

NEW MINERAL NAMES

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Nifontovite

S. V. MALINKO AND A. E. LISITSYN. A new boron mineral, nifontovite. *Doklady Akad. Nauk SSSR*, 139, 188–190 (1961).

Analysis of the mineral by N. N. Kuznetsova and G. V. Rozovska gave SiO_2 2.09, Al_2O_3 0.72, Fe_2O_3 1.23, FeO , MnO , none, MgO 0.47, CaO 33.00, Ba_2O_3 39.58, H_2O^+ (800°) 23.35, H_2O^- , F none, sum 100.44%. After subtracting small amounts of grossular-andradite and szaibelyite, this corresponds to $\text{CaB}_2\text{O}_4 \cdot 2.3 \text{ H}_2\text{O}$. Spectrographic analysis also showed 0.001–0.01% Mn, Ti, Cu, and As. The mineral is insoluble in water, slowly soluble in 10% acetic acid or 10% HCl at room temperature, dissolving rapidly when warmed. Luminesces violet in “long ultraviolet rays.”

The mineral is colorless with vitreous luster. H. 3.5, G. 2.36, Optically biaxial, positive, α 1.575, β 1.578, γ 1.584, all \pm 0.001, $2V$ 76°, dispersion strong $r > v$. Shows anomalous interference colors. Elongation positive, extinction inclined. Probably monoclinic or triclinic. A poor cleavage was noted parallel to the elongation; the acute bisectrix (gamma) is at angle of 32° to the cleavage.

X-ray powder data (40 lines) are given; the strongest lines are 2.41 (10), 7.04 (8), 2.21 (8), 3.79 (7), 3.66 (7), 3.02 (7), 2.05 (7), 1.825 (7), 2.70 (6).

The mineral occurs in a skarn formed by the intrusion of quartz diorite into limestone 20–25 meters from the pyroxene-garnet skarn zone. It is associated with andradite-grossularite garnet and szaibelyite; the latter occurs as fine needles as inclusions in nifontovite. The locality is not given except that it is stated to be the same as that from which calcioborite and frolovite were described (*Am. Mineral.*, 41, 815, 1956; 43, 385–386, 1958) (Tur'insk region, northern Urals).

The name is for the late Roman Vladimirovich Nifontov, Russian geologist.

DISCUSSION.—This is a calcium metaborate, like frolovite, but a lower hydrate. The compound $\text{Ca}_2\text{O}_4 \cdot 2\text{H}_2\text{O}$ was reported in old syntheses, but no optical or X-ray data appear to have been published.

Betpakdalite

L. P. ERMILOVA AND V. M. SENDEROVA. Betpakdalite, a new mineral from the oxidation zone of the Karaoba wolframite deposit. *Zapiski Vses. Mineralog. Obschch.*, 90, 425–430 (1961) (in Russian).

The mineral occurs as powdery finely-crystalline aggregates, individual crystals being 0.005 to 0.025 mm. It occurs in the oxidation zone of the deposit, which consists of early quartz-wolframite-veins and later quartz-huebnerite-pyrite-arsenopyrite veins. It fills cracks and cavities caused by the leaching of pyrite, and is cut by veinlets of jarosite. Closely associated minerals include ferrimolybdite, opal, hydromica, gypsum, and limonite.

Two analyses by V. M. S. of material selected under the binoculars (500 and 600 mg.) gave CaO 4.18, 4.10; Fe_2O_3 12.30, 11.10; MoO_3 50.26, 50.22; As_2O_5 13.94, 15.78; H_2O^- 15.80, ——; H_2O^+ 3.20, ——; H_2O total ——, 19.00; insol. 0.80, tr.; total 100.48, 100.20%. These correspond to the ratios: 1.00 $\text{CaO} \cdot 1.03 \text{ Fe}_2\text{O}_3 \cdot 0.81 \text{ As}_2\text{O}_5 \cdot 4.65 \text{ MoO}_3 \cdot 14.06 \text{ H}_2\text{O}$, and 1.00 $\text{CaO} \cdot 0.95 \text{ Fe}_2\text{O}_3 \cdot 0.95 \text{ As}_2\text{O}_5 \cdot 4.79 \text{ MoO}_3 \cdot 14.45 \text{ H}_2\text{O}$, or $\text{CaFe}_2\text{H}_4(\text{As}_2\text{Mo}_5\text{O}_{26}) \cdot 12\text{H}_2\text{O}$. Direct determinations of H_2O by Penfield tube gave 103° 4.00, 110° 13.24, 130–135° 16.19, 300° 19.00%; the water lost above 135° corresponds to the H_4 of the formula. Spectrographic analyses showed also weak lines of Mg, Mn, Sn, Cu, and Ti, and trace lines of Sr, Bi, and Pb. Before the blowpipe the mineral fuses easily to

a black vesicular slag. It sinters at 750–850° and melts at 1000°. In a closed tube gives off acid water. The pH of a suspension of the mineral is 5.2.

A D.T.A. curve shows a strong endothermal effect at 120°, weak exothermic effects at 550° and 700° and a weak endothermal effect at 750°.

The crystals are short prismatic with $(hk0)$ and $(h0l)$ faces strongly developed; most are oriented intergrowths of 2 or 3 individuals on (010) . Color bright lemon-yellow with a weak greenish, rarely brownish tint. Luster of aggregates dull to waxy, of powder vitreous. H about 3; G 2.98, 3.05. Greenish-yellow under the microscope, biaxial positive, α 1.809, β 1.821, γ 1.857 (measured in phosphorus liquids), 2V (calc.) 60°. Elongation positive. Pleochroism distinct in pale shades: X pale yellow, Y greenish-yellow, Z greenish with blue shade; adsorption Z>Y>X. The optical orientation is in some doubt because of the small size of crystals; the plane of optics axes is apparently (010) , Y=b, X \wedge c=12°. Probably monoclinic.

Unindexed x-ray powder data (49 lines) are given. The strongest lines are 8.75 (10), 3.63 (9), 1.532 (8), 1.480 (8), 2.95 (7), 1.723 (7), 1.191 (7), 1.024 (7). When heated to 180°, the mineral becomes amorphous to x-rays; when heated to 400°, its recrystallizes and gives a weak pattern with strongest line at 3.25.

The name is for the locality, the Bet-Pak-Dal desert, Central Kazakhstan.

DISCUSSION.—This is a new type of mineral—a salt of a heteropoly acid (but the phosphovanadate schoderite and some other vanadates may also be salts of heteropoly acids). The authors state that the exact formulation can be decided only by structural study.

Tacharanite

JESSIE M. SWEET, D. I. BOTHWELL, AND D. L. WILLIAMS. Tacharanite and other hydrated calcium silicates from Portree, Isle of Skye. *Mineral. Mag.*, **332**, 745–753 (1961).

Amygdales from olivine dolerite contained a variety of associations of hydrous calcium silicates and zeolites, including mesolite, gyrolite, thomsonite, tobermorite, xonotlite, as well as calcite and saponite. One sample consisted of a core of tobermorite with a dense white mineral rimmed by gyrolite and mesolite. The white mineral was nearly isotropic, n just less than 1.537, $d_{4^{\circ}28}$ 2.36. Its x-ray pattern shows it to belong to the tobermorite group, but the pattern is distinct from that of tobermorite; the strongest lines are 12.7 vvs, 3.05 vs, 2.89 s, 2.79 s, 1.820 ms, 1.536 msb. Analysis by D.I.B. on 29 mg. gave SiO₂ 41.8, Al₂O₃ 5.6, Fe₂O₃ 0.3, FeO n.d., MgO 3.2, CaO 33.6, Na₂O 0.6, K₂O 0.1, H₂O (including a little CO₂) 15.2, sum 100.4% corresponding to (Ca, Mg, Al) (Si, Al)₃·H₂O. A dehydration curve is given. On standing in air, the mineral breaks down to a mixture of tobermorite plus gyrolite.

The name is from the Gaelic tacharan, a changeling.

DISCUSSION.—Structural study is needed before this can be accepted as a mineral species.

Mineral X

O. KOUVO and Y. VUORELAINEN. *Geologi* 1959, **3–4**, 32–33 (Finnish with English abstract); abs. by E. M. Bonshtedt-Kupletskaya, *Zapiski Vses. Mineral. Obshch.* **90**, 438–439 (1961).

Fe sulfide? Forms small disseminations in pyrrhotite-chalcopyrite ores (grains about 0.01 mm. in size, rarely up to 0.2 mm. in diameter). In sections in reflected light reddish-gray. Birefringence and anisotropy strong. Hardness less than that of pyrrhotite, but greater than that of chalcopyrite. Usually used etching agents show no reaction; only CrO₃+HCl reacts weakly. X-ray spectrographic study showed significant amounts of Fe

and admixtures of Ni and Co. Strong lines of *x*-ray powder pattern: 5.04 (very strong), 2.97, 2.31, 1.808 (strong), 1.056 (moderately strong). The *x*-ray powder pattern is similar to that of "kansite" (Fe_9S_8), given in the American card index of standard *x*-ray powder patterns.

Found in ores from the Outokumpu, Varislakhti, and other deposits in Finland. It is partly a secondary mineral.

CORRECTION

Schoderite

The abstract in *Am. Mineral.*, 46, 464 (1961) gives the strongest lines incorrectly. They should be: 7.9 (10), 11.1 (5), 15.8 (4), 9.6 (2). I thank F. A. Hildebrand, who called the error to my attention.

DISCREDITED MINERALS

Kolskite (=Antigorite)

L. N. BEL'KOVA. Antigorite of Lesnaya Varaka. *K mineralogii postmagmaticheskikh protsessov, Leningrad Gosudarst Univ.*, 1959, 152-169 (in Russian).

The material named kolskite by Efremov in 1939 (see *Am. Mineral.*, 25, 155 (1940)) was re-examined. Two new analyses correspond closely to $3\text{MgO} \cdot 2\text{SiO}_2 \cdot 2\text{H}_2\text{O}$ and *x*-ray and D.T.A. data are considered to correspond closely to those of antigorite. Efremov reported kolskite to be biaxial, positive, mean n 1.542, birefringence 0.010; B. reports it to be uniaxial, negative with α 1.542, γ 1.546.

DISCUSSION.—The data do not seem to me to correspond closely to those accepted for antigorite; they suggest rather clinochrysotile or lizardite. It is clear, however, that the name kolskite should be dropped.

PUBLICATIONS RECEIVED

- IDENTIFICATION GUIDE TO COMMON MINERALS AND ROCKS OF VIRGINIA. BAETCKE, G. B. Virginia Division of Mineral Resources, Information Circular 3. 51 pgs., 1961.
- SUPPLEMENT TO MINERALS OF CALIFORNIA, 1955-1957. MURDOCH, JOSEPH AND ROBERT W. WEBB. Prepared by Elizabeth Collins. Supplement to Bulletin 173, California Division of Mines. 64 pgs., 1960.
- THE FLUORESCENT MINERALS OF FRANKLIN, SUSSEX COUNTY, NEW JERSEY. JONES, ROBERT W., JR. Fluorescent House, Branford, Connecticut. Mimeographed, 22 pgs., 1961. \$1.75.
- THE MINERALOGY OF CONNECTICUT. SCHOONER, RICHARD. Fluorescent House, Branford, Connecticut. Mimeographed, 89 pgs., 1961. \$3.50.