

## NEW MINERAL NAMES

### Cadmoseelite

E. Z. BUR'YANOVA, G. A. KOVALEV, AND A. I. KOMKOV. The new mineral cadmoseelite. *Zapiski Vses. Mineralog. Obshch.*, **86**, 626-628 (1957) (in Russian).

The new mineral was found as fine xenomorphic disseminations cementing sandstone (locality not given) associated with ferroselite, clausthalite, amorphous selenium, cadmian sphalerite, and pyrite. Microchemical tests gave strong tests for Se and Cd, a weak test for S, and no test for Zn. The presence of Cd and the absence of Zn were confirmed spectrographically.

X-ray study showed the mineral to have the wurtzite structure. An indexed *x*-ray powder pattern is given and leads to a cell with  $a_0$  4.262 ± 0.003,  $c_0$  6.955 ± 0.005 kX. Comparison with published data for synthetic CdS and CdSe indicates that the composition is approximately Cd (Se<sub>0.85</sub>S<sub>0.15</sub>). The strongest lines are 2.13(10), 1.816(8), 3.67(7), 1.196(7), 1.020(7), 1.443(6).

The mineral is black with black streak, luster resinous to adamantine. Hardness medium; very brittle. Cleavage perfect, apparently prismatic. Crystals show the base and the hexagonal pyramid, the latter with horizontal striations. In immersion black and opaque; in reflected light gray, somewhat lighter than sphalerite; shows weak brownish tint in oil immersion. Polarizes weakly with crossed Nicols in oil immersion.

The name is for the composition.

MICHAEL FLEISCHER

### Santafeite

MING-SHAN SUN AND R. H. WEBER. Santafeite, a new hydrated vanadate from New Mexico. *Bull. Geol. Soc. Am.*, **68**, 1802 (1957) (abs.).

The mineral has the formula  $\text{Na}_2\text{O} \cdot 6(\text{Mn}, \text{Ca}, \text{Sr})\text{O} \cdot 3 \text{MnO}_2 \cdot 3(\text{V}, \text{As})_2\text{O}_5 \cdot 8\text{H}_2\text{O}$  (analysis not given). Readily fusible in an alcohol flame to a dull black bead. It occurs as an incrustation in small rosettes of acicular crystals on a joint surface of limestone in the Grants uranium district, McKinley County, New Mexico. Color black, streak brown, luster subadamantine. Translucent only in very small fragments, pleochroic from dark reddish brown to yellowish brown, with absorption  $X > Y > Z$ ,  $X = c$ ,  $\alpha = 2.01$ , distinct dispersion. X-ray study shows it to be orthorhombic, space group  $V^{11}_h - Pmca$  with  $a_0$  9.26,  $b_0$  30.02,  $c_0$  6.28, all ± 0.02 Å. Cleavage (010) perfect, (110) distinct.

The name is for the Atchison, Topeka, and Santa Fe Railroad Co., "in recognition of its pioneer exploration and development of the uranium deposits in New Mexico."

DISCUSSION: The mineral has no close analogies; perhaps to be placed in Class 42 of Dana's System, 7th Ed., Vol. II. This mineral was first erroneously identified as ardennite (*Am. Mineral.*, **40**, 338 (1955)).

M. F.

### Horobetsuite

KITARO HAYASE, Minerals of bismuthinite-stibnite series with special reference to horobetsuite from the Horobetsu Mine, Hokkaido, Japan. *Miner. Jour. (Miner. Soc. Japan)*, **1**, 189-197 (1955).

Horobetsuite occurs in the sulfur deposit of Horobetsu Mine, associated with free sulfur and iron sulfide minerals. Crystal habit prismatic with striations parallel to the prism zone. Size 1.0-7.0 mm. in length, and 0.2-2.0 mm. in diameter. Sp. gr. 5.449 (at 20° C.), hardness ca. 2, color lead gray, streak black, interference color pale yellow-gray-dark brown, pleochroism very pale brown-pale blue, not distinct, parallel extinction. Unit cell  $a_0 = 11.24$  Å,  $b_0 = 11.28$ ,  $c_0 = 3.90$ .

