

NEW MINERAL NAMES

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Perryite

KURT FREDRIKSSON AND E. P. HENDERSON (1965) The Horse Creek, Baca County, Colorado, iron meteorite. *Trans. Amer. Geophys. Union* **46**, 121 (abstract).

This brief abstract mentions the occurrence of about 3% of a new mineral, nickel silicide, of approximate composition Ni 81, Fe 3, Si 12, P 5%. It was also found in the St. Marks enstatite chondrite.

DISCUSSION.—Mineral names should not be published without supporting data.

Gentnerite

AHMED EL GORESY AND JOACHIM OTTEMANN (1966) Gentnerite, $\text{Cu}_3\text{Fe}_3\text{Cr}_{11}\text{S}_{18}$, a new mineral from the Odessa meteorite. *Z. Naturforsch.* **21a**, 1160–1161.

The mineral occurs as veinlets of 10 microns diameter in cracks in daubreelite, which occurs in troilite in a nodule of the Odessa meteorite. The daubreelite also contains patches of native copper and is cut by veins of chalcopyrite and bornite. Electron probe analyses (corrected for background, absorption, etc.) gave Cu 28.3, Fe 9.1, Cr 31.4, S 32.6, sum 101.4%, corresponding to $4\text{Cu}_2\text{S} \cdot 3\text{FeS} \cdot 11\text{CrS}$.

The mineral is light brownish-green with reflectivity slightly stronger than that of daubreelite. No birefringence was noted, indicating that it may be isotropic. Hardness slightly less than that of daubreelite.

The name is for Wolfgang Gentner, Max-Planck Institute for Nuclear Physics, Heidelberg.

DISCUSSION.—The mineral was *disapproved* before publication by the Commission on New Minerals and Mineral Names, IMA, by a vote of 16–2, because of the lack of adequate characterization, especially of x-ray data and synthesis. It should be noted that chromium is considered to be trivalent in daubreelite.

Kassite, Hydrokassite

A. A. KUKHARENKO *et al.* (1965) *The Caledonian ultrabasic alkaline rocks and carbonatites of the Kola Peninsula and northern Karelia*. Izdat. "Nedra," Moscow, p. 372–375 (in Russian).

Analysis by E. N. Baranova gave TiO_2 65.59, Al_2O_3 0.98, Fe_2O_3 1.92, MgO none, CaO 23.03, SrO 0.05, Na_2O 0.11, K_2O 0.04, H_2O^+ 8.04, H_2O^- tr., F 0.04, SiO_2 0.55, sum 100.35 – $(0 = \text{F}_2 \cdot 0.02) = 100.33\%$. Spectrographic analysis showed traces of Nb, Zr, La, and Y. After deducting the SiO_2 as sphene, this gives $[\text{Ca}_{0.95}\text{Na}_{0.01}(\text{H}_2\text{O})_{0.04}] [\text{Ti}_{1.92}\text{Fe}_{0.06}\text{Al}_{0.06}] \text{O}_{3.96}(\text{OH})_{2.04}$, or $\text{CaTi}_2\text{O}_4(\text{OH})_2$. Insoluble in acids. The DTA curve shows a small endothermic effect at 250–300°C, a large one at 600–700° (loss of hydroxyl), and a sharp exothermic break at 800–850° (formation of perovskite + rutile).

Crystals are flattened on {010}, the predominant face; subordinate and {181} and {270}; vicinal faces are {251}, {031}, and {101}. Twinning on {101} and {181} very common. X-ray study by V. V. Kondrat'eva showed kassite to be orthorhombic, space group not given, $a = 8.99 \pm 0.03$, $b = 9.55 \pm 0.03$, $c = 5.26 \pm 0.01$ kX, $a:b:c = 0.941:1:0.551$. Cleavage {010} perfect, {101} distinct. The strongest X-ray lines (37 given) are 3.30 (10), 1.761 (10), 4.77 (5), 3.63 (4), 2.29 (4), 1.501 (4).

