NEW MINERAL NAMES

Inderborite

G. S. GORSHKOV: A new mineral from the region of Lake Inder. *Compt. Rend. Acad. Sci. U.R.S.S.*, **33**, 254–256 (1941).

N. J. IKORNIKOVA AND M. N. GODLEVSKY: The new borate—metahydroboracite. *Compt. Rend. Acad. Sci. U.R.S.S.*, **33**, 257–258 (1941).

NAME: For the locality and the composition. An editorial note states that Gorshkov's article was submitted May 27, 1941, and that of Ikornikova and Godlevsky on July 26, 1941. Hence the name inderborite has priority and the name metahydroboracite should be dropped.

CHEMICAL PROPERTIES: Composition $CaMgB_6O_{11}\cdot 11H_2O$. Analysis: CaO 11.27, MgO 8.00, B_2O_3 41.70, ignition loss 39.48; Sum 100.45% (G); CaO 11.16, MgO 8.01, B_2O_3 40.90, ignition loss 39.54, F none, Insol. 0.01, R_2O_3 0.02; Sum 99.64% (M. M. Tikhomirova quoted by I. and G.). Before the blowpipe, cracks and fuses to a colorless glass, giving a light green flame. "Very poorly soluble in water and cold acid," dissolves quickly in hot HCl.

CRYSTALLOGRAPHIC PROPERTIES: Monoclinic, prismatic.

$$a:b:c = 1.6346:1:1.3173,\ \beta = 90°48'\ \text{(G.)}$$
$$a:b:c = 1.6395:1:2.6346,\ \beta = 90°44\tfrac{1}{2}'\ \text{(I. and G.)}$$

The forms {100}, {001}, {110}, {221}, {$\bar{2}$21}, {111}, {$\bar{1}$11} and {$\bar{1}$12} were noted (G.). Found as coarsely crystalline aggregates and well developed crystals up to 2 cm. in size.

PHYSICAL PROPERTIES: Colorless to white, transparent to semitransparent. Luster vitreous. Cleavage {100} clearly manifest (G.), {100} perfect (I. and G.). Fracture conchoidal (G.). Hardness = $2\frac{1}{2}$ (G.), $3\frac{1}{2}$ (I. and G.). Specific gravity = 1.928–1.930 (G.), 2.004 (I. and G.).

OPTICAL PROPERTIES: Optically negative.

$\alpha = 1.496$, $\beta = 1.521$, $\gamma = 1.538$–1.544, $2V = 80$–$86°$ (G.)
$\alpha = 1.483$, $\beta = 1.512$, $\gamma = 1.530$ (all $\pm .002$, Na light), $2V = 77°$ (I. and G.)

The determinations by G.: α and β by immersion, γ calculated from 2V. $\gamma = b$, $\alpha \wedge c = 0$–$1°$ (G.), $2\frac{1}{2}°$ (I. and G.).

OCCURRENCE: Occurs at the borate deposits of Inder Lake, Gurviev region, Kazakh S.S.R. Associated minerals are inyoite, colemanite and ulexite which are secondary in relation to inderborite (G.), inyoite and szaibelyite (I. and G.).

RELATIONSHIPS: A member of the hexaborate group which includes

Veatchite	$Ca_2B_6O_{11}\cdot 6H_2O$	Hydroboracite	$CaMgB_6O_{11}\cdot 6H_2O$
Colemanite	$Ca_2B_6O_{11}\cdot 5H_2O$	Inderborite	$CaMgB_6O_{11}\cdot 11H_2O$
Meyerhofferite	$Ca_2B_6O_{11}\cdot 7H_2O$	Kurnakovite	$Mg_2B_6O_{11}\cdot 13H_2O$
Inyoite	$Ca_2B_6O_{11}\cdot 13H_2O$	Inderite	$Mg_2B_6O_{11}\cdot 15H_2O$

MICHAEL FLEISCHER

Nordite

V. E. GERASIMOVSKY: Nordite, a new mineral of the Lovozero tundras. *Compt. Rend, Acad. Sci. U.R.S.S.*, **32**, 496–498 (1942).

NAME: "Because of its northern origin."

CHEMICAL PROPERTIES: A silicate of sodium, strontium, calcium, and rare earths. Analysis by G. A. Burova gave: SiO_2 45.53, Ti, Cb, Ta None, Fe_2O_3 1.84, Ce_2O_3 8.77 (La etc.)$_2O_3$ 10.48, (Y, etc.)$_2O_3$ 0.95, MnO 6.04, SrO 7.40, CaO 4.46, MgO 2.00, Na_2O 11.70, K_2O 0.08, F None, Cl trace, loss on ignition None; Sum 99.25% (given as 99.27). This corresponds to $2Na_2O \cdot 3RO \cdot 0.7\ R_2O_3 \cdot 8SiO_2$, a metasilicate. Before the blowpipe, easily fused to a blue glass. Borax bead in O.F. is light yellowish-green when hot, pale pink when cold. In R.F. paler green when hot, colorless when cold. Decomposed by HCl, HNO_3 and H_2SO_4.

CRYSTALLOGRAPHIC PROPERTIES: Orthorhombic, $a:b:c=0.730:1:0.527$. The measured crystals are poorly developed and do not give distinct signals. The symmetry was confirmed by Lane photographs of (100) and (010) sections. Nordite occurs as lamellae up to 1 cm. long, 0.5 cm. wide and 0.1 cm. thick. Crystals are rare. The forms noted were {100}, {010}, {110}, {120}, {212} and {101}, of which {100} is dominant.

