

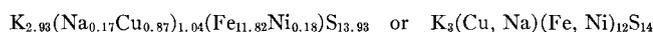
## NEW MINERAL NAMES

M. FLEISCHER

## Djerfisherite

L. H. FUCHS, Djerfisherite, alkali copper-iron sulfide: a mineral from enstatite chondrites. *Science* **153**, 166-167 (1966).

Electron probe analyses were made on 12 grains by Norbert Stalice and Charles Knowles; the average gave Fe 50.7, Cu 4.2, Ni 0.8, K 8.7, Na 0.3, S 33.8, Cl 1.0, sum 99.5%. If Cl is removed as FeCl<sub>2</sub> (Although no lawrencite was noted), this corresponds to



X-ray powder data (23 lines) are given and indexed on a cubic cell with  $a$   $10.34 \pm 0.01$  Å. The strongest lines are 1.828 (10)(440), 2.985 (7)(222), 2.372 (6)(331), 10.34 (5)(100), 5.97 (5)(111), 3.118 (5)(311).

The mineral occurs in the Kota Kota and St. Marks enstatite chondrites; it is the mineral C of Ramdohr (*Jour. Geophys. Res.*, **68**, 2011-2036 (1963)) observed in St. Marks and Pena Blanca Springs enstatite achondrite. Color khaki olive drab, luster submetallic, isotropic. Associated minerals include nickel-iron, troilite, schreibersite, clinoenstatite, tridymite, cristobalite, daubreelite, roedderite (description in press) and alabandite. Grains are 0.02-0.4 mm in diameter.

The name is for D. Jerome Fisher, Univ. of Chicago. The mineral was approved before publication by the Commission on New Minerals, IMA.

## Söhngeite

H. STRUNZ, Söhngeit, Ga(OH)<sub>3</sub>, ein neues Mineral. *Naturwissenschaften* **52**, 493 (1965).

Microchemical analysis on 93 mg gave Ga<sub>2</sub>O<sub>3</sub> 66.8, Al<sub>2</sub>O<sub>3</sub> 4.7, Fe<sub>2</sub>O<sub>3</sub> 2.3, SiO<sub>2</sub> 1.8, H<sub>2</sub>O<sup>-</sup> 4.2, H<sub>2</sub>O<sup>+</sup> 19.6, sum 99.4%, corresponding to Ga(OH)<sub>3</sub>. Indexed x-ray powder data show the mineral to be cubic, probable space group  $T_h^5-Im\bar{3}$ , with  $a$  7.47 Å,  $Z=8$ . It is probably isotopic with dzhaldite, In(OH)<sub>3</sub>. The strongest x-ray lines are 3.74 (10)(200), 1.669 (7)(420), 2.63 (6)(220), 1.525 (6)(422), 1.867 (4)(400).

The mineral occurs as light brown crystalline aggregates up to 5 mm in size on corroded germanite containing gallite, at the Tsumeb mine, S. W. Africa. G 3.84 (measured), 3.847 (calc. from x-ray data). H 4-4½. Isotropic,  $n$  1.736.

The name is for G. Söhnge, chief geologist of the Tsumeb Corp. The mineral was approved before publication by the Commission on New Minerals and Mineral Names, IMA.

## Demesmaekerite

F. CESBRON, B. BACHET AND R. OOSTERBOSCH, La demesmaekerite, sélénite hydratée d'uranium, cuivre, et plomb. *Bull. Soc. Franc. Mineral.* **88**, 422-425 (1965).

Chemical analysis on 105 mg by M. Barbelet gave SeO<sub>2</sub> 30.9, UO<sub>3</sub> 27.6, PbO 19.4, CuO 18.2, H<sub>2</sub>O 4.2, sum 100.3%, giving PbO:CuO:UO<sub>3</sub>:SeO<sub>2</sub>:H<sub>2</sub>O=1.87:4.93:2.08:6:5.02, or Pb<sub>2</sub>Cu<sub>5</sub>(UO<sub>2</sub>)<sub>2</sub>(SeO<sub>3</sub>)<sub>6</sub>(OH)<sub>6</sub>·2H<sub>2</sub>O. Tests for Se<sup>6+</sup> were negative.

