

NEW MINERAL NAMES

Chudobaite

H. STRUNZ. Chudobait, ein neues Mineral von Tsumeb. *Neues Jahrb. Mineral., Monatsh.* 1960, No. 1, 1-7.

This was listed as Mineral R in a preliminary note (*Am. Mineral.*, 44, 1323 (1959)) Analysis by W. Schneider gave K_2O 2.0, Na_2O 5.0, CaO 1.0, MgO 12.0, ZnO 11.5, CuO 0.2, MnO 2.0, Co none, As_2O_5 49.7, H_2O^+ 17.0, sum 100.4%. This corresponds to $(Na, K, Ca)(Mg, Zn, Mn)_2 H(AsO_4)_2 \cdot 4H_2O$. Water is lost at 140° .

The mineral occurs at the 1,000 m. level of the Tsumeb Mine, SW Africa, in the "second oxidation zone," and is associated with conichalcite, cuproadamite, and zincian olivenite. Crystals up to 0.5 cm. in size show the forms $a\{100\}$, $b\{010\}$, $c\{001\}$ dominant, also $m\{110\}$, $n\{\bar{1}20\}$, $L\{\bar{1}80\}$, $d\{101\}$, and $y\{\bar{1}84\}$, and perhaps $x\{186\}$. An angle table is given. Triclinic, $a:b:c=0.6830:1:0.5827$, $\alpha 115^\circ 10'$, $\beta 95^\circ 54'$, $\gamma 94^\circ 06'$. Cleavage (010) very good, (100) good. Hardness $2\frac{1}{2}$ -3, G 2.94 measured, 3.0 calcd. Color pink, like kunzite. Optically biaxial, negative, $n_s(Na) \alpha 1.583$, $\beta \sim 1.608$, $\gamma 1.633$, $2V 79^\circ$. Extinction angle $\gamma':C$ on (010) -24° , on (100) 110° . Not fluorescent in UV light.

Rotation photographs gave: triclinic, $P\bar{1}$, a 7.69, b 11.37, c 6.59 Å, $a:b:c$ (x-ray) = 0.676:1:0.580. Unindexed x-ray powder data are given (99 lines); the strongest lines are 10.163 (10), 2.979 (9), 3.440 (8), 3.273 (8), 2.730 (7), 3.859 (5), 3.746 (5), 2.831 (5), 2.637 (5), 2.417 (5), 1.817 (5).

The name is for Karl F. Chudoba, German mineralogist. Pronounced koo-dō-baite.

MICHAEL FLEISCHER

Oregonite

PAUL RAMDOHR AND MARGARET SCHMITT. Oregonit, ein neues Nickel-Eisenarsenid mit metallartigen Eigenschaften. *Neues Jahrb. Mineral., Monatsh* 1959, No. 11-12, 239-247.

The mineral occurs as water-rolled pebbles in Josephine Creek, Oregon; the pebbles have a smooth brown crust. Under the microscope, the mineral is metallic white with high reflectivity, about 65%, in both air and oil. Anisotropism is weak, but visible in air along grain boundaries. Hardness about 5. Associated minerals are an unidentified mineral ("mineral y"), and small amounts of native copper, bornite, chalcopyrite, molybdenite, chromite, and perhaps niccolite. The gangue (about 40% by volume) consists of penninite and serpentine.

X-ray fluorescence analysis (data not given) corresponds to $Ni_{10}Fe_6As_9$ or Ni_2FeAs_2 ; the data indicate that the compound has intermetallic properties. A little Co is present, and traces of Cu. Attempts to synthesize the mineral melts in evacuated silica tubes failed.

From x-ray powder data and a Guinier photograph, oregonite is hexagonal, a_0 6.083 \pm 0.003, c_0 7.130 \pm 0.005 Å, c/a 1.1732, $Z=3$ (Ni_2FeAs_2), G . calcd. 6.92. An indexed x-ray pattern is given; the strongest lines are 2.314 (vs), 2.1195 (vs), 1.991 (s), 1.7885(s), 1.757 (s), 1.739 (s). There is some similarity to the pattern of heazlewoodite, but the latter is rhombohedral.

The name is for the state of Oregon.

E. H. ROOZEBOOM

Matraite (ZnS-3R)

S. KOCH. The associated occurrence of three ZnS modifications in Gyöngyösoroszi. *Acta mineralog. petrog. Univ. Szegediensis*, **11**, 11–22 (1958).

KALMAN SASVARI. ZnS mineral with ZnS-3R crystal structure. *Ibid.*, pp. 23–27.

The deposit contains wurtzite 2H, galena, chalcopyrite, and pyrite, and brownish-yellow pyramidal crystal aggregates which are oriented intergrowths of sphalerite (ZnS-3C) with ZnS-3R (called β' -ZnS). Analysis by Mrs. Eve Klivenyi of the aggregates gave Zn 61.70, Fe 5.10, S 33.22, sum 100.02%. Spectroscopic analysis showed Pb significant traces, Cd traces, Sn weak traces. The ZnS-3R is transparent; some crystals show pronounced anisotropy. The sphalerite present shows polysynthetic spinel-type twins, the aggregates are commonly scepter-shaped. The ZnS-3R has $a_h=3.8$, $c_h=9.4$ Å.

The name is for the locality, the Matra Mountains.

DISCUSSION.—This is the first natural occurrence of a modification first prepared by Buck and Strock, *Am. Mineral.*, **40**, 192–(1955), who showed it to be a new polymorph of ZnS, not merely a member of the multi-layered stacking series of wurtzites. They named it γ =ZnS, which is to be preferred to the β' -ZnS of the present authors.

BRIAN SKINNER

Hydrosodalite

V. I. GERASIMOVSKII, A. I. POLYAKOV, AND L. P. VORONINA. Hydrosodalite, a rock-forming mineral of nepheline syenites of the Lovozero Massif. *Doklady Akad. Nauk S.S.S.R.*, **131**, no. 2, 402–405 (1960) (in Russian).

K. A. VLASOV, M. V. KUZ'MENKO, AND E. M. ES'KOVA. The Lovozero alkaline massif. *Akad. Nauk S.S.S.R., Inst. mineralog., geokhim., i kirstalloghim. redkikh elementov*, **1959**, 272–274. (in Russian)

The first intrusive phase of the Lovozero Massif, Kola Peninsula, consists of poikilitic syenites occurring as xenoliths in the later intrusives. An abundant constituent is an isometric mineral, formerly thought to be sodalite or analcime, commonly replaced by zeolites. Analyses by L. P. Voronina and V. A. Moleva gave, respectively, SiO₂ 32.71, 41.05; Al₂O₃ 26.12, 28.36; Fe₂O₃ 0.64, —; MnO—, 0.05; MgO—, 0.18; CaO 1.48, 0.60; Na₂O 26.67, 19.02; K₂O 0.14, 1.46; Cl 2.10, 0.16; S 1.12, 1.38; H₂O⁺ 4.93 (total H₂O), 5.40; H₂O[–], 1.25; insol. 6.48, —; sum 101.75, 99.55; (O=Cl₂, S) (not given in originals)=1.03, 0.73 =100.72, 98.82%. These correspond, respectively to the formulas Na₄₀Al₆(O,OH)₂₅(O_{1.33}Cl_{0.67}, and 2NaAlSiO₄·H₂O. Soluble in HCl. Dark inclusions of a sulfide (pyrrhotite?) were observed and may account for the S (but the hackmanite variety of sodalite is common in the area—M.F.). The first formula is near that of sodalite, with Cl replaced by OH.

The mineral is gray to dark gray, hardness 5–6, G. about 2.3. Isotropic, n 1.487–1.490. X-ray powder data are given; they agree closely with those of sodalite. The strongest lines are 3.69(10), 3.25 (8), 3.44 (7), 2.63 (6).

The mineral may be of primary origin in these rocks or may be formed by autometasomatic processes. It is also formed as a secondary mineral after nepheline in other rocks.

DISCUSSION.—The name hydrosodalite was used previously by Wyart and Michel-Levy, *Compt. rend.*, **229**, 131–133 (1949) for a synthetic mineral containing OH and CO₃ in place of Cl. Probably to be regarded as a variety of sodalite.

M. F.

Manganosteenstrupine

K. A. VLASOV, M. V. KUZ'MENKO, AND E. M. ES'KOVA, The Lovozero alkaline massif, *Akad. nauk S.S.S.R.* **1959**, 421-422.

Analysis by M. E. Kazakova gave SiO_2 21.36, P_2O_5 0.65, Al_2O_3 0.91, TiO_2 1.49, ZrO_2 1.08, Fe_2O_3 1.99, MgO 0.70, MnO 17.98, ThO_2 11.28, UO_2 0.20, PbO 0.10, Ce_2O_3 9.79, La_2O_3 10.27, Y_2O_3 0.13, CaO 4.66, Na_2O 0.48, K_2O 0.24, H_2O^+ 12.86, H_2O^- 3.58, sum 99.75%, corresponding to (Ce, La, Th, Ca) (Mn) $(\text{SiO}_3)(\text{OH})_2/2\text{H}_2\text{O}$. Spectrographic analysis also shows Sr, Ba, and Be. X-ray spectrographic analysis of the rare earths gave La 41.1, Ce 32.8, Pr 8.6, Nd 16.3, Sm 0.77, Gd 0.14, Dy 0.24%. A D.T.A. curve showed endothermal breaks at 90-200° and an exothermal effect at 850°.

The mineral occurs in aggregates up to 10 cm. in diameter. Color black, opaque, brownish-red in fine fragments. Luster resinous. Streak dark brown. Brittle, fracture conchoidal. Optically isotropic, $n > 1.80$. G. 3.288. H. 5½-6. Amorphous.

The mineral occurs in pegmatites on the north-east slope of Mt. Karnasurt in hackmanite syenites, associated with microcline, natrolite, hackmanite, aegirine, schizolite, and nenadkevichite. It is altered to various hydrous rare earth silicates, including hydrocerite.

M. F.

Hydrocerite

K. A. VLASOV, M. V. KUZ'MENKO, AND E. M. ES'KOVA. The Lovozero alkaline massif. *Akad. Nauk. S.S.S.R.*, **1959**, 427-429 (in Russian).

Analysis by M. E. Kazakova gave SiO_2 22.30, P_2O_5 5.76, BeO 0.30, Al_2O_3 3.66, TiO_2 3.33, ZrO_2 0.49, Nb_2O_5 2.00, Fe_2O_3 6.15, MgO 0.14, CaO 2.83, Ce_2O_3 4.83, La_2O_3 12.33, ThO_2 15.14, H_2O^+ 5.65, H_2O^- 14.14, total 99.95%, corresponding to (La, Ce, Th, Ca) (Al, Fe, Ti, Nb) $(\text{Si}, \text{P})_2\text{O}_7 \cdot 5\text{H}_2\text{O}$. Spectrographic analysis also showed Zn, As, Mn, Pb, and Cu.

Color yellow to honey-yellow, luster vitreous. Isotropic with n 1.580. Brittle. Amorphous to x-rays; after being heated gives a powder pattern close to that of cerite. Strongest lines 3.03 (10), 2.91 (10), 1.87 (8), 2.20 (5), 2.16 (5), 1.97 (5), 1.75 (5), 1.335 (5), 1.275 (5), 1.235 (5).

The mineral occurs as pseudomorphs after manganosteenstrupine in natrolite-albite pegmatitic veins of Mt. Karnasurt, associated with neptunite in hackmanite-bearing pokilitic syenites.

DISCUSSION. The composition is very close to that of karnasurtite.

M. F.

Chukhrovite

L. P. ERMILOVA, V. A. MOLEVA, AND R. F. KLEVTSOVA. Chukhrovite, a new mineral from Central Kazakhstan. *Zapiski Vses. Mineralog. Obshchestva*, **89**, no. 1, 15-25 (1960) (in Russian)

Analyses by V.A.M. of samples from depths of 50 m. and 2 m., respectively, gave Al_2O_3 10.56, 10.70; (Y, Ce) $_2\text{O}_2$ 18.00, 18.12; MgO 0.40, 0.44; (Na, K) $_2\text{O}$ trace, —; ThO_2 trace, —; SO_3 10.38, 10.30; F 28.32, 27.88; H_2O^- 12.00, 12.20; H_2O^+ 10.80, 11.00; insol. trace, trace, sum 111.98, 111.64, —(O=F₂) 11.89, 11.71 = 100.09, 99.93%. Sp. gr. 2.353, 2.40. These correspond to the formulas $\text{Ca}_{3.03}\text{Al}_{1.62}(\text{Y}, \text{Ce})_{0.95}(\text{SO}_4)_{1.00}(\text{F}_{11.46}\text{OH}_{0.40}) \cdot 9.55\text{H}_2\text{O}$ and $\text{Ca}_{2.97}\text{Al}_{1.64}(\text{Y}, \text{Ce})_{1.02}(\text{SO}_4)_{1.00}(\text{F}_{11.37}\text{OH}_{0.56}) \cdot 9.72\text{H}_2\text{O}$, which may be $\text{Ca}_6\text{Al}_3(\text{Y}, \text{Ce})_2(\text{SO}_4)_2\text{F}_{23} \cdot 20\text{H}_2\text{O}$, or more probably $\text{Ca}_3\text{Al}_2(\text{Y}, \text{Ce})(\text{SO}_4)\text{F}_{13} \cdot 10\text{H}_2\text{O}$. Spectrographic analysis also showed Pb, Fe, Si (very weak), Mo, Mn, Cu, Ag, Ti, Sr (traces).

The proportions of the rare earths were determined by the x-ray spectrographic method by R. L. Barinskii who obtained (total rare earth oxides 18.00%) La₂O₃ 5, Ce₂O₃ 15, Pr₂O₃ 4, Nd₂O₃ 12, Sm₂O₃ 7.2, Eu₂O₃ 0.2, Gd₂O₃ 6.5, Tb₂O₃ 0.9, Dy₂O₃ 4.1, Ho₂O₃ 0.8, Er₂O₃ 1.7, Tu₂O₃ 0.3, Yb₂O₃ 1.2, Lu₂O₃ 0.2, Y₂O₃ 0.2, Y₂O₃ (by diff.) 40.9%.

The D.T.A. curve shows a sharp endothermal break at 280°, ascribed to loss of water of crystallization, a smaller one at 780°, and an exothermal break at 480°. The loss of weight curve shows 26.7% loss at 280°, the loss above the water content is ascribed to loss of HF. Above 280° there is a continuous gradual loss in weight (SiF₄?) up to 55.6% at 1000°. Material heated to 550° is isotropic, *n* 1.540, and gives sharp x-ray pattern, not corresponding to any known compound. Before the blowpipe, swells and fuses easily to a creamy-white enamel. Readily dissolved by dilute HCl and H₂SO₄.

The mineral occurs in crystals ranging from less than 0.5 mm. to 1 cm. in size, showing *a* (100) and *o* (111). Colorless and transparent, or white porcelain-like, sometimes with a lilac tint. The white material contains many liquid inclusions. Luster vitreous when transparent, weakly pearly when white, greasy on fracture surfaces. Cleavage octahedral, indistinct; fracture irregular. Brittle. Hardness about 3. G 2.274–2.398, av. 2.353. *n* (Na) 1.440–1.42; the mineral is anomalously birefringent.

X-ray study (by R.F.K.) shows the mineral to be cubic, *a* 16.80 ± 0.005 Å. Indexed powder data are given (37 lines); the strongest lines are 2.193 (10), 1.834 (10), 3.261 (9), 2.572 (9), 2.843 (8), 1.684 (8), 1.512 (8), 1.460 (8), 1.417 (8), 1.279 (8), 4.256 (7), 2.664 (7), 1.616 (7).

The mineral occurs in the secondary oxidation zone of the Kara-Oba molybdenum-tungsten deposit, Central Kazakhstan, associated with garksutite, creedite, halloysite, supergene fluorite, anglesite, and hydrous Fe oxides. Oxidation of sulfides such as pyrite have dissolved primary fluorite of the deposit which contains up to 3% rare earths.

The mineral is named for the Russian mineralogist, F. Kh. Chukhrov, who has published many papers on minerals of the zone of oxidation. It is probably the same as the unnamed mineral from Greenland described by Bøggild, *Z. Krist.*, **51**, 608 (1913), *Medd. on Grønland*, **149**, no. 3, 97 (1953) without any analysis.

Presumably to be classed with creedite.

M. F.

Karnasurtite (Kozhanovite)

M. V. KUZ'MENKO AND S. I. KOZHANOV. The new mineral karnasurtite. *Trudy inst. mineral., geokhim. i kristallogchim. redkikh elementov*, **2**, 95–98 (1959) (in Russian).

K. A. VLASOV, M. V. KUZ'MENKO AND E. M. ES'KOVA. The Lovozero alkaline massif. *Akad. Nauk S.S.S.R.*, **1959**, 423–425 (in Russian).

The mineral occurs as individual grains up to 1 cm. in diameter or as accumulations of platy crystals up to 10×6×2 cm. One good cleavage. Color honey-yellow when fresh to pale yellow when altered. Streak yellowish. Luster greasy. Hardness 2, brittle. G. 2.89–2.95. In section pale yellow, no pleochroism. Optically uniaxial, negative, *n_s*, O 1.617, E 1.595. Sometimes anomalously slightly biaxial. Extinction parallel.

The four analyses given lead to the formula (La, Ce, Th) (Ti, Nb) (Al, Fe) (Si, P)₂O₇ (OH)₄·3H₂O. Spectrographic analysis showed also Zn (strong lines), As, Cu, and Ga (very weak lines). A dehydration curve showed that half the water is lost up to 150°, the rest gradually to 650°.

Hexagonal (?). The mineral is amorphous to x-rays; after being heated at 900°, it gives a pattern close to that of huttonite. The strongest lines are 3.10 (7), 2.88 (7), 3.29 (6), 3.49 (5), 1.723 (5).

The mineral occurs in a zoned pegmatitic stock in the intermediate replacement zone consisting mainly of microcline. It is associated with schizolite, natrolite, and epididymite, and is replaced by polyolithionite.

Analyses of Karnasurtite

	1	2	3	4
SiO ₂	22.33	20.47	30.27	24.91
P ₂ O ₅	5.55	3.29	2.42	6.81
BeO	0.35	—	—	—
Al ₂ O ₃	6.40	7.46	8.43	5.52
Fe ₂ O ₃	3.50	1.10	0.75	1.07
MgO	0.45	0.91	3.41	0.60
TiO ₂	10.73	12.14	6.65	12.33
ZrO ₂	none	—	—	1.20
Nb ₂ O ₅	6.25	8.20	5.00	2.20
ThO ₂	5.40	6.22	2.82	6.04
Ce ₂ O ₃	6.55	17.58	5.15	8.11
La ₂ O ₃	9.82	—	10.63	8.55
CaO	2.23	1.66	1.73	3.20
BaO	—	0.68	—	—
Na ₂ O	0.50	0.91	0.97	—
K ₂ O	1.57	0.76	1.05	—
H ₂ O ⁺	—	7.22	8.68	7.29
H ₂ O ⁻	17.90	10.84	10.67	12.29
	—	0.91	—	—
F	—	—	—	—
	99.53 ^a	100.35	98.63	100.12
	—	—0.38	—	—
—(O=F ₂)	—	—	—	—
	—	99.97 ^b	—	—
G.	2.89	—	—	—

^a Given as 99.43; ^b given as 99.47; both in the second reference. Analyses 1, 3, and 4 by M. E. Kazakova, 2 by K. P. Sokova, 1–3 from Karnasurt Mt., 4 from Punkaruai Mt.

The name is for the locality. It had previously been called kozhanovite without a description (see *Am. Mineral.*, **42**, 119–120 (1957)).

DISCUSSION.—Presumably related to huttonite, cheralite, and monazite.

M. F.

Sakharovite

IVAN KOSTOV. Bismuth jamesonite or sakharovite—a new mineral species. *Trudy Mineralog. Muzeya Akad. Nauk. S.S.S.R.*, **10**, 148–149 (1959) (in Russian).

A mineral called bismuth jamesonite was described by M. S. Sakharova in 1955 (*Am. Mineral.*, **41**, p. 814 (1956)), with formula Pb(Sb, Bi)₂S₄, Sb:Bi=1:1. No new data are given; Kostov considers the mineral to be a new species and suggests the name sakharovite.

M. F.

NEW DATA

Erikite

K. A. VLASOV, M. V. KUZ'MENKO AND E. M. ES'KOVA. The Lovozero alkaline massif. *Akad. Nauk. S.S.S.R.* **1959**, 425-427.

Material called erikite had been described from Mt. Punkaruav by Gerasimovskii in 1937 (*Mineral. Abs.*, **8**, 222 (1942)). A new analysis by M. E. Kazakova for erikite from Mr. Karnasurt gave SiO₂ 10.82, P₂O₅ 20.06, BeO 0.50, TiO₂ 0.25, ZrO₂ 0.43, Fe₂O₃ 1.80, Al₂O₃ 0.66, MnO 0.50, MgO 0.20, ThO₂ 1.15, Ce₂O₃ 21.06, La₂O₃ 29.24, CaO 1.90, BaO 0.76, SrO 0.60, Na₂O 1.36, K₂O 0.38, H₂O⁺ 4.70, H₂O⁻ 2.72, sum 99.09%, corresponding to (La, Ce, Ca, etc) [(P, Si)O₄]·H₂O.

DISCUSSION.—The type erikite from Greenland has been discredited (*Am. Mineral.* **44**, 1329 (1959)); should the name be transferred to the Kola material? In any case, further optical and x-ray study is needed. Perhaps related to rhabdophane?

Oryzite or Orizite

G. COCCO AND C. GARAVELLI. *Atti soc. Toscana Sci. nat., Mem.* **65**, 262-283 (1958) (Pub. 1959).

Oryzite (Grattarola, 1899; *Dana's System, 6th Ed.*, 576) has been supposed to be heulandite; the old analyses are similar to those of heulandite. X-ray powder data (28 lines) are given; they are considered to be different from those of heulandite. The strongest lines (2 samples) are 8.92 (100, 100); 3.21 (36, 42); 3.45 (30); 3.44 (27); 1.778 (20); 1.777 (12); 3.88 (17); 3.87 (16); 2.92 (16, 12); 4.92 (16, 12); 6.92 (10); 6.93 (14).

Further study will be made.

M. F.

DISCREDITED MINERALS

Gearskite (=Gearsutite)

I. F. GRIGOR'EV AND E. I. DOLOMANOVA. Gearskite. *Trudy Mineralog. Muzeya Akad. Nauk S.S.S.R.*, **10**, 185-186 (1959) (in Russian).

Three new analyses of gearskite, described by G. and D. in 1951 (*Am. Mineral.*, **41**, 371 (1956)), show that the original analysis was in error and that gearskite is gearsutite. It is in fine fibrous aggregates with birefringence not above 0.009; mean *n* 1.458.

M. F.

Plinthite (=mixture)

JESSIE M. SWEET. What is plinthite? *Mineralog. Mag.*, **32**, 455-458 (1960).

Plinthite (Thomson, 1836) *Dana's System, 6th Ed.*, p. 695) is shown to be a mixture of kaolinite and montmorillonite colored by hematite. Other similar red material contains various zeolites.

M. F.

G. COCCO AND C. GARAVELLI. *Atti soc. Toscana sci. nat., Mem.*, **65**, 262-283 (1958) (Pub. 1959).

This paper gives the results of re-examination of type specimens of several zeolites from San Piero, Elba.

Pseudonatrolite (=Mordenite)

Pseudonatrolite (Grattarola, 1879; *Dana's System, 6th Ed.*, 573) is shown by x-ray study to be mordenite.

Foresite (=mixture Stilbite + Cookeite)

Foresite (Rath, 1874; Dana's System, 6th Ed., p. 585) is shown by x-ray and optical study to be a mixture of stilbite and cookeite.

Hydrocastorite (=mixture)

Hydrocastorite (Grattarola, 1876; Dana's System, 6th Ed., p. 312) was re-examined optically and by x-ray study. Samples were found to be heterogeneous mixtures of stilbite, petalite, mica, and quartz; one was montmorillonite.

M. F.

Glottalite (=Chabazite)

M. H. HEY. Glottalite is chabazite. *Mineralog. Mag.*, **32**, 421-422 (1960).

Glottalite (Thomson, 1836; Dana's System, 6th Ed., p. 599) was found by x-ray study to be chabazite. The analysis, except for H₂O, is evidently erroneous.

M. F.