

NEW MINERAL NAMES

Evenkite

In the abstract published in *The American Mineralogist*, **40**, 368 (1955), the composition of evenkite was given as $C_{12}H_{42}$. Mr. Arthur W. Rudkin, Earlwood, New South Wales, has kindly called attention to the fact that this formula does not agree with the analysis. Examination of the original paper shows that the formula was there given as $C_{21}H_{42}$. However, Mr. Rudkin also points out that one would expect a saturated hydrocarbon of formula C_nH_{2n+2} , and the analysis actually corresponds much more closely to $C_{21}H_{44}$ than to $C_{21}H_{42}$. My apologies for the error and my thanks to Mr. Rudkin.

MICHAEL FLEISCHER

Labuntsovite

E. I. SEMENOV AND T. A. BUROVA, On the new mineral labuntsovite and on the so-called titanoeplidite. *Doklady Akad. Nauk. S.S.S.R.*, **101**, 1113–1116 (1955) (in Russian).

The name titanoeplidite was given by Labuntsov in 1926 (See *Am. Mineral.*, **12**, 295 (1927)) to a mineral from Khibina resembling elpidite in crystallography but shown qualitatively to contain much titanium. Re-examination of the original material and of samples found in the Lovozero massif show this to be a new mineral.

Orthorhombic, in simple prismatic crystals up to $12 \times 3 \times 2$ mm., showing the forms c (001), b (010), m (110), d (011), and s (111). $a:b:c=0.511:1:0.489$ (elpidite has 0.5117:1:0.9781). X-ray powder data are given for both localities; the strongest lines (Lovozero) are 3.15 (10), 2.56 (9), 1.543 (9), 3.09 (8), 1.677 (8); the pattern for elpidite is different. Cleavage perfect on (100).

Color rose to brownish-yellow. Brittle. Hardness about 6. $G.=2.901$ (Lovozero), 2.96 (Khibina). Optically biaxial, positive, $ns \alpha=1.689$, $\beta=1.702$, $\gamma=1.795$, $2V=41^\circ$ (Lovozero) $\alpha=1.686$, $\gamma=1.792$ (Khibina). The optic axial plane is (001), $X=b$, $Y=c$, $Z=a$. Pleochroism from brownish-yellow on Z to yellowish on X.

Analysis by T.A.B. of rose-colored material from Lovozero gave SiO_2 39.59, Al_2O_3 1.30, Fe_2O_3 1.56, Nb_2O_5 1.45, TiO_2 25.49, MgO 0.42, MnO 2.34, CaO 1.19, BaO "6.61" (see note below), K_2O 7.24, Na_2O 3.18, H_2O 7.91; sum "100.27%." (Note—this adds to 98.27. However, the atomic ratios given indicate that BaO should be 8.61%. M.F.). This corresponds to $(K, Ba, Na, Ca, Mn)(Ti, Nb)(Si, Al)_2(O, OH)_{7.06}H_2O$ (more nearly $1 H_2O$. M.F.). X-ray spectral analysis showed Rb (0.3%), Sr, Y, Ce, and Th, and spectrographic analysis by L. N. Indichenko showed also Be, Pb, Zn, Cu, Sn, and V (weak lines). The water is lost gradually between 200° and 400° C. (dehydration curve by O. V. Karpov given). The mineral dissolves with difficulty in HCl, HNO_3 , or H_2SO_4 . Easily fusible before the blowpipe to a bluish enamel.

Labuntsovite is widely distributed in the Lovozero and Khibina alkalic massifs, in druses with albite and natrolite, and associated with aegirine, nepheline, microcline, eudialyte, ramsayite, and murmanite. It is a hydrothermal alteration product of murmanite and is sometimes altered to anatase (leucoxene).

Since the mineral is not related to elpidite, the name titanoeplidite should be dropped. Labuntsovite is named for Aleksander Nikolaevich Labuntsov and Ekaterina Eutikhieva Labuntsov-Kostyleva, Russian mineralogists.

M. F.

Ferutite

A note in *Zapiski Vses. Mineral. Obshch. (Mém. soc. russe minérale)*, **83**, No. 4, p. 425 (1954) states that at the meeting held May 24–27, 1954, Yu. V. Kazitsyn gave a paper in

which he stated that *x*-ray study of the "mineral from Mozambique" showed it to be different from davidite. It is hexagonal with *a* 6.88*kX*, *c* 16.86 *kX*. It is given the name ferutite (from ferrum, uranium, titanium). Presumably this is the davidite-like mineral described by Bannister and Horne, *Mineral. Mag.*, **29**, 101–112 (1950), from the Tête district, who reported it to be hexagonal rhombohedral (class 3*m*), with *a*:*c*=1:1.37.