Crystals are triclinic, elongated [100] and flattened (100). Dominant faces are {100} and {010}; ten other forms were noted. Weissenberg and rotation photographs show it to be triclinic,  $P$  1 or  $P$   $\bar{1}$ ,  $a$   $11.90 \pm 0.03$ ,  $b$   $10.02 \pm 0.03$ ,  $c$   $5.63 \pm 0.02$  Å,  $90^\circ 11'$ ,  $\beta$   $100^\circ 01'$ ,  $\gamma$   $91^\circ 49'$  (angles from goniometric data),  $Z=1$ . An indexed x-ray pattern (44 lines) shows strongest lines 2.97 (vvs) (301), 5.42 (vs) (10 $\bar{1}$ ), 5.89 (s) (200), 3.34 (s) (221).

Color bottle-green when fresh, turning somewhat brownish on dehydration. No cleavage

observed. H 3-4, G  $5.28 \pm 0.04$  (measured), 5.45 (calc. from  $x$ -rays). Optically biaxial, (+),  $ns \alpha' 1.835 \pm 0.005$ ,  $\gamma' 1.910 \pm 0.005$ ,  $2V$  not given.

The mineral occurs in the lower part of the oxidation zone of the Cu-Co deposit of Musonoi, near Kolwezi, Katanga associated with cuprosklodowskite, kasolite, malachite, guilleminite, chalcocite and selenian digenite.

The name is for M. G. Demesmaeker, director of the geological department, Union Minière du Haut Katanga. The mineral was approved before publication by the Commission on New Minerals and Mineral Names, IMA.

#### Briartite

J. FRANCOU, J. MOREAU, R. OTTENBURGS AND C. LEVY, La briartite,  $Cu_2(Fe, Zn)GeS_4$ , une nouvelle espèce minérale. *Bull. Soc. Franc. Mineral.* **88**, 432-437 (1965).

Electron microprobe analyses were made of 3 samples from Kipushi, Katanga (nos. 1-3) and from Tsumeb, S. W. Africa (no. 4): (weight percent)

	1	2	3	4
Cu	32.8	32.0	33.1	32.9
Fe	9.2	5.1	9.5	2.6
Zn	7.1	10.8	6.9	12.2
Ge	16.9	14.6	16.0	13.7
Ga	tr.	1.0	—	2.2
Sn	—	—	0.5	—
S	34.2	34.8	32.4	36.1
Total	100.2	98.3	98.4	99.7

Present in traces: As in 1 and 3; Mn in 1; Co in 3.

These yield ratios:

	Cu	Fe+Zn	Ge+Ga	S
No. 1	1.98	1.04	0.89	4.09
2	1.95	.98	.82	4.25
3	2.04	1.04	.88	4.04
4	1.97	.91	.83	4.29

It is thus the germanium analogue of stannite.

Indexed  $x$ -ray powder data are given (16 lines); the pattern resembles those of chalcopyrite and stannite. The strongest lines are 3.06 (vs)(112), 1.888 (m)(220), 1.871 (m)(024), 1.608 (m)(132), 1.591 (m)(116). These are indexed on a tetragonal cell, with  $a 5.32 \pm 0.01$ ,  $c 10.51 \pm 0.01$  Å.

Gray to gray-blue. Reflecting power, given at 12 wave lengths, is 24.2 at 4200  $m\mu$ , increasing to a maximum of 27.6 at 5400  $m\mu$ , and decreasing to 26.0 at 6400  $m\mu$ . Weakly anisotropic. Commonly shows polysynthetic twinning. Polishes well, polishing hardness same as for chalcopyrite.

The mineral occurs at the Prince Leopold Mine, Kipushi, Katanga, and at Tsumeb, in size up to 1-2 mm, mostly 0.1-0.3 mm, as inclusions in chalcopyrite, tennantite, renierite and sphalerite.