The mineral is yellowish to pale yellow, luster adamantine, H. 5, very brittle, G. 3.42 (measured, pycnometer), 3.418 (calculated from X-ray data). Paramagnetic. Under the

microscope weakly pleochroic from colorless to pale yellow. Biaxial, negative, $2V = 58^\circ$; $\alpha = 1.95 \pm 0.01$, $\beta = 2.13$, $\gamma = 2.21$; dispersion $r > v$, very strong, $X = c$, $Z = b$.

The mineral occurs as crystals on the walls of miarolitic cavities of alkalic pegmatites, Afrikanda massif, Kola Peninsula, associated with cafetite (*Amer. Mineral.* **45**, 476 (1960)). It also forms pseudomorphs after perovskite, replaces ilmenite, and is covered by sphene.

The mineral may be part of a morphotropic series with fersmite, CaNb_2O_6 and natronobite, $(\text{Na}, \text{Ca})(\text{Nb}, \text{Ti})_2\text{O}_5(\text{OH})$ (but the unit cell constants are very different—M.F.).

The name is for the geologist N. G. Kassin, discoverer of the Afrikanda massif.

The name hydrokassite is given to an alteration product of kassite. White, with greenish tint. No analysis; spectrographic study showed Ti, Ca, and a small amount of iron. The X-ray pattern is similar to that of kassite, but is less distinct and the lines differ somewhat in position and intensities; strongest lines 3.23, 2.30, 1.74, 1.61, 1.51. Optically biaxial, negative, $2V \sim 40^\circ$, $\alpha' = 2.038$, $\beta = 2.042$, $\gamma' = 2.050$.

DISCUSSION.—The data on hydrokassite are insufficient. Kassite should not be confused with kasoite.

Meta-ankoleite

M. J. GALLATHER AND D. ATKIN (1966) Meta-ankoleïte, hydrated potassium uranyl phosphate. *Bull. Geol. Surv. Great Brit.* **25**, 49.

Microchemical analyses made by A. D. Wilson, G. A. Sergeant, and K. L. H. Murray on concentrates from Uganda and Rhodesia gave, resp., UO_3 56.2, 55.0; P_2O_5 14.3, 16.0; K_2O 8.0, 7.1; BaO (spec.) 3.0, 0.5; CaO trace, 2.7; H_2O 10.9, 11.0; SiO_2 5.6, 6.0; Al_2O_3 0.8, 1.0 (spec.); Fe_2O_3 n.f. (not found), 0.2; Na_2O 0.3, 0.03; TiO_2 (spec.) n.f., 0.5 ZrO_2 (spec.) n.f., 0.3; ThO_2 (spec.) n.f., n.f.; sum 99.1, 100.3%. A special colorimetric determination of highly purified material from Uganda gave SiO_2 1.3%. All the silica in the first analysis was therefore deducted as quartz and albite, giving the formula $(\text{K}_{1.1}\text{Ba}_{0.2})(\text{UO}_2)_2(\text{PO}_4)_2 \cdot 6\text{H}_2\text{O}$. The second analysis of Rhodesian material was on a sample containing microcline and quartz, but the amount of K feldspar was not known; the analysis approximates the same formula but with $(\text{K}_{1.43}\text{Ba}_{0.04}\text{Ca}_{0.45})$.

X-ray powder patterns of the two samples are nearly identical and very similar to that of metatorbernite. The strongest lines (Ankole, Uganda) are 8.92 (100)(001), 3.73 (65)(102), 3.25 (55)(201), 4.93 (50)(110), 3.49 (50)(200), 5.47 (45)(101), 4.32 (40)(111). These yield a unit cell $a = 6.993 \pm 0.010$, $c = 8.891 \pm 0.005\text{Å}$, $Z = \text{K}_2(\text{UO}_2)_2(\text{PO}_4)_2 \cdot 6\text{H}_2\text{O}$. G. calc. 3.54.

The mineral occurs as yellow plates usually about 0.5 mm. and up to 1 mm. in diameter. Cleavage {001} micaceous and {100} sometimes distinct. Uniaxial, neg., $\omega = 1.580$ (Uganda), $= 1.583$ (Rhodesia), both ± 0.002 . Fluoresces yellow-green in both short-wave and long-wave ultraviolet.