M. F.

Mavudzite

A°. VASCONCELOS PINTO COELHO, O minerio de urânio de Mavudzi—Tete (Moçambique). *Garcia de Oria (Rev. junta missões geogr. e invest. do Ultramar)* **2**, No. 2, 209–219 (1954). The name mavudzite is given to the radioactive mineral from Mavudzi, Tete district, Mozambique, described by Bannister and Horne, *Mineral. Mag.*, **29**, 101–112 (1950). Ten new partial analyses are given.

DISCUSSION: Bannister and Horne stated "It does not seem warrantable to claim that the radioactive mineral from Tete, Mozambique, is a new and distinct species. It should rather be classed as a variety of davidite until unambiguous evidence to the contrary is forthcoming." On this basis, the name mavudzite should not have been proposed.

M. F.

Grovesite

F. A. BANNISTER, M. M. HEY, and W. CAMPBELL SMITH, Grovesite, the manganese-rich analogue of berthierine. *Mineral. Mag.*, **30**, 645–647 (1955).

A micro-analysis (on 70 mg. for main constituents, 60 mg. for H₂O, and 20 mg. for oxidation states) gave SiO₂ 22.0, Al₂O₃ 18.8, Fe₂O₃ 4.1, MnO 43.4, MgO 0.8, BaO 0.3, H₂O 9.0; sum 98.4%, corresponding to (Mn, Fe, Al)_{12.8}(Al, Si)₈O_{22.0}(OH)_{14.5} or (Mn, Fe, Al)₃(Al, Si)₂(O, OH)₉. This is close to the composition of pennantite (see *Am. Mineral.*, **32**, 256 (1947)), but the *x*-ray powder data (not given) do not resemble closely those of chlorites. They agree well with those for cronstedtite and berthierine except that grovesite shows a fairly strong line corresponding to a spacing of 14 Å. The mineral is therefore a member of the cronstedtite-berthierine-amesite group with a structure based on the two-layer sheets of the kaolin family, but presumably with a two-sheet repeat as compared with the three-sheet repeat of cronstedtite. Berthierine (not berthierite) (Beudant, 1832) was formerly thought to be identical with chamosite, but is structurally distinct. (The name berthierine ought to be changed to eliminate confusion. M.F.)

Grovesite is dark brown (blackish-brown). It occurs as small rosettes, at most 0.5 mm. across. *D*=3.150±.02. The unit cell dimensions are *a* 5.51±.02, *b* 9.54±.02, *c* 14.36±.04 Å. It is optically uniaxial, negative with *n_s* (Na)α'=1.658±.001, β=γ=1.667±.001, absorption β=γ>α; β and γ, parallel to the cleavage, very dark brown; α, perpendicular to the cleavage, red-brown.

The mineral is from the No. 5 ore-body of the Benallt mine, Rhiw, North Wales. The name is for A. W. Groves, geologist, Colonial Geological Surveys.

M. F.

Trogtalite, Hastite, Bornhardtite, Unnamed Cobalt Selenide

PAUL RAMDOHR AND MARG. SCHMITT, Vier neue natürliche Kobaltselenide von Steinbruch Trogtal bei Lautenthal im Harz. *Neues Jahrb. Mineral.*, Monatsh. 1955, No. 6, 133–142.

Four new cobalt selenides occur in fine violet to red-brown intergrowths in clauthalite; hematite and native Se (secondary) are also present. Samples were drilled out under the microscope; the *x*-ray patterns were corrected for the presence of clauthalite.

Trogtalite. Isotropic, very hard, polishes badly, color rose-violet. The x -ray powder pattern was indexed as cubic with a_0 5.87 ± 0.02 Å. Synthetic CoSe_2 (pyrite type) has a_0 5.854 Å. The name is for the locality. It probably also occurs at St. Andreasberg, Harz.

Hastite. Strongly anisotropic, hard, polishes well. Forms idiomorphic and radiating crystals. Reflection pleochroism strong, especially in oil immersion, and corresponds to orthorhombic symmetry. Color light brownish-red to dark reddish-violet. Twinning observed. These properties suggested that the mineral might be CoSe_2 of marcasite type or CoAsSe of arsenopyrite type, neither of which has been synthesized. X -ray powder data were indexed in terms of a cell a_0 3.60, b_0 4.84, c_0 5.72 Å and comparison with marcasite, FeSe_2 , and frobergite indicates this to be CoSe_2 of marcasite type. The name is for Dr. P. F. Hast, mining engineer.

Bornhardtite. Rose-colored, but paler than the preceding two. Isotropic. Hardness about 4 or a little less. The x -ray powder diagram is indexed as cubic, with $a_0 \sim 10.2 \pm 0.2$ Å, which indicates a mineral of the linneite group, Co_3Se_4 . This may be closely related to the unnamed cobalt copper nickel selenide ($\text{Co}:\text{Cu}:\text{Ni}=3:2:2.5$) from Goldfields district, Saskatchewan, which had a_0 10.005 Å (Robinson and Brooker, *Am. Mineral.*, **37**, 542–544 (1952)). The name is for the late Dr. W. Bornhardt.

Unnamed Mineral. Anisotropic, softer and polishes better than trogtalite and hastite. Optical relations and hardness are analogous to those of niccolite, but the color is more of a violet-rose, not yellowish. The mineral was so scarce that x -ray powder diagrams were unsatisfactory. Weak lines that were measured gave a pattern of NiAs type corresponding to a_0 3.6, c_0 5.3 Å. Synthetic CoSe has a_0 3.59, c_0 5.27 Å. No name is proposed pending further study.

M. F.

Nolanite

S. C. ROBINSON, Mineralogy of uranium deposits, Goldfields, Saskatchewan. *Canada Dept. Mines and Techn. Surveys, Geol. Survey Canada, Bull.* **31**, 128 pp. (1955).

This new iron vanadate, $3\text{FeO} \cdot \text{V}_2\text{O}_5 \cdot 3\text{V}_2\text{O}_4$, occurs in four mines. It is a major constituent in the Pitche group where in hand specimen it is massive gray with a bluish tarnish; under the microscope it is in hexagonal plates. Associated minerals are hematite and chalcopyrite. It is a minor constituent (*a*) at Fish Hook Bay, in laths in dolomite; (*b*) at the Nicholson No. 2 mine where a bladed boxwork of nolanite and dolomite contains chalcopyrite, galena, and other sulfides, also in veins with pitchblende and sulfides; (*c*) in veins at the Ace mine, associated with pitchblende and ilmenite. Structural data for the mineral have been published by Barnes and Qurashi, *Am. Mineral.*, **37**, 420–421 (1952). A complete account is to be published in the *Am. Mineralogist* by Robinson, Fahey, and Schaller. The name is for Thomas B. Nolan, Assistant Director, U. S. Geological Survey (private communication from W. T. Schaller).

M. F.

Cardosonite

ISIDORO ASENSIO AMOR, Investigacion por Rayos X de algunos fosfatos de origen secundario hallados en "Puerto de Son" (Coruna). Cardosonite, un nuevo miembro de la serie de la Dufrenita. *Estudios geol., Inst. invest. geol. "Lucas Mallada" (Madrid)*, **13**, No. 25, 43–50 (1955) (from a translation kindly made by Daniel E. Appleman).

A clear green mineral is associated with eosphorite, evansite, and smoky quartz. Qualitative analysis showed Ca, Mg, and Mn, but no ferrous iron. Quantitative analysis (incomplete for lack of material) gave P_2O_5 24.76, Fe_2O_3 54.07, H_2O 9.21%. The x -ray powder data are given; they agree fairly well with those obtained on dufrenite from Hirsch-

berg, Westphalia. The differences in chemical composition and in exterior appearance (compact, massive, without fibrous structure) are considered to be sufficient to warrant a new name.

The name is for Martin Cardoso, who had previously described the associated evansite and eosphorite.

DISCUSSION: Insufficient basis for a new name.

M. F.

Absite

A. W. G. WHITTIE, Absite—a new mineral related to brannerite. *South Australia Dept. Mines, Mining Review No. 97* for 1952, pp. 99–106 (1954); also partial description in *S. Australia Geol. Survey, Bull. No. 30*, 79–83, 126–151 (1954).

A chemical analysis gave TiO₂ 35.13, UO₃ 31.83, ThO₂ 12.81, Sc₂O₃ 0.19, Ce₂O₃ 1.43, Y₂O₃ etc. 3.71, ZrO₂ 0.38, Fe₂O₃ 1.37, PbO 2.79, P₂O₅ 0.13, H₂O⁻ 2.54, H₂O⁺ 7.41; sum 99.72%. Cr, V, Be, Mn, Ca, Mg, Ta, and Nb were absent. The analysis suggests the formula 2 UO₃·ThO₂·7TiO₂·5H₂O. Absite does not fuse when heated to redness, but expands and splits. The mineral is readily decomposed by HCl, HNO₃, and H₂SO₄. Non-fluorescent.

It is yellow to yellow-brown or brownish olive-green. Hardness of purest samples 5 to 6, G. 4.0 to 4.2. Luster resinous on fresh fracture to dull on weathering. Fracture irregular; very brittle. Optically isotropic, *n* somewhat variable with degree of weathering, but mainly 1.96 ± .01.

X-ray study by K. Norrish shows the mineral to be amorphous, presumably metamict, the only lines observed being weak ones corresponding to the presence of a little rutile. When heated at 900°, the mineral gives an x-ray pattern, the strongest lines being at 3.43 and 4.79 kX.

Absite occurs in irregular grains in a zone of brecciated rocks ranging from adamellite to granodiorite at Crockers Well, South Australia. It also occurs in rutile-bearing quartz veins, sometimes in forms 5–10 cm. in size that simulate hexagonal or triclinic crystals.

The mineral is considered to be related to brannerite, differing in containing no UO₂, in containing ThO₂, and more H₂O. It is stated that the x-ray data on heated material are similar to those given by heated brannerite.

The name is an abbreviation of air-borne scintillometer, by which means the deposit was discovered.

DISCUSSION: An unnecessary name for thorian brannerite.

M. F.

Wairakite

A. STEINER, Wairakite, the calcium analogue of analcime, a new zeolite mineral. *Mineral. Mag.*, **30**, 691–698 (1955).

D. S. COOMBS, X-ray observations on wairakite and non-cubic analcime. *Mineral. Mag.*, **30**, 699–708 (1955).

Wairakite occurs in tuffaceous sandstones and breccias, vitric tuffs and welded tuffs in drill cores from levels 600 to 2890 ft. and in rocks ejected by steam from some of the drill holes. In drill cores it is fine-grained, replacing andesine and filling cavities. In some of the ejected rocks, it occurs as megascopic veinlets, 0.5 to 0.25 mm. thick, which may be lined with subhedral crystals up to 15 mm. across, showing partial octahedron and trapezohedron faces.

Analysis by J. A. Ritchie of pure material gave SiO₂ 55.9, Al₂O₃ 23.0, CaO 11.7, SrO 0.05, Na₂O 1.06, K₂O 0.16, Cs₂O 0.017, Rb₂O 0.0003, H₂O⁻ 0.15, H₂O⁺ 8.35; sum 100.39%.

which corresponds closely to $\text{CaO} \cdot \text{Al}_2\text{O}_3 \cdot 4\text{SiO}_2 \cdot 2\text{H}_2\text{O}$, which corresponds to the formula of analcime with Ca replacing Na_2 . Study of the literature shows few analysis intermediate between analcime and wairakite. The mineral loses 4.23% from 110° to 380° C., 4.09% from 380° to 800°, and 0.03% above 800°. It fuses at $2\frac{1}{2}$. Gelatinizes with HCl.

Wairakite is colorless to white, luster vitreous to nearly dull. G. 2.26, hardness $5\frac{1}{2}$ -6. The mineral is brittle. Two sets of partings (?) intersecting at right angles and parallel to two sets of twinning lamellae were observed under the microscope. The mineral is biaxial and shows no isotropic patches (in contrast to birefringent analcime), α (near b) 1.498, γ (near c) 1.502, both ± 0.001 , $2V_\gamma$ variable 70° to 105°, average near 90°, dispersion weak $r > v$ about γ .

The x-ray powder pattern shows doubling of many lines of the analcime pattern indicating departures from cubic symmetry and corresponding to a cell with maximum and minimum dimensions of about 13.68 Å and 13.56 Å. Weissenberg photographs of optically oriented sections show wairakite to be monoclinic, space group Ia or $I2/a$, a 13.69 \pm .02, b 13.68, c 13.56 Å, β 90.5°; the unit cell contains 8 $\text{CaAl}_2\text{Si}_4\text{O}_{12} \cdot 2\text{H}_2\text{O}$. The cell is pseudo-cubic and pseudo-tetragonal.

The mineral is of hydrothermal origin. The waters in the drill holes are alkaline and temperatures measured range from 200° to 250° C. Calculated hydrostatic pressures are 55 to 265 atmospheres. There is no evidence to suggest that wairakite has formed from analcime by ion exchange.

The name is for the locality, Wairakei, in the central part of the North Island, New Zealand, about 4 miles from Lake Taupo.

M. F.

Isokite

T. DEANS AND J. D. C. MCCONNELL, Isokite, CaMgPO_4F , a new mineral from Northern Rhodesia. *Mineral. Mag.*, **30**, 681-690 (1955).

Isokite occurs as fibrous spherulites, commonly 0.5 to 1 mm. in diameter, rarely up to 2 or 3 mm. in diameter, in ankeritic rocks of a carbonatite plug at Nkumbwa Hill, 15 miles east of Isoka (pronounced Isōka). Associated minerals include strontian fluorapatite, pyrite, ilmenite, barite, monazite, pyrochlore, and sellaite. Analysis by R. Pickup gave CaO 30.72, SrO 1.65, BaO 0.21, rare earths 0.16, MgO 21.58, FeO 0.49, MnO 0.13, P_2O_5 37.76, F 9.55, H_2O below 300° 0.26, H_2O above 300° 0.46, CO_2 1.02, acid insol. 0.10; sum 104.09 less ($\text{O}=\text{F}_2$) 4.02, 100.07%. After deduction of 2.14% ankeritic dolomite and 0.99% fluorapatite, this corresponds closely to CaMgPO_4F . The mineral dissolves slowly in cold HCl, rapidly in warm acids.

Isokite is colorless to buff or pinkish, luster silky to slightly pearly. G. 3.27 for crystal-line plates, down to 3.15 for fibrous material, 3.29 calcd. from x-ray data. Hardness above 4, probably 5. Fluoresces blue under longwave (3650 Å) ultra-violet light. Optically biaxial, positive, α 1.590, β 1.595, γ 1.615 (all $\pm .002$), $2V$ 51-51½° \pm 2° (Universal stage), $\gamma=b$, $\alpha:c = +32^\circ$, dispersion $r > v$, Bx_a normal to the cleavage plates.

The plates show the forms (001), (100), (101), (10 $\bar{1}$), and (10 $\bar{2}$); angles measured under the microscope agree well with those from the x-ray data. Weissenberg and oscillation photographs show isokite to be monoclinic, space group $C2/c$ (test for pyroelectricity negative), a 6.52, b 8.75, c 7.51 Å. (all ± 0.05 Å), β 121°28' \pm 12'. $a:b:c = 0.745:1:0.858$. There is a very good cleavage, (010). X-ray powder data are given. Isokite is isostructural with durangite ($\text{NaAlAsO}_4\text{F}$), tilasite (CaMgPO_4F), and sphene [$\text{CaTiSiO}_4(\text{O}, \text{OH}, \text{F})$].

The name is for the locality.

M. F.

DISCREDITED MINERALS

Alvarolite (= Mangantantalite)

ELYSIARIO TAVORA, X-ray diffraction powder data for some minerals from Brazilian localities. *Anais Acad. Brasileira Cienc.*, **27**, 7-29 (1955).

X-ray powder data on type material (see *Am. Mineral.*, **39**, 159 (1954)), showed alvarolite to be identical with mangantantalite.

M. F.

Ribeirite (= Yttrian zircon)

E. TAVORA, *op. cit.*

X-ray powder data on type material (see *Am. Mineral.*, **39**, 159 (1954)) gave a weak pattern with 10 lines corresponding closely to the strongest lines of zircon. The heated sample gave a sharp pattern corresponding closely to that of zircon.

M. F.

Curtisite (= Idrialite)

K. TUČEK AND J. KOUŘIMSKÝ, The occurrence of curtisite in Czechoslovakia and its identity with idrialite. *Rozpravy česk. Akad. Věd.*, **63**, No. 3, 1-18 (1953) (English summary).

A hydrocarbon found in fissures in andesite at Ordějov, Moravia, had G . 1.225, α $1.557 \pm .001$, β $1.738 \pm .001$, γ above 1.83. The optical data suggest monoclinic symmetry. The optics and x-ray powder patterns are identical with those of curtisite from Skaggs Springs, Cal. (Wright and Allen, *Am. Mineral.*, **15**, 169-173 (1930)) and idrialite from Idria, Yugoslavia (Dana's System, 6th Ed., p. 1013).

The name idrialite has priority.

M. F.

Corrections

A number of typographical errors appear in the paper by E. G. Zies and H. E. Merwin in the article "Analysis of Hamley bornite from South Australia," in the November-December issue, 1955, pages 1002 and 1003. *Page 1002, Table 1, last column*: The footnote reference for the third and fourth figures down should be *f* instead of *b*. The column total should be 99.90, instead of 99.80.

Page 1003, Table: The total of the second column should be 99.91, instead of 99.51.