The name is for Gaston Briart, who studied the Kipushi deposit. The mineral was approved in advance of publication by the Commission on New Minerals and Mineral Names, IMA.

**Sakhaite**

I. V. OSTROVSKAYA, N. N. PERTSEV AND I. B. NIKITINA, Sakhaite, a new carbonate-borate of calcium and magnesium. *Zapiski Vses. Mineralog. Obshch.* **95**, 193-202 (1966) (in Russian).

Analyses were made by I.B.N. on material purified by magnetic separation and with bromoform and by hand picking under the binoculars. These gave CO<sub>2</sub> 14.33, 14.87; B<sub>2</sub>O<sub>3</sub> 17.65, 18.07; SiO<sub>2</sub> 0.25, 0.25; Al<sub>2</sub>O<sub>3</sub> 0.24, 0.25; Fe<sub>2</sub>O<sub>3</sub> none, FeO 0.31, 0.33; MgO 12.54, 12.35; MnO n.d., 0.05; CaO 50.18, 49.55; Na<sub>2</sub>O n.d., 0.04; K<sub>2</sub>O n.d., 0.03, H<sub>2</sub>O<sup>-</sup> none, H<sub>2</sub>O<sup>+</sup> 2.75, 2.52; Cl 2.63, 2.73; F not found, n.d., sum 100.88, 101.04—(O=Cl<sub>2</sub>) 0.58, 0.62, 100.30, 100.42%. These correspond to the formula



The mineral is readily soluble in acids, even acetic acid. DTA and dehydration curves are given; the former shows a double endothermic peak in the interval 670°-870°, corresponding to the loss of CO<sub>2</sub>; dehydration occurs in the interval 340-450°. The infrared absorption spectrum indicates the presence of BO<sub>3</sub> groups, but not of tetrahedral BO<sub>4</sub>-groups; the presence of strong hydrogen bonding is also indicated.

X-ray powder data indicate cubic symmetry with possible space groups *Fm3m*, *F43*, *F43m*, *Fm3*, or *F23*.  $a = 14.64 \pm 0.01 \text{ \AA}$ ,  $Z = 4$ . No piezo-effect was found. The powder diagram is similar to that of harkeite; strongest lines were 2.58 (100)(440), 2.108 (56)(444), 5.16 (22)(220), 1.827 (21)(800).

The mineral is gray to grayish-white, colorless and transparent in fine particles. Luster vitreous to slightly greasy, H 5, G 2.78-2.83. Isotropic with  $n$  1.641<sub>3</sub>, 1.638<sub>6</sub> (measured on a prism on the goniometer). No cleavage observed.

The mineral occurs in several areas separated by 25 km of magnesian skarn at the contact of a Mesozoic granitic massif with Middle and Lower Paleozoic dolomites in Siberia. Sakhaite occurs in lens-like bodies formed by the partial or complete replacement of kotoite marbles. Associated minerals are relict kotoite, clinohumite, forsterite, suanite and spinel, and later ludwigite, szaibelyite and sphalerite. Alteration products of sakhaite include szaibelzite, calcite, and borcarite (*Am. Mineral.* **50**, 2097 (1965)).

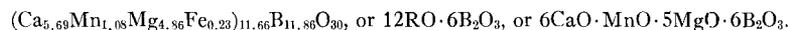
The name means Siberia in Yakutian.

The name was approved before publication by the Commission on New Minerals and Mineral Names, IMA.

**Kurchatovite**

S. V. MALINKO, A. E. LISITSYN, K. A. DOROFEEVA, I. V. OSTRAVSKAYA AND D. P. SHASHKIN, Kurchatovite, a new mineral. *Zapiski Vses. Mineralog. Obshch.* **95**, 203-209 (1966) (in Russian).

Analysis of a sample containing small amounts of calcite, szaibelyite, chlorite, and svabite gave B<sub>2</sub>O<sub>3</sub> 38.22, MgO 19.70, FeO 1.48, MnO 6.84, ZnO 0.28, CaO 30.23, SiO<sub>2</sub> 0.49, Al<sub>2</sub>O<sub>3</sub> 0.65, Fe<sub>2</sub>O<sub>3</sub>, TiO<sub>2</sub> none, As<sub>2</sub>O<sub>3</sub> 0.31, CO<sub>2</sub> 1.60, H<sub>2</sub>O<sup>-</sup> none, H<sub>2</sub>O<sup>+</sup> 0.66, sum 100.46%. After deducting impurities, this corresponds to



Spectrographic analysis showed also Cu, Bi, and Ti 0.001-0.003%. The mineral is insoluble in water, slowly soluble when heated in HCl. The DTA showed a weak endothermic reaction at 765° (due to calcite ?) and a sharp endothermic effect at 1000° (melting).

Oscillation x-ray study showed that kurchatovite is orthorhombic,  $a$   $11.15 \pm 0.02$ ,  $b$   $36.4 \pm 0.1$ ,  $c$   $5.55 \pm 0.01 \text{ \AA}$ . The strongest lines are 2.78 (10), 1.922 (9), 2.67 (8), 1.232 (8),

2.26 (7), 2.01 (7), 1.633 (6). Infrared absorption study indicated the presence of the  $(B_2O_3)^{4-}$  radical.

The mineral is pale gray with vitreous luster. One perfect cleavage parallel to the elongation. Two imperfect cleavages were noted under the microscope. H 4.5, G 3.02. Luminesces bright violet in long-wave U.V. light. Optically biaxial,  $(-)$ ;  $2V$   $66^\circ$ ,  $ns \alpha$  1.635,  $\beta$  1.681,  $\gamma$  1.698 (all  $\pm 0.001$ ),  $X = b$ ,  $Z = c$ , dispersion slight  $r > v$ .

The mineral occurs in masses in a skarn in Siberia, associated with vesuvianite, garnet, svabite, magnetite and sphalerite. It is replaced by a fine-grained aggregate of szaibelyite, calcite and chlorite.

The name is for the Soviet physicist Igor Vasilevich Kurchatov. The mineral was approved before publication by the Commission on New Minerals and Mineral Names, IMA.

DISCUSSION.—Related in composition, but not in crystallography, to suanite,  $Mg_2B_2O_6$ .

#### Hydroxyl-ascharite

A. P. GRIGORIEV AND I. YA. NEKRASOV, Borates of the high-temperature part of the system  $MgO-B_2O_3-H_2O$ . *Geol. Rudnykh Mestorozhdenii* 1966 (No. 2), 10–32 (in Russian).

A. P. GRIGORIEV, A. A. BROVKIN AND I. YA. NEKRASOV, A new variety of ascharite. *Doklady Akad. Nauk SSSR*. **166**, 937–940 (1966) (in Russian).

In hydrothermal experiments at  $250-450^\circ$  (first paper), a borate corresponding to szaibelyite (ascharite) was formed, but the composition corresponded to  $Mg_2B_2O_6 \cdot (1+n)H_2O$ , with  $n$  ranging from 0 (szaibelyite) to 0.3. Those with high  $n$  showed an exothermic effect (but the same large endothermic effect) not shown by szaibelyite. The  $x$ -ray patterns also differ slightly, but the unit cell is identical with that of szaibelyite. The material with higher water content is also more easily soluble in acids and has lower specific gravity.

In the second paper, the formula is given as  $Mg_2B_{2-x}H_{3x}O_6 \cdot H_2O$  (Substitution of B by 3H). Natural material from veinlets cutting ludwigite-magnetite in a skarn deposit, Siberia, analyzed by V. V. Gamyagina, contained  $B_2O_3$  35.60,  $MgO$  45.36,  $FeO$  3.52,  $MnO$  0.06,  $CaO$  0.40,  $CO_2$  1.13,  $SiO_2$  0.26,  $H_2O$  14.37, sum 100.70%. After deducting  $SiO_2$  and carbonate, this gives



It had  $G$  2.66,  $ns \alpha$  1.562,  $\gamma$  (both  $\pm 0.002$ ).

DISCUSSION.—The substitution proposed is highly improbable and the evidence is insufficient to warrant the new name.

