

NEW MINERAL NAMES

Lombaardite

H. J. NEL, C. A. STRAUSS AND FRANS E. WICKMAN, Lombaardite, a new mineral from the Zaaiploats tin mine, central Transvaal: *Union S. Africa Dept. Mines, Geol. Survey, Mem.* **43**, 45-57 (1949).

CRYSTALLOGRAPHIC: Oscillation and Weissenberg photographs showed the mineral to be monoclinic, unit cell $a = 16.10 \pm 0.05$, $b = 5.60 \pm 0.1$, $c = 18.20 \pm 0.1$ kX, beta 115.5° . The unit cell contains $\text{Ca}_{10}\text{Fe}_5^{+2}\text{Al}_{27}\text{Si}_{18}\text{O}_{89}(\text{OH})_6$. There is a pseudocell with dimensions $a/2$, b , $c/2$, beta 115.5° . Possible space groups Pm , P_2 , P_2/m , X-ray powder data are given. Goniometric measurements could not be made. Four equally well-developed faces were noted in the zone of the b axis, also cleavages were present in this zone.

CHEMICAL: Analysis by C. J. Liebenberg of a sample containing about 1% tourmaline gave SiO_2 31.88, Al_2O_3 35.85, Fe_2O_3 4.80, FeO 7.47, MgO 1.54, MnO 0.18, CaO 15.36, Na_2O 0.50, K_2O none, H_2O^+ 1.43, H_2O^- 0.04, B_2O_3 0.14, P_2O_5 , TiO_2 , and F trace; sum 99.19%. After deduction of tourmaline, this corresponds to $\text{Ca}_{10}(\text{Fe}, \text{Mg})_6(\text{Al}, \text{Fe})_{27}\text{Si}_{18}\text{O}_{89}(\text{OH})_6$.

PHYSICAL AND OPTICAL: Lombaardite occurs as dark brown needles, 0.01 to 0.06 mm. in diameter and up to 2 mm. long. Optically biaxial, positive, with $n_s(\text{Na}) \alpha = 1.756 \pm 0.001$, $\beta = 1.761 \pm 0.002$, $\gamma = 1.777 \pm 0.003$, $2V_\gamma$ (calcd.) 58° , $2V_\gamma$ (measured) $60 \pm 4^\circ$, $r > v$, strong. Pleochroism, X nearly colorless, Y amber-brown, Z tawny olive. Absorption $Y > Z > X$. Orientation $\beta = b$, optic axial plane parallel to (010). Sp. gr. = 3.85 ± 0.02 .

OCCURRENCE: Lombaardite is a rare mineral, occurring in explosion breccia in a cassiterite-bearing pipe in granite in the Zaaiploats tin mine, Potgietersrust district, Transvaal. The explosion breccia was composed of granite fragments with cavities containing tourmaline, calcite, quartz, fluorite, chlorite, pyrite, arsenopyrite, parisite, bastnaesite, and lombaardite, which coats all the other minerals. Lombaardite does not occur in unbrecciated normal tin-bearing parts of the pipe.

RELATIONSHIPS: Similar in composition to epidote and pumpellyite. It is noted that the pseudocell of lombaardite is somewhat similar to the unit cell of epidote. However, the much higher specific gravity of lombaardite indicates a different type of structure.

NAME: For Professor B. V. Lombaard, head of the Department of Geology, University of Pretoria.

MICHAEL FLEISCHER

Ktenasite

P. KOKKOROS, Ktenasit, ein Zink-Kupfersulfat aus Lavrion (Griechenland): *Tschermaks Mineralog. Petrog. Mitt.*, Ser. 3, Vol. 1, No. 4, 342-346 (1950).

A specimen from the Kamaresa mine, Lavrion (also Laurion, Laurium), Greece, in the collection of the University of Thessaloniki, consists of porous smithsonite with a thin crust of glaucokernerite (basic sulfate of Cu, Zn, and Al). On this are aggregates of blue serpierite and rare groups of tabular blue-green crystals up to 1 mm. in size, of a new mineral. Goniometric measurements and Weissenberg photographs show it to be monoclinic, with beta = $84^\circ 25'$ (Weissenberg), $84^\circ 36'$ (goniometric), and a_0 $11.16 \pm 0.02 \text{ \AA}$., b_0 6.11 ± 0.03 , c_0 $23.74 \pm 0.02 \text{ \AA}$. Probable space group $C_{2h}^2 - P2_1/c$. The forms $c(001)$, $a(100)$, $r(013)$, $q(101)$, and $m(201)$ were observed. X-ray powder data are given; they differ from those of serpierite.

The mineral is transparent, blue-green (no. 1010 of the Baumann-Prases color chart), luster vitreous. Hardness = $2-2\frac{1}{2}$ G. = 2.969. Optically negative, n_s alpha 1.511, beta 1.613 \pm .001, gamma 1.623 \pm .001, $2V$ $51 \pm 1^\circ$ (Universal Stage); beta and gamma by immersion method, alpha calculated; gamma = b .

