahedrite, and famatinite include azurite, malachite, olivenite, tyrolite, and an unidentified mineral. It occurs as bluish-green fine crystals and sky-blue nodules on quartz. H 3.5; optically biaxial, neg., 2V = 5–10°, $\beta = 1.745 \pm 0.005$, $\gamma = 1.753$. The strongest X-ray lines of fine crystals and nodules, resp (30 and 35 lines given) are 7.60(100), 7.75(100); 5.16(80), 5.12(80); 3.63(100), 3.66(100); 2.93(60), 2.93(50); 2.56(50), 2.57(50). **M.F.**

### Unnamed Sn-Cu-(Pb) mineral

S. Karup-Møller (1978) The ore minerals of the Ilimaussaq intrusion: their mode of occurrence and their conditions of formation Grønlands Geol. Undersøgelso Bull. 127, 1–51 (in English) (see p. 30–31).

Platy subhedral to euhedral crystals of the phase occur within native Sn, associated with native Pb, in kakortokite rocks of the Ilimaussaq intrusive, Greenland. Color cream white with a slight pinkish tint in small crystals, violet in larger. Anisotropism strong in violet grains, less so in creamy white. Probe analyses of the violet variety gave Sn 48.6, 50.7, 48.4; Cu 42.0, 39.9, 45.2, Pb 6.7, 12.5, 1.5, sum 97.4, 103.1, 95.1%, corresponding to $Cu_{0.60}Sn_{0.37}Pb_{0.03}$, $Cu_{0.56}Sn_{0.38}Pb_{0.05}$, $Cu_{0.60}Sn_{0.34}Pb_{0.06}$. **M.F.**

## NEW DATA

### Glushinskite

M. J. Wilson, D. Jones and J. D. Russell (1980) Glushinskite, a naturally occurring magnesium oxalate. Mineral. Mag., 43, 837–840.

Glushinskite, a dihydrate of magnesium oxalate, occurs at the lichen/rock interface on serpentinite colonized by *Lecanora atra* at Mill of Johnston, near Insch in northeast Scotland. It is found in a creamy white layer intermingled with the hyphae of the lichen fungus. It consists of crystals mainly 2 to 5 μm in size showing distorted pyramidal shape often with curved and striated faces.

Glushinskite was named in 1960 by E. I. Nefedov (M.A. 16–555) but has been regarded as a doubtful species and does not appear in some recent lists of minerals. X-ray, IR, and chemical data are reported for the material here described. The X-ray powder diffraction pattern shows excellent agreement with a pattern of the $\beta$ form of magnesium oxalate dihydrate indexed on a monoclinic lattice, with $a = 12.675$, $b = 5.406$, $c = 9.984$Å, $\beta = 129.45°$, space group *C2/c*. The strongest lines of the powder pattern are: 4.89(100)(200), 3.179(70)($40\bar{2}$), 2.379(50)(202), 2.039(60)($60\bar{2}$). The IR absorption of the natural material also matches that of $\beta$–$MgC_2O_4 \cdot 2H_2O$ in every detail. There seems to remain no doubt that glushinskite is a valid species. **A.P.**

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