#### Saukovite

V. I. VASILIEV, Saukovite, a new zinc-cadmium-containing mercury sulfide. *Doklady Akad. Nauk SSSR*. **168**, 182–185 (1966) (in Russian).

Analysis by V. I. Bogdanova and L. A. Nepeina gave S 15.63, Hg 67.45, Cd 11.72, Zn 3.10, Fe (present as hematite) 0.2, sum 98.10% (small amounts of quartz and calcite were present). Spectrographic analysis showed also Mn and Cu (0.00x–0.0x%). The formula is  $(Hg_{0.69}Cd_{0.21}Zn_{0.10})_{1.00}S$ .

$X$ -ray study showed it to be cubic,  $a$   $5.799 \pm 0.001 \text{ \AA}$ . The strongest lines are 3.354 (10)(111), 2.048 (10)(220), 1.754 (10)(311), 1.183 (8)(422), 1.116 (8)(511, 333), 0.980 (8)(531).

Black to grayish-black, streak dense black. Luster metallic to adamantine on fresh fracture.  $G$   $6.72 \pm 0.09$  (measured), 6.83 (calculated from  $x$ -ray data). Microhardness 149.4–161.5, average 155.7 kg/sq mm, much harder than metacinnabar. Brittle. Optically isotropic, reflecting power low ( $R = 25-26.1\%$  at  $522-658m\mu$ ).

The mineral occurs with cinnabar and hematite in aggregates of grains from 0.0n to 1.5 mm. No crystals were found. The mineral occurs in mercury ores of the Uland area, Kurai ore zone, Gornyi Altai. It is considered to be an intermediate member of the series HgS (metacinnabar) — CdS (hawleyite).

The name is for the late A. A. Saukov, Russian geochemist.

DISCUSSION.—The name was rejected BEFORE publication by the Commission on New Minerals and Mineral Names, IMA as an unnecessary name for cadmian metacinnabar. I agree.

#### Unnamed Ca analogue of Palermoite

O. VON KNORRING, Notes on some pegmatite minerals from Rwanda. *Rep. Rwandaise, Ministere Econ., Bull. Serv. Geol.* **2**, 11–14 (1965)

Analysis by O.v.K. gave P<sub>2</sub>O<sub>5</sub> 45.34, Al<sub>2</sub>O<sub>3</sub> 33.42, FeO 0.98, MgO tr., MnO 0.76, CaO 8.36, SrO, BaO tr., Na<sub>2</sub>O 0.34, K<sub>2</sub>O tr., Li<sub>2</sub>O 4.21, H<sub>2</sub>O<sup>-</sup> 0.07, H<sub>2</sub>O<sup>+</sup> 5.36, F 1.68, insol. 0.27, sum 100.79—(O=F<sub>2</sub>) 0.71, 100.08%. This corresponds to (Li,Na)<sub>2</sub>(Ca,Mn)Al<sub>4</sub>(PO<sub>4</sub>)<sub>4</sub>·(OH)<sub>4</sub>, the Ca analogue of palermoite.

White to faint pink, resembling amblygonite, although with much less pronounced cleavage. G 3.10. The strongest x-ray lines are 3.09 vs, 3.04 vs, 2.87 s, 2.59 s, 2.42 s.

The mineral occurs in the Buranga pegmatite, Rwanda, in association with muscovite, augelite, brazilianite and lazulite, and lesser amounts of crandallite and apatite.

#### NEW DATA

##### Crednerite

C. GAUDEFROY, J. DIETRICH, F. PERMINGEAT AND P. PICOT, La crednerite, sa composition chimique et sa signification genetique. *Bull. Soc. Franc Mineral.* **89**, 80–88 (1966).

A new analysis from Idikel, Morocco, by M. Barbelet gave CuO 48.95, MnO 49.70, O<sub>2</sub> 0.94, sum 99.59%, Cu/Mn=0.88. Electron probe analyses by C. Bahezre and R. Giraud gave the following:

	2	3	4	5	6
CuO	52.2	53.2 <sup>a</sup>	52.8	52.2	51.7
MnO	48.2	45.1	47.3	48.0	48.2
Cu/Mn	0.97	1.05	1.00	0.97	0.96

<sup>a</sup> Also contains FeO 0.9, BaO 0.4.

2 and 3 are from Idikel; 4 from Tachgagalt, Morocco; 5 from Friedrichsroda, Germany; 6 from Mendip Hills, England.

The analyses indicate the formula of crednerite to be CuMnO<sub>2</sub>.

##### Hydroxyl-bastnaesite

A. S. KIRILLOV, Hydroxyl-bastnaesite, a new mineral variety. *Zapiski Vses. Mineralog, Obshch.* **95**, 51–59 (1966) (in Russian).

N. V. SVYAZHIN, Kishymite as a variety of bastnaesite. *Akad. Nauk SSSR, Ural Filial, Vses. Mineralog, Obshch., Ural Otdel, Trudy Inst. Geol.* **70**, 249–252 (1965) (in Russian).

A preliminary report of the first paper was abstracted in *Am. Mineral.* **50**, 805 (1965). Additional data are spectrographic analysis showing Y<sub>2</sub>O<sub>3</sub> 0.03%, ZrO<sub>2</sub> 0.02%, Pb, Be, and Al traces. The locality is given as the Vuori-yarvi carbonatite, Kola Peninsula.

The second paper gives new data on kishymite, first described in 1860 and long con-

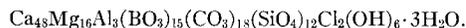
sidered to be a variety of bastnaesite. Analysis by I. P. Alemarin (not stated whether this was on type material) gave: RE<sub>2</sub>O<sub>3</sub> 75.13, MnO 0.01, CaO 0.60, ThO<sub>2</sub> 0.70, CO<sub>2</sub> 19.55, F<sub>2</sub> (given as Fe<sub>2</sub>) 2.24, H<sub>2</sub>O<sup>+</sup> 1.83, SiO<sub>2</sub> 0.97, sum 101.03 - (O=F<sub>2</sub>) 0.94 = 100.09%. H 4-5, G 4.70, uniaxial, (+),  $\omega$  1.710-0.723,  $\epsilon$  1.820. DTA shows an endothermic reaction at 400-590°. The strongest x-ray lines are at 2.89 (7), 3.57 (5), 2.06 (5), 2.03 (5), 1.911 (5). It is concluded that the differences from bastnaesite justify retention of the name kishymite.

DISCUSSION.—From the data, kishymite is an intermediate member of the series fluorbastnaesite-hydroxyl-bastnaesite and it would be better not to resurrect the name.

#### Harkerite

I. V. OSTROVSKAYA, N. N. PERTSEV AND I. B. NIKITINA, Sakhaite, a new carbonate-borate of calcium and magnesium. *Zapiski Vses. Mineralog. Obslch.* **95**, 193-202 (1966) (in Russian).

In connection with the study of the new carbonate-borate sakhaite (see above), harkerite from the type locality (*Am. Mineral.* **37**, 358 (1952)), was restudied. Analysis by I. B. N. of purified material gave SiO<sub>2</sub> 12.74, CO<sub>2</sub> 13.90, B<sub>2</sub>O<sub>3</sub> 9.20, Al<sub>2</sub>O<sub>3</sub> 2.51, FeO 0.87, MgO 11.32, CaO 46.31, H<sub>2</sub>O<sup>+</sup> 1.92, Cl 1.26, sum 100.13 (-O=Cl<sub>2</sub>) 0.27, 99.86%. This gives the formula:



G  $2.94 \pm 0.01$ ,  $n$   $0.653 \pm 0.001$ . Infrared spectra indicate the presence of (BO<sub>3</sub>), (CO<sub>3</sub>), and (SiO<sub>4</sub>) groups.

#### CORRECTION

##### Yaroslavite

The abstracted description of yaroslavite (*Am. Mineral.* **51**, 1546, 1966) contain an error. Instead of, "Optically biaxial negative, 2V = +74°" this should be, "Optically biaxial positive, 2V = +74°, elongation negative."