PHYSICAL PROPERTIES: Color light brown; streak white: semi-transparent. Cleavage {100} good. Fracture uneven to conchoidal. Brittle. Hardness 5–6. G. (pycnometer) = 3.430.

OPTICAL PROPERTIES: Optically biaxial, negative. $\alpha=1.619$, $\beta=1.630$–1.640, $\gamma=1.642$, 2V (Fedorov stage) $2V_{Li}$ 32°, $2V_{Na}$ 31°30′, $2V_{Tl}$ 31°30′. $X=\alpha$, $Y=\beta$, $Z=\gamma$.

OCCURRENCE: Found on the left bank of the upper course of the Chinglusuai River, Lovozero alkaline massif, Kola Peninsula. Occurs in pegmatitic patches in a sodalite syenite. Associated minerals are sodalite (variety hackmanite), ussingite, chinglusuite and lomonosovite (a sodium phosphate-titanium silicate). (This last is apparently a new mineral as yet undescribed M. F.). Lamprophyllite, eudialyte, microcline, nepheline, aegirite, sphalerite, neptunite are subordinate minerals.

M. F.

Metaloparite

V. I. GERASIMOVSKY: Metaloparite, a new mineral from the Lovozero tundras. *Compt. Rend. Acad. Sci. U.R.S.S.*, **33,** 61–63 (1941).

CHEMICAL PROPERTIES: An alteration product of loparite. Analysis made on 3 g. by I. D. Borneman—Starynkevitch gave: SiO_2 1.27, TiO_2 44.01, Cb_2O_5 10.78, Ta_2O_5 0.66, ThO_2+rare earths 34.20, CaO+SrO 5.35, K_2O+Na_2O 0.23, H_2O 3.49, Sum 99.99%. In the alteration, Ti, Cb, Ta, and rare earths have not been affected, CaO+SrO have diminished from 8.4 to 5.35, NaO+K_2O from 8.4 to 0.2 and H_2O has increased from 0.6 to 3.5%. Before the blowpipe infusible, turns to brownish-black. Decomposed by H_2SO_4.

PHYSICAL AND OPTICAL PROPERTIES: Color brownish-yellow, streak greenish-yellow. Luster adamantive. Brittle with no cleavage and uneven fracture. Hardness difficult to determine but about 5. G. (pycnometer) 4.41. In thin section, dark brown with a greenish tinge, also dirty yellow-green. Very fine grained. Shows birefringence under high magnication. n 2.24±.03.

OCCURRENCE: Found in hydrothermally altered loparite urtite and loparite lujavrite rocks of the Lovozero alkaline massif, Kola peninsula. Reported from the eastern slope of Mt. Vavnbed, the northern slope of Mt. Ninchurt, the southern slope of Mt. Stratempakhk, the southwestern slope of Mt. Kuftnyun, associated with nepheline which has been altered nearly completely to sericite and zeolites.

M. F.

Unnamed

S. I. NABOKO: On a new fluoric mineral occurring in the sublimates of the volcano Klyuchevsky. *Compt. Rend. Acad. Sci. U.R.S.S.*, **33,** 140–143 (1941).

CHEMICAL PROPERTIES: Analysis by V. Nekrassova gave: SiO_2 1.80, Al_2O_3 28.26, Fe_2O_3 2.04, MgO 8.65, CaO 11.15, Na_2O 4.62, K_2O 1.07, H_2O- 1.86, H_2O+ 11.60, F 43.40, Cl 0.81; Sum $115.26-(O=F_2,Cl_2\ 18.35)=96.91\%$. As elements, this gives Al 14.96, Mg 5.22, Ca 7.99, Na 3.43, K 0.89, H_2O- 1.86, H_2O+ 11.60, F 43.40, Cl 0.81. This corresponds to $(Na, K)_5(Ca, Mg)_{12}Al_{16}F_{67}\cdot 22H_2O$. (This does not balance; it might rather be given as— $F_{67}(OH)_{10}\cdot 17H_2O$. M. F.) A simplified formula is $NaCaMgAl_3F_{14}\cdot 4H_2O$. Spectrochemical study shows the presence of Be, Cu, Co, V, Cr, Zr, Ga, Ba, and Sr (amounts not stated). The mineral is decomposed by concentrated HCl, not dissolved by other acids.

PHYSICAL AND OPTICAL PROPERTIES: Color light yellow. Under the microscope, light yellow, transparent, turbid owing to minute inclusions. Isotropic, $n=1.383$. *X*-ray powder pictures show isometric symmetry.

OCCURRENCE: Occurs as crusts and as a powdery cement in broken blocks of lava near the Bilyukai crater of the Klyuchevsky volcano.

RELATIONSHIPS: Closely related to ralstonite, differing in that Ca predominates over Na.

DISCUSSION: Recalculation of the analysis on the assumption that, as in ralstonite (cf. Pabst, *Am. Mineral.*, **24**, 566 (1939), Al+Mg=16 gave $(Ca, Na, K)_{7.72}$ $(Al, Mg)_{16}$ $F_{48}(OH)_{3.61}13.7H_2O$. This fits the requirements of the pyrochlore group approximately. The (Ca, Na) positions are apparently completely occupied (difference from ralstonite) and the water content is twice as high.

M. F.