

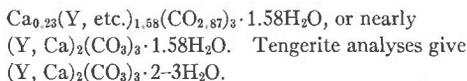
NEW MINERAL NAMES

MICHAEL FLEISCHER

Lokkaite

VESA PERTTUNEN (1970), Lokkaite, a new hydrous RE-carbonate from Pyörönmaa pegmatite in Kangasala, S. W. Finland. *Bull. Geol. Soc. Finland* **43**, 67-72.

The mineral was originally described by Vormaa and others (*C. R. Soc. Geol. Finlande* **38**, 241-274) as tengerite, but was later found to differ from it. Analysis by microprobe (except for CO₂ and H₂O, chemically on 7.2 mg.) gave average: CaO 3.2 Y₂O₃ 29.0, Lu, Ho trace, Yb₂O₃ 2.2, Tm₂O₃ 0.9, Er₂O₃ 4.0, Dy₂O₃ 6.8, Tb₂O₃ 1.2, Gd₂O₃ 4.6, Sm₂O₃ 1.8, Nd₂O₃ 1.3, Pr₂O₃ 0.3, Ce₂O₃ 0.7, La₂O₃ 0.2, Fe₂O₃ 0.4, CO₂ 32.4, H₂O⁻ 5.4, H₂O⁺ 1.6, sum 96.0 percent. This corresponds to:



X-ray powder data are given (20 lines); the strongest lines are 9.77(50)(400)[†] 6.509(55)(600), 5.792(45)(210), 4.594(75)(002), 3.902(60)(10.0.0), 3.808(100)(810)[†] 2.931(40)(812). These are indexed on an orthorhombic cell with a 39.07, b 6.079, c 9.19 Å, possible space groups $Pb2m$, $Pbm2$, and $Pbmm$. The X-ray pattern is similar to that of tengerite except for a strong line of the latter at 7.6 Å.

The mineral occurs in radial aggregates 0.5-1.0 mm in diameter of white fibers, as an alteration product of primary rare-earth minerals. Brittle. n_s (Na) α 1.569, β 1.592, γ 1.620, elongation positive, $Z=c$, $2V$ could not be measured. G could not be determined.

The name is for Lauri Lokka, former chief chemist of the Geological Survey of Finland. The mineral and name were approved in advance of publication by the Commission on New Minerals and Mineral Names, IMA.

Tadzhikite

EFIMOV, A. F., DUSMATOV, V. D., ALKHAZOV, V. YU., PUDOVKINA, Z. G. AND KAZAKOVA, M. E. (1970) Tadzhikite, a new borosilicate of the rare earths of the hellandite group, *Dok. Akad. Nauk S.S.S.R.* **195**, 1190-1193 (in Russian).

Tadzhikite occurs in pegmatite dikes from the Turkestan-Alai alkalic province of the Tadzhikaya Republic, Russian central Asia. The pegmatites are zoned with a quartz core containing large crystals of microcline and an outer quartz-aegirine-microcline zone. Tadzhikite occurs in replacement units: Tadzhikite I as curved platy individuals in veinlets cutting albitized portions of the outer zone and Tadzhikite II as prismatic crystals, flattened along 010, with polyolithionite and riebeckite-arfvedsonite in the core. Physical properties (types I and II): $H=6$ (753 kg/sq. mm); cleavage (010); $\rho=3.86$, 3.73; pale grayish brown and vitreous, dark brown and vitreous; in thin section colourless, brown non-pleochroic; $\alpha=1.761$, 1.750; $\gamma=1.772$, 1.763; $2V_z=80-92^\circ$ (type II); $Z/\wedge c=23$, 25° ; $Z/\wedge b=4^\circ$ (type II); $Y/\wedge a=7^\circ$ (type II). Type I is said to be monoclinic (but displays polysynthetic twinning of the "albite type"). Type II is probably triclinic as shown by optical orientation and X-ray data. Chemical composition (types I and II): SiO₂ 24.70, 23.35; TiO₂ 6.53, 3.72; Al₂O₃ —, 2.30; BeO not found, 0.20; ThO₂ 0.50, 0.50; Nb₂O₅ 0.75, —; RE₂O₃ 32.43, 34.07, Fe₂O₃ 1.32, 3.12; FeO —, not found; MnO 0.89, 0.40; MgO 0.42, tr.; CaO 18.31, 18.06; SrO 0.04, 0.04; Na₂O 1.17, not found; K₂O —, not found; B₂O₃ 12.70, 14.47 percent. Yttrium is <50 percent of the total rare earths; lanthanides show maxima at Ce and Nd. The cell formula is 2[Ca₃ RE₂ (Ti, Al, Fe)B₄Si₄O₂₂]($\delta_{\text{Ca1e}}=3.732$ g/cc.—type II).

X-ray patterns (not indexed) are similar to hellandite with strongest lines at 4.97 (3), 2.94 (3), 2.65 (10), 1.913 ($5\frac{1}{2}$), 1.665 (3). Oscillation photographs yielded $a=17.93$, $b=4.71$, $c=10.39$ Å. $\beta=100^\circ 45'$, " α and γ close to 90° ." Tadzshikite is alleged to be a non-metamictic cerian and anhydrous member of the hellandite group. The D.T.A. curve shows an endothermic peak at 900°C ; the mineral fuses at 1000°C .

The name is for the locality. The mineral was approved before publication by the All-Union Commission on New Minerals and by the International Commission on New Minerals and New Mineral Names. Type material is preserved in the Mineralogical Museum of the Academy of Sciences of U.S.S.R., Moscow.

DISCUSSION.—The mineral is similar, but certainly not identical, with hellandite. The X-ray pattern (22 lines given for tadzshikite) is somewhat different. For example, a line at 2.81 to 2.83 Å is always strong in hellandite but apparently missing in tadzshikite. Hellandite is monoclinic [morphological and optical data of Brøgger, *Z. Kristallogr* 42, 417, (1907); optical and X-ray data of Hogarth, Chao and Harris, unpublished], whereas tadzshikite is triclinic, at least for type II. The angle β is different for each mineral: $100^\circ 45'$ for tadzshikite II, $109^\circ 45'$ morphological for altered hellandite (not $100^\circ 45'$ as reported by Efimov *et al.*, values from X-ray are about $111^\circ 30'$). In optical orientation tadzshikite has $Z \approx b$, hellandite $X = b$. Tadzshikite is anhydrous whereas hellandite appears to have an integral number of H_2O units in its formula (new determinations). On the strength of these data a mineral name and species status for tadzshikite seems warranted.

D. D. HOGARTH

Joseite C; four unnamed bismuth sulfotellurides

A. A. GODOVIKOV, K. V. KOCHETKOVA, AND YU. G. LAVRENT'EV (1970) Study of the bismuth sulfotellurides of the Sokhondo deposit. *Geol. Geofiz.* 11, 123–127 [in Russian].

The minerals occur as small grains, mostly hundredths of a mm, at the contact of quartz and native bismuth, in the Sokhondo deposit, eastern Transbaikal. X-ray spectrographic analyses gave the results as shown in Table 1 herewith.

TABLE 1 (p. 124). X-RAY SPECTROGRAPHIC ANALYSES OF BISMUTH SULFOTELLURIDES FROM THE SOKHONDO DEPOSIT.

| Component | Joseite C | | | Mineral K | Mineral L | Mineral M | Mineral P |
|-----------------|----------------------------------|----------------------------------|----------------------------------|--------------------------------------|-------------------------|--------------------------------------|----------------------------------|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| Bi | 83.1 | 83.75 | 84.00 | 76.84 | 78.63 | 63.30 | 83.40 |
| Te | 8.8 | 8.85 | 8.62 | 20.56 | 17.32 | 25.00 | 7.40 |
| S | 7.1 | 7.22 | 7.02 | 2.80 | 3.70 | 6.10 | 6.90 |
| Pb | 0.9 | 0.71 | none | 0.33 | 0.60 | 6.10 | 0.90 |
| Sb | none | 0.12 | none | 0.20 | 0.18 | 0.20 | none |
| Total | 99.9 | 100.55 | 99.64 | 100.73 | 100.43 | 100.70 | 98.6 |
| Approx. formula | $\text{Bi}_{16}(\text{TeS}_2)_3$ | $\text{Bi}_{16}(\text{TeS}_2)_3$ | $\text{Bi}_{16}(\text{TeS}_2)_3$ | $\text{Bi}_9(\text{Te}_7\text{S}_2)$ | Bi_8TeS | $(\text{Bi}, \text{Pb})_8\text{TeS}$ | $\text{Bi}_{15}(\text{TeS}_4)_1$ |
| Te:S | $\sim 1:3$ | $\sim 1:3$ | $\sim 1:3$ | $\sim 2:1$ | 6:5-1:1 | $\sim 1:1$ | $\sim 1:4$ or $1:3$ |

Notes.—(1) average of 5 determinations on sections 1 to the cleavage; (2) the same on sections parallel to the cleavage; (3) grain of sulfotelluride occurring in close association with native bismuth and arsenopyrite; (4) and (5) averages of 2 determinations; (7) grain of sulfotelluride in bismuthinite of granoblastic structure. In analyses, 1, 2, 4, 5, and 6, Ag and Se were not found; in 3 and 7, Ag and Se were not determined (no entry for (6). M.F.).

X-ray study of Joseite C gave strongest lines 3.03 (10), 2.23 (doublet) (5), 2.10 (5). No X-ray data are given for the others. Reflectances are given for josite C, mineral K, and mineral M. Microhardness (5 g. load): josite C, 71.2 perpendicular, 89.9 parallel to the perfect basal cleavage; mineral K, 64.7; mineral L 86.2; mineral H, 56.1.

DISCUSSION.—Further study of the complex josite group is obviously necessary.

Tunnerite = Woodruffite (?)

HEINZ MEIXNER (1969) Über österreichische Mineralnamen. Ergänzungen und Zusammenfassung. *Der Karithin* 61, 115–125.

A zinc-manganese oxide from Bleiberg, Austria, described by Brunlechner in 1893, was named tunnerite by Cornu in 1909 (*Dana's System*, 7th Ed. 1, 572). X-ray study of a similar specimen (not type material) was found by Miss Kanaki to give the X-ray pattern of todorokite. In view of the Zn content, Meixner supposes this to be woodruffite, which gives an X-ray pattern nearly identical with that of todorokite.

Discredited Minerals

Scheibeite = Phoenicochroite
Chrominium = Phoenicochroite

JOSEF ZEMANN (1970) Phoenikochroit-Chrominium-Scheibeit *Anz. Math.-Nat. Kl. Oesterr. Akad. Wiss* 14, 257–259.

X-ray study of type chrominium ($\text{Pb}_2\text{O}(\text{CrO}_4)$) (*Amer. Mineral.* 55, 1813–1814) gave a 14.00, b 5.68, c 7.14 Å, β 115.5°, space group $C2/m$. Examination of the original Weissenberg photographs by Mücke of "Scheibeite" [*Amer. Mineral.* 56, 359 (1971)] shows them to be identical with those of "Chrominium"; the formula $\text{Pb}_8\text{O}_8(\text{CrO}_4)_3$ is incorrect. Both minerals are phoenicochroite, as previously guessed.