Chemical composition:

	Bi	Sb	S	Fe	Insol.	Total	Anal.
No. 1	56.93	21.49	21.57	tr.	tr.	99.99	S. Ito
No. 3	44.80	32.30	23.00	tr.	0.05	100.15	S. Ito
No. 3	51.84	17.20	24.15	5.20	0.98	99.37	R. Sei

Chemical formula of horobetsuite is determined as  $(\text{Bi}, \text{Sb})_2\text{S}_3$ , where mol. ratio of  $\text{Bi}_2\text{S}_3:\text{Sb}_2\text{S}_3$  varies between 9:11 and 13:7. Etching test 1:1  $\text{HNO}_3$ —Stains brownish black; same with 1:1  $\text{HCl}$ , 5%  $\text{HgCl}_2$  and 20%  $\text{FeCl}_3$ ; 40%  $\text{KOH}$ —Etching begins within 9–300 sec., stains brown; 20%  $\text{KCN}$ —Etching begins within 35–85 sec., stains brown.

The data above mentioned show the mineral is a new species, intermediate between bismuthinite and stibnite in physical as well as chemical properties. Therefore a new name, horobetsuite, is proposed for the mineral of the bismuthinite-stibnite series, which has mol. ratio of  $\text{Bi}_2\text{S}_3:\text{Sb}_2\text{S}_3$  between 7:3 and 3:7. The name is for the mine, where the mineral has been found for the first time.

KENZO YAGI

### Bruyerite

G. TACNET. Bruyerite. *Soc. Hist. Nat. Creusot*, 14, No. 4, 1956, in *Fed. franc. soc. sci. nat.* No. 5, Oct., 1956.

The name bruyerite is given to black concretionary material found at Queue de Bruyère, Breuil Reservoir, near Le Creusot, central France. It contains also quartz and mica and is apparently one of the final stages in the transformation of green marl to indurated rock. Chemical, optical, and x-ray data (not given) indicate it to be calcite, probably of organic origin.

MARJORIE HOOKER

### Rhodesite, Mountainite

E. D. MOUNTAIN. Rhodesite, a new mineral from the Bultfontein mine, Kimberley. *Mineralog. Mag.*, 31, 607–610 (1957).

J. A. GARD, H. F. W. TAYLOR, AND R. A. CHALMERS. An investigation of two new minerals: rhodesite and mountainite. *Mineralog. Mag.*, 31, 611–623 (1957).

The minerals occur as matted silky white fibers in rosettes up to 2 mm. in size, strongly resembling natrolite. X-ray and optical study showed that two minerals were present.

Analyses 1, 2 by E. D. M. on air-dried material, 3 and 4 by R. A. C., 1–3 rhodesite, 4 mountainite; 1 after fusion, 2 after decomposition with  $\text{HCl}$ .

	1	2	3	4
$\text{SiO}_2$	61.79	61.86	61.6	58.5
$\text{Al}_2\text{O}_3$	0.30	0.28	nil	nil
FeO	0.25	0.25	nil	n.d.
CaO	14.95	14.85	15.1	13.4
MgO	0.09	0.07	nil	0.2
$\text{Na}_2\text{O}$	5.04	4.82	5.2	7.9
$\text{K}_2\text{O}$	5.40	5.16	6.0	6.0
$\text{H}_2\text{O}$	12.45	12.55	12.3*	13.4
	100.27	99.84	100.2	99.4

\* Total loss on ignition; may include a little  $\text{CO}_2$ . Mountain states, "Chemical tests on other samples suggest that the lime can be as high as 18%, and the alkalis correspondingly low."

These correspond approximately for rhodesite to  $4(\text{Ca}, \text{Na}_2, \text{K}_2)0.10\text{SiO}_2 \cdot 7\text{H}_2\text{O}$  with  $\text{Ca}:(\text{Na}_2+\text{K}_2)=2:1$  (Mountain), or  $(\text{Ca}, \text{Na}_2, \text{K}_2)_8\text{Si}_{16}\text{O}_{40} \cdot 11\text{H}_2\text{O}$  (G., T., and C.) and for mountainite to  $(\text{Ca}, \text{Na}_2, \text{K}_2)_{16}\text{Si}_{32}\text{O}_{80} \cdot 24\text{H}_2\text{O}$ , with  $\text{Ca}:(\text{Na}_2+\text{K}_2)$  nearly 1:1.

D.T.A. curves by R. C. Mackenzie show for rhodesite and mountainite large endothermic breaks at 345° and 332°, respectively, small endothermic breaks at 735°, and a small exothermic break at 960°. Mountain states that rhodesite lost 4.14% H<sub>2</sub>O at 110° and the sample regained all the water in 12 hours at room temperature. Heating at 275° drove off practically all the water, and all but 1% of it was recovered in 8 hours at room temperature. Gard and Taylor found no difference in the x-ray pattern of rhodesite heated at 500°. On ignition it melted to a glass that gave a weak pattern of pseudo-wollastonite. They found no change in mountainite heated at 160°; material heated at 275° and 400° gave weak patterns; that heated at 1000° melted to a glass that gave a weak pattern of  $\beta$ -CaSiO<sub>3</sub>.

Rhodesite gave  $ns$   $\alpha$  1.502,  $\beta$  1.506,  $\gamma$  1.515 (EDM),  $\alpha$  1.502,  $\beta$  1.505,  $\gamma$  1.515 (G. and T.), probably positive with low 2V,  $\alpha=b$ ,  $\beta=a$  (normal to cleavage),  $\gamma=c$  (elongation). Mountainite has  $\alpha$  1.504,  $\beta$  1.510,  $\gamma$  1.519, probably positive with moderate or high 2V,  $\beta=b$  (elongation), G. for rhodesite about 2.36 (M.), 2.36 (G., T., and C.), for mountainite 2.36 (G., T., and C.)

Rhodesite is orthorhombic with  $a=23.8$ ,  $b=6.54$ ,  $c=7.05$  Å.; the unit cell contains (Ca, Na<sub>2</sub>, K<sub>2</sub>)<sub>8</sub>Si<sub>16</sub>O<sub>40</sub>·11H<sub>2</sub>O. Cleavage (100) good. Electron microscope and electron diffraction patterns (G. and T.) correspond to  $a=25$ ,  $b=6.57$ ,  $c=7.00$  Å, with some indication of a superlattice with  $a$  and  $b$  doubled. Mountainite is monoclinic with  $a=13.51$ ,  $b=13.10$  (or possibly 6.55),  $c=13.51$  Å,  $\beta$  104°; the unit cell contains (Ca, Na<sub>2</sub>, K<sub>2</sub>)<sub>16</sub>Si<sub>32</sub>O<sub>80</sub>·24H<sub>2</sub>O.

Indexed x-ray powder patterns are given for both minerals; the strongest lines are: Rhodesite, vs 3.07, s 11.8, 6.56, 3.02, 2.89, 2.78; Mountainite, vvs 2.94, vs 6.6, s 13.1, 4.67, ms 2.80, 1.967.

The general similarity of the two minerals to the fibrous zeolites, such as thomsonite and gonnardite, is discussed. They differ markedly from these in the absence of aluminum.

The names are for Cecil J. Rhodes, and for Edgar D. Mountain, professor of geology at Rhodes University, Grahamstown, Union of South Africa, Rhodesite is pronounced rōdzite.

MICHAEL FLEISCHER

#### Tri-kalsilite

T. G. SAHAMA AND J. V. SMITH. *Am. Mineral.*, **42**, 286 (1957).

#### Smythite

R. C. ERD, H. T. EVANS, JR., AND D. H. RICHTER. *Am. Mineral.*, **42**, 309-333 (1957).

#### Duttonite

M. E. THOMPSON, H. ROACH, AND ROBERT MEYROWITZ. *Am. Mineral.*, **42**, 455-460 (1957).

#### Ferroanthophyllite (aluminian)

YOTARO SEKI AND MASAO YAMASAKI. *Am. Mineral.*, **42**, 506-520 (1957).

#### Doloresite

T. W. STERN, L. R. STIEFF, H. T. EVANS, JR., AND A. M. SHERWOOD. *Am. Mineral.*, **42**, 619-628 (1957).

#### Nolanite

S. C. ROBINSON, H. T. EVANS, JR., W. T. SCHALLER, AND J. J. FAHEY. *Am. Mineral.*, **42**, 619-628 (1957).

#### Un-named lead germanium sulfate

CLIFFORD FRONDEL AND JUN ITO. *Am. Mineral.*, **42**, 743-753 (1957).

**Bikitaite**

C. S. HURLBUT, JR. *Am. Mineral.*, **42**, 792-797 (1957).

M. F.

## NEW DATA

**Bismutoferrite, Chapmanite, Hypochlorite**

CHARLES MILTON, J. M. AXELROD, AND BLANCHE INGRAM. Bismutoferrite, chapmanite, and "hypochlorite," *Bull. Geol. Soc. Am.*, **68**, 1769 (1957) (abs.).

Bismutoferrite (Frenzel, 1871), hitherto considered to be a mixture (Dana's System, 6th Ed., p. 562) is found by  $x$ -ray and chemical study to be a valid mineral of composition  $\text{BiFe}_2(\text{SiO}_4)_2(\text{OH})$  or  $\text{Bi}_2\text{O}_3 \cdot 2\text{Fe}_2\text{O}_3 \cdot 4\text{SiO}_2 \cdot \text{H}_2\text{O}$ . It is isostructural with chapmanite (Walker, 1924) (*Am. Mineral.*, **10**, 41 (1925)), whose formula is therefore revised to  $\text{SbFe}_2(\text{SiO}_4)_2(\text{OH})$ . Hypochlorite is bismutoferrite dispersed in quartz or chalcedony and this name should be dropped.

M. F.

**Ferritungstite**

D. H. RICHTER, L. E. REICHEN, AND D. M. LEMMON. *Am. Mineral.*, **42**, 83-90 (1957).

**Umohoite**

R. G. COLEMAN AND D. E. APPLEMAN. *Am. Mineral.*, **42**, 657-660 (1957).

M. F.

## DISCREDITED MINERALS

**Breislakite (= Vonsenite)**

MARCELLA FEDERICO, Sulla breislakite. *Periodico mineralogia (Roma)* **26**, 191-210 (1957)

Breislakite, named by Brocchi in 1817, was a mineral high in iron and containing manganese, occurring in wool-like forms from Vesuvius and Capo di Bove. It was referred at various times to pyroxene, amphibole, fayalite, and ilvaite (Dana's System, 6th Ed., p. 391; App. I, p. 11; App. II, p. 19.) Analysis and  $x$ -ray study, including a detailed study of the structure, show that breislakite is an iron-rich member (MgO 3.22%) of the ludwigite-vonsenite series.

M.F.

**Bayerite (natural) = Gibbsite**

K. SASVARI AND A. ZALAI. The crystal structure and thermal decomposition of alumina and alumina hydrates as regarded from the point of view of lattice geometry. *Acta geol. acad. sci. Hung.*, **4**, 415-466 (1957)

The naturally occurring bayerite from Fenyőfő, Hungary, described by Gedeon (*Am. Mineral.*, **41**, 959 (1956)), was found by  $x$ -ray study to be gibbsite.

M.F.

**Hydrocuprite (= Cuprite)**

GEORGE SWITZER. *Am. Mineral.*, **42**, 115 (1957).

**Nocerite (= Fluorborite)**

CESARE BRISI AND WILHELM EITEL. *Am. Mineral.*, **42**, 288-293 (1957).

**Pilbarite (= Thorogummite + Kasolite)**

R. M. HONEA. *Am. Mineral.*, **42**, 908-910 (1957).

M. F.