The mineral occurs in the Mungenyi pegmatite, Ankole district, S.W. Uganda, intergrown with a phosphuranylite-type mineral associated with muscovite, quartz, and albite. It also occurs in poorly cemented feldspathic quartzite, Sebungive district, Rhodesia, with quartz, sericitized microcline, and accessory monazite, spinel, barite, and zircon.

The name is for the Ankole district, Uganda.

The mineral was approved before publication by the Commission on New Minerals and Mineral Names, IMA.

Suolunite

JO-KU TS'ENG, CHI-YUEH HSIEH, AND CHIH-CHUNG P'ENG (1966) The crystal structure of suolunite: *Kexue Tongbao* (foreign language edition) **17**, no. 1, 45–48 (1966) (in English).

This mineral was described by Huang, *Geol. Review* **23** (1965), but this journal has not been seen. The composition is $\text{CaSiO}_3 \cdot \text{H}_2\text{O}$. Weissenberg photographs show the mineral to be orthorhombic, space group $C^{19}2V-Fdd2$, $a = 11.02 \pm 0.03$, $b = 19.74 \pm 0.05$, $c = 6.08$

$\pm 0.02 \text{ \AA}$, $Z = 16$. The formula should be $\text{Ca}_2\text{H}_2(\text{Si}_2\text{O}_7) \cdot \text{H}_2\text{O}$ or $\text{Ca}_2\text{H}_4(\text{Si}_2\text{O}_7)\text{O}$. X-ray powder data are not given. The mineral shows a distinct piezo-electric effect. $G. 2.683$. Optically biaxial, negative, $\alpha = 1.610$, $\beta = 1.620$, $\gamma = 1.623$, $2V = 30-35^\circ$, $X = a$, $Y = c$.

DISCUSSION.—The name is very close to sulunite [*Amer. Mineral.* **45**, 478-479 (1960)].

Turite

A. A. KUKHARENKO *et al.* (1965) *The Caledonian ultrabasic alkalic rocks and carbonatites of the Kola Peninsula and northern Karelia*. Izd. "Nedra," Moscow, p. 418-423 (in Russian).

Analyses by E. P. Sokolova gave SiO_2 31.46, 31.92; TiO_2 10.19, 10.33; ZrO_2 0.30, 0.33; Nb_2O_5 0.66, 0.67; Al_2O_3 1.66, 1.69; Fe_2O_3 0.62, 0.64; MgO 0.55, 0.58; ThO_2 0.17, 0.19; Ce_2O_3 2.81, 2.83; La_2O_3 3.00, 3.02; Y_2O_3 0.56, 0.59; CaO 37.84, 38.21; Na_2O 3.72, 3.77; K_2O 0.26, 9.29; F—, 6.80; H_2O^+ 5.33, 0.90, H_2O^- 0.13, 0.13, sum 99.26, 102.89—($0 = \text{F}_2$) 2.86 = 100.03%. Triclinic, $a = 9.45$, $b = 5.72$, $c = 7.32 \text{ \AA}$, $\alpha = 90^\circ$, $\beta = 81^\circ$, $\gamma = 98^\circ$; the strongest X-ray lines are 3.08 (10), 2.98 (9), 1.912 (8), 1.690 (6). Optically biaxial, negative dispersion strong $r < v$, $\alpha = 1.653$, $\beta = 1.658$, $\gamma = 1.659$.

The name is for the occurrence in olivine melteigites of the Tur'yii Peninsula, Kola.

DISCUSSION.—An unnecessary name for a cerian götzenite [see *Amer. Mineral.* **43**, 790-791 (1958); **45**, 221-224 (1960)]. In addition, the name turite (tur'it) (also translated as turjite, turyite, turgite) has been used for hydrohematite.

Pseudo-aenigmatite

A. A. KUKHARENKO *et al.* (1965) *The Caledonian ultrabasic alkalic rocks and carbonatites of the Kola Peninsula and northern Karelia*. Izd. "Neda," Moscow, p. 501-502 (in Russian).

