NEW MINERAL NAMES

Chudobaite


This was listed as Mineral R in a preliminary note (Am. Mineral., 44, 1323 (1959)). Analysis by W. Schneider gave K₂O 2.0, Na₂O 5.0, CaO 1.0, MgO 12.0, ZnO 11.5, CuO 0.2, MnO 2.0, Co none, As₂O₅ 49.7, H₂O+ 17.0, sum 100.4%. This corresponds to (Na, K, Ca) (Mg, Zn, Mn)₂ H (AsO₄)₂·4H₂O. 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 n [110], n [120], L [180], d [101], and perhaps x [186]. An angle table is given. Triclinic, a/b:c = 0.683:1:0.582, α 115° 10’, β 95° 54’, γ 94° 06’. Cleavage (010) very good, (100) good. Hardness 2½–3, G 2.94 measured, 3.0 calcld. Color pink, like kunzite. Optically biaxial, negative, ws (Na) α 1.583, β~1.608, γ 1.633, 2V 79°. Extinction angle γ’:C on (010) –24°, on (100) 110°. Not fluorescent in U V light.

Rotation photographs gave: triclinic, P₁, 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), 2.479 (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-do-baite.

MICHAEL FLEISCHER

Oregonite


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. Anisotropy 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 Ni₁₀Fe₄As₉ or Ni₁₂Fe₅As₁₀; 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, a₀ 6.083 ± 0.003, c₀ 7.130 ± 0.005 Å, c/a 1.1732, Z=3 (Ni₃Fe₄As₉), G. calcld. 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. ROOSENBOOM
NEW MINERAL NAMES

Matraite (ZnS-3R)


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 \( \beta' \)-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 \( a_b = 3.8, c_b = 9.4 \) 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, 192-195 (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 7:ZnS, which is to be preferred to the \( \beta' \)-ZnS of the present authors.

Brian Skinner

Hydrosodalite


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 analake, commonly replaced by zeolites. Analyses by L. P. Voronina and V. A. Moleva gave, respectively, SiO\(_2\) 32.71, 41.05; Al\(_2\)O\(_3\) 26.12, 28.36; Fe\(_2\)O\(_3\) 0.64, —; MnO —, 0.05; MgO —, 0.18; CaO 1.48, 0.60; Na\(_2\)O 26.67, 19.02; K\(_2\)O 0.14, 1.46; Cl 2.10, 0.16; S 1.12, 1.38; H\(_2\)O\(^+\) 4.93 (total H\(_2\)O) 3.80; H\(_2\)O —, 1.25; insol. 6.48, —; sum 101.75, 99.55; \( O=Cl_b, S \) (not given in originals) = 1.03, 0.73 = 100.72, 98.82\%. These correspond, respectively to the formulas Na\(_2\)Al\(_3\)(O,H\(_2\)O)\(_6\)(O\(_3\)Cl\(_2\)O,\(_6\) and 2NaAl\(_2\)O\(_3\)-H\(_2\)O. 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 autometamorphic 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 CO\(_3\) in place of Cl. Probably to be regarded as a variety of sodalite.

M. F.
Manganosteenstrupine


Analysis by M. E. Kazakova gave SiO$_2$ 21.36, P$_2$O$_5$ 0.65, Al$_2$O$_3$ 0.91, TiO$_2$ 1.49, ZrO$_2$ 1.08, Fe$_2$O$_3$ 1.99, MgO 0.70, MnO 17.98, ThO$_2$ 11.28, UO$_2$ 0.20, PbO 0.10, CeO$_2$ 9.79, La$_2$O$_3$ 10.27, Y$_2$O$_3$ 0.13, CaO 4.66, Na$_2$O 0.48, K$_2$O 0.24, H$_2$O$^+$ 12.86, H$_2$O$^-$ 3.58, sum 99.75%, corresponding to (Ce, La, Th, Ca) (Mn) (SiO$_3$) (OH)$_2$/2H$_2$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°C and an exothermal effect at 850°C.


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


Analysis by M. E. Kazakova gave SiO$_2$ 22.30, P$_2$O$_5$ 5.76, BeO 0.30, Al$_2$O$_3$ 3.66, TiO$_2$ 3.33, ZrO$_2$ 0.49, Nb$_2$O$_5$ 2.00, Fe$_2$O$_3$ 6.15, MgO 0.14, CaO 2.83, CeO$_2$ 4.83, La$_2$O$_3$ 12.33, ThO$_2$ 15.14, H$_2$O$^+$ 5.65, H$_2$O$^-$ 14.14, total 99.95%, corresponding to (La, Ce, Th, Ca) (Al, Fe, Ti, Nb) (Si, P)$(O,OH)_{0.5}$H$_2$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


Analyses by V.A.M. of samples from depths of 50 m. and 2 m., respectively, gave Al$_2$O$_3$ 10.56, 10.70; (Y, Ce)$_2$O$_3$ 18.00, 18.12; MgO 0.40, 0.44; (Na, K)$_2$O trace, -; ThO$_2$ trace, -; SO$_2$ 10.38, 10.30; F 28.32, 27.88; H$_2$O$^-$ 12.00, 12.20; H$_2$O$^+$ 10.90, 11.00; insol. trace, trace, sum 111.98, 111.64, (O = F$_2$) 11.89, 11.71 = 100.09, 99.93%. Sp. gr. 2.353, 2.40. These correspond to the formulas Ca$_{3.85}$Al$_{4.67}$(Y, Ce)$_{2.45}$(SO$_4$)$_{0.8}$Fe$_{1.85}$OH$_{0.8}$) - 0.55H$_2$O and Ca$_{2.7}$Al$_{5.6}$(Y, Ce)$_{1.6}$(SO$_4$)$_{0.8}$(Fe$_{1.3}$OH$_{0.8}$) - 0.72H$_2$O, which may be Ca$_{3.8}$Al$_{4.67}$(Y, Ce)$_{2.45}$(SO$_4$)$_{0.8}$Fe$_{1.85}$OH$_{0.8}$ and Ca$_{2.7}$Al$_{5.6}$(Y, Ce)$_{1.6}$(SO$_4$)$_{0.8}$(Fe$_{1.3}$OH$_{0.8}$) - 0.72H$_2$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%) $La_2O_3$ 5, $Ce_2O_3$ 15, $Pr_2O_3$ 4, $Nd_2O_3$ 12, $Sm_2O_3$ 7.2, $Eu_2O_3$ 0.2, $Gd_2O_3$ 6.5, $Tb_2O_3$ 0.9, $Dy_2O_3$ 4.1, $Ho_2O_3$ 0.8, $Er_2O_3$ 1.7, $Tm_2O_3$ 0.3, $Yb_2O_3$ 1.2, $Lu_2O_3$ 0.2, $Y_2O_3$ 0.2, $Y_2O_3$ (by diff.) 40.9%.

The D.T.A. curve shows a sharp endothermic break at 280°, ascribed to loss of water of crystallization, a smaller one at 780°, and an exothermic 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 $c$ (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. $G = 2.74-2.49$, av. 2.535, $n$ (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 2.192 (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 goursayite, 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)


The mineral occurs as individual grains up to 1 cm. in diameter or as accumulations of platy crystals up to $10\times6\times2$ 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, $n_s = 1.617$, $n_e = 1.595$. Sometimes anomalously slightly biaxial. Extinction parallel.

The four analyses given lead to the formula (La, Ce, Th) (Ti, Nb) (Al, Fe) (Si, P)O₅(OH)₃·3H₂O. 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).
NEW MINERAL NAMES

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

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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 Punkaruaiv 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


A mineral called bismuth jamesonite was described by M. S. Sakharova in 1955 (Am. Mineral., 41, p. 814 (1956)), with formula Pb(Sb, Bi)₂Sr₂ 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 MINERAL NAMES**

**NEW DATA**

**Erikite**


Material called erikite had been described from Mt. Punkarauiv 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 rhebdophane?

**Oryzite or Orizite**


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.

**DISCREDITED MINERALS**

**Gearksite (= Gearksulite)**


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

**Plinthite (= mixture)**


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

**Pseudonatrolite (= Mordenite)**


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

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.

Glottalite (=Chabazite)


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.