Soluble in dilute acids and ammonia. Spectroscopic and microchemical tests showed only

Zn and Cu. Analysis on 2.5 mg. selected material gave ignition loss 19.50, SO_3 19.92, CuO 32.44, ZnO (by difference) 28.14%. This corresponds to $3(\text{Cu}, \text{Zn})\text{O} \cdot \text{SO}_3 \cdot 4\text{H}_2\text{O}$, or $(\text{Cu}, \text{Zn})_3(\text{SO}_4)(\text{OH})_4 \cdot 2\text{H}_2\text{O}$. With this formula and taking 8 formula weights in the unit cell above, G is calculated to be 3.18 (2.97 observed).

Named for Professor Const. A. Ktenas, Greek mineralogist, who died in 1935.

DISCUSSION: Further comparison with other basic copper sulfates such as langite would be desirable.

M. F.

Basaluminite, Hydrobasaluminite

S. E. HOLLINGWORTH AND F. A. BANNISTER, Basaluminite and hydrobasaluminite, two new minerals from Northamptonshire: *Mineralog. Mag.*, **29**, 1-17 (1950).

Detailed description; the preliminary note was abstracted in *Am. Mineral.*, **33**, 787 (1948).

M. F.

Kruzhanovskite

A. I. GINZBURG, Kruzhanovskite—a new mineral of the phosphate group. *Doklady Akad. Nauk S.S.S.R.*, **72**, 763-766 (1950).

CHEMICAL PROPERTIES: Analysis by O. A. Alekseev gave P_2O_5 35.30, Fe_2O_3 34.62, FeO none, MnO 16.39, MgO 1.30, CaO 1.50, Na_2O none, K_2O none, H_2O^+ 8.75, H_2O^- 0.95, insol. 0.56; sum 99.37%. This gives $\text{MnFe}_2(\text{PO}_4)_2(\text{OH})_2 \cdot \text{H}_2\text{O}$. A thermal analysis curve is given, which shows endothermal breaks at 210°, 380°, and 620°, and an exothermal break at 750°. The mineral melts at 990°.

PHYSICAL AND OPTICAL PROPERTIES: Monoclinic, in poorly formed crystals of prismatic habit, up to 2-3 cm. in diameter. No measurable crystals found. Cleavage basal, very perfect. Fracture uneven. Color brown to greenish-brown, bronze on cleavage face. Streak yellowish-brown. Luster vitreous to dull. Hardness $3\frac{1}{2}$ -4, sp. gr. 3.31.

Optically biaxial, positive, $2V$ 40-45°. Strongly pleochroic with α wine-yellow, β orange-brown, γ reddish-brown. Absorption $\alpha > \beta > \gamma$. Dispersion very great with $r < v$. Optic axial plane is perpendicular to (001). The indices of refraction are α 1.79 ± 0.005 , γ 1.82 ± 0.01 .

X-ray powder data are given; they differ from those of dufrenite, rockbridgeite, laubmannite, and beraunite.

OCCURRENCE: In the Kalbinsk pegmatite as the outer part of a large nodule of altered triphylite. Intimately associated with sicklerite, from which it probably formed.

NAME: For the Russian mineralogist, Vladimir Ilyitch Kruzhanovsky, one of the creators of the Mineralogical Museum of the Academy of Science, U.S.S.R.

M. F.

Scholzite

H. STRUNZ, Scholzite, ein neue Mineralart, *Fortschritte Mineralogie*, **27**, 31 (1948) (Publ. 1950) (abs.)

Platy and elongate crystals, millimeter in size, colorless to whitish-gray, have the composition $\text{Ca}_3\text{Zn}(\text{OH})_2(\text{PO}_4)_2 \cdot \text{H}_2\text{O}$. They are monoclinic, pseudo-orthorhombic, with a_0 6.46, b_0 9.05, c_0 7.55A., $\beta = 90^\circ$. The unit cell contains 2 molecules. Indices of refraction are $\alpha \sim 1.583$, $\beta \sim 1.589$, $\gamma \sim 1.604$, $2V$ small. Found in a feldspar pegmatite at Hagen-dorf near Pleystein, Oberpfalz, associated with sphalerite, triplite, feldspar, and quartz; these are primary minerals and scholzite is secondary. Named for Dr. A. Scholz, mineral collector and chemist of Regensburg, Germany.

DISCUSSION: Not to be confused with schultzite (=geocronite?), *Dana's System*, 7th Ed., Vol. I, p. 395.

M. F.

DISCREDITED MINERALS

Alumian (= Alunite)

HENRY BASSETT AND THOMAS HENRY GOODWIN, The basic aluminium sulphates: *J. Chem. Soc.* (London) **1949**, 2239-2279.

Alumian, supposedly $Al_2O_3 \cdot 2SO_3$, was described by Breithaupt in 1858. Two samples from the British Museum were examined; both were from the type locality, Sierra Almagrera, Spain, and one had a label in Breithaupt's writing. X-ray study showed that, as had been suggested previously by others, alumian is alunite.

M. F.

Brunckite

J. ZEMANN, "Brunckit"—kryptokristalline Zinkblende: *Tschermaks Mineralog. Petrog. Mitt.*, Ser. 3, Vol. 1, No. 4, 417-419 (1950).

An x-ray powder photograph of brunckite (supposedly amorphous ZnS) from the type locality (see *Am. Mineralog.*, **24**, 350 (1939)) gave a good powder photograph corresponding precisely to that of sphalerite.

M. F.

Histrixite

PAUL RAMDOHR, Der "Histrixit" der Curtin-Davis-Mine in North-Dundas, nordwest-Tasmania: *Neues Jahrb. Mineral.*, Monatsh. **1950**, No. 6, 139-141.

Histrixite was described in 1902 as a sulfosalt of composition perhaps $Cu_5Fe_3Bi_{14}Sb_4S_{32}$ (See *Dana's System*, 7th Ed., Part I, p. 469). Type material from the Australian National Museum, Sydney, was examined and found to be a complex mixture of at least ten minerals. Tetrahedrite, jamesonite, pyrite, bismuthinite, arsenopyrite, chalcopyrite, sphalerite, and marcasite were most abundant; traces of pyrrhotite, native Bi, bournonite, and an unidentified mineral were also noted.

M. F.

Arizonite (a mixture)

J. L. OVERHOLT, G. VAUX AND J. L. RODDA, *Am. Mineral.*, **35**, 117-119 (1950).

Randite (a mixture)

CLIFFORD FRONDEL, *Am. Mineral.*, **35**, 245-250 (1950).

Uranothallite (= Liebigite)

H. T. EVANS, JR. AND CLIFFORD FRONDEL, *Am. Mineral.*, **32**, 251-254 (1950).

**Dihydrate, Ehlite, Lunnite, Phosphorocalcite, Prasine, Tagilite
(all = Pseudomalachite)**

L. G. BERRY, *Am. Mineral.*, **35**, 365-385 (1950).

Alaskaite (a mixture)

R. M. THOMPSON, *Am. Mineral.*, **35**, 456-457 (1950).

Taylorite (= Ammonian apthitalite?)

CLIFFORD FRONDEL, *Am. Mineral.*, **35**, 596-598 (1950). Type taylorite has not yet been re-examined.

Arduinite (= Mordenite)

BRONSON STRINGHAM, *Am. Mineral.*, **35**, 601-604 (1950).

Lossenite (a mixture)

R. M. PEARL, *Am. Mineral.*, **35**, 1055-1059 (1950).

Louderbackite (=Roemerite)

R. M. PEARL, *loc. cit.*

Zepharovichite (=Wavellite)

R. M. PEARL, *loc. cit.*

Peganite (=Variscite)

R. M. PEARL, *loc. cit.*

Sphaerite (=Variscite?)

R. M. PEARL, *loc. cit.* Type sphaerite has not yet been re-examined.

M. F.

NEW DATA

Paratacamite

CLIFFORD FRONDEL, On paratacamite and some related copper chlorides: *Mineralog. Mag.*, **29**, 34-45 (1950).

Paratacamite was originally described in 1806 by G. F. H. Smith as a rhombohedral dimorph of atacamite, $\text{Cu}_2(\text{OH})_3\text{Cl}$, but was stated by H. Ungemach in 1911 to be only twinned atacamite. It is now shown to be a valid species distinct from atacamite. Rhombohedral with unit cell, $a=13.65$, $c=13.95$ kX in hexagonal coordinates, a_{rh} 9.150 kX, alpha $96^\circ 28'$. An angle table is given. Optically, uniaxial positive without perceptible dichroism, $n_O=1.843$, 1.842; $n_E=1.849$, 1.848, all $\pm .003$. Some grains are biaxial with 2V up to 50° , $G.=3.74$, 3.72 (measured), 3.75 (calcd.). A new analysis is given. Paratacamite is easily synthesized and occurs as one of the corrosion products of copper and brass exposed to salt-containing air and as an alteration product of nantokite (CuCl) and eriochalcite ($\text{CuCl}_2 \cdot 2\text{H}_2\text{O}$).

M. F.

Botallackite

CLIFFORD FRONDEL, *loc. cit.*

Botallackite was described by A. H. Church in 1865 as $\text{Cu}_4(\text{OH})_6\text{Cl}_2 \cdot 3\text{H}_2\text{O}$, but has generally been considered to be atacamite. X-ray and optical data indicate it to be a distinct species. Qualitative tests and a spectrographic examination showed only Cu, Cl, and H_2O as major constituents. Optically biaxial, positive with 2V moderately large and strong dispersion, $r > v$. Indices of refraction, alpha $=1.772 \pm .003$, beta $=1.800 \pm .005$, gamma $=1.846 \pm .003$. X-ray powder data are given.

M. F.

Antofagastite = Eriochalcite

CLIFFORD FRONDEL, *loc. cit.*

Antofagastite, $\text{CuCl}_2 \cdot 2\text{H}_2\text{O}$, was described by Palache and Foshag in 1938. It is shown to be identical with eriochalcite (not erythrochalcite) of A. Scacchi (1870). The name eriochalcite has priority.

M. F.