Analysis by M. M. Stukalova on 20 mg. gave SiO_2 51.02, TiO_2 11.30, Fe_2O_3 17.26, Al_2O_3 6.94, MgO 1.65, CaO 1.75, Na_2O 5.70, K_2O 3.80, loss on ignition 0.60, sum 100.02%, corresponding to the formula: $(\text{Na}_{2.054}\text{K}_{0.24}\text{Ca}_{0.10})(\text{Fe}_{0.64}\text{Ti}_{0.31}\text{MgO}_{0.12})(\text{Si}_{2.61}\text{Al}_{0.38}\text{Ti}_{0.11})\text{O}_8$. Insoluble in acids. Before the blowpipe melts easily to a pale-brown enamel-like mass. It is not stated whether FeO was determined.

X-ray powder data are given (60 lines). The strongest are 3.17 (10), 1.502 (10), 3.50 (9), 1.476 (9), 2.94 (8), 2.47 (8) (broad), 2.17 (8), 9.0 (7), 1.913 (7). Crystals are short, prismatic, usually showing only the forms (110) and (001); angles (110):($\bar{1}10$) = $106^\circ 00'$, (110):(001) = $67^\circ 15'$. Rarely twinned on (110).

Color velvet-black, powder brown, in fine fragments translucent dark red. Luster vitreous. Cleavage (010) imperfect, fracture irregular, micro-conchoidal. $H. 5-6$. $G. 3.21$. Optically biaxial, positive, $2V$ about 10° , dispersion $r > v$, rarely $r < v$ strong. $Z = b$ [misprint?—M.F.], $c \wedge Z = 13^\circ$. In transmitted light reddish-brown. Pleochroic, Z dark reddish brown, X and Y reddish-brown, absorption $Z > Y = X$. ns are not given.

The mineral occurs in very small amounts in veins of apophyllite-quartz-calcite, cutting malignites of the Tur'yii Peninsula, Kola. It is associated with quartz and labuntsovit and forms intergrowths with labuntsovit and anatase.

DISCUSSION.—The X-ray pattern resembles that of aenigmatite, but the latter contains less silica and large amounts of FeO ($\sim 30\%$). Further work is needed.

Fedorite

A. A. KUKHARENKO *et al.* (1965) *The Caledonian ultrabasic alkalic rocks and carbonatites of the Kola Peninsula and northern Karelia*. Izd. "Nedra," Moscow, p. 479-481 (in Russian).

Analysis by M. M. Stukalova on 150 mg. gave SiO_2 62.99, R_2O_3 3.30, CaO 15.80, Na_2O 8.00, K_2O 3.80, loss on ignition 5.33, sum 99.22%, corresponding to $\text{K}_{0.27}(\text{Ca}_{1.02}\text{Na}_{0.93})$

$(\text{Al}_{0.20}\text{Si}_{3.80})[\text{O}_{9.05}(\text{OH})_{0.95}] \cdot 1.5\text{H}_2\text{O}$. Insoluble in acids. Melts easily in the alcohol flame to a white isotropic enamel with $n = 1.528$. X-ray powder data are given (71 lines); the strongest lines are 2.93 (10)(broad), 2.97 (9), 1.826 (9)(broad), 11.7 (8), 6.0 (8), 3.13 (8)(broad), 4.21 (7), 4.0 (6), 2.60 (6)(broad), 1.485 (6), 1.148 (6).

The pattern shows some similarity to those of micaceous silicates.

The mineral occurs as pseudohexagonal tabular crystals, resembling muscovite. Under the microscope the angle between the prisms was measured as 124° and the angle between the prism and (010) was 118° . Cleavage (001) micaceous. Colorless to pale raspberry-red, luster vitreous. G. 2.58. Optically biaxial, negative, $\alpha = 1.522$, $\beta = 1.530$, $\gamma = 1.531$, $2V = 32^\circ$, dispersion distinct $r < v$, $X \parallel (001)$, $Y = b$.

The mineral occurs in fenitized sandstone of the Tur'yii Peninsula, Kola, as fine veinlets, associated with narsarsukite, and partly replaced by quartz and apophyllite. The name is for E. S. Fedorov.

Svidneite

Y. MINCHEVA-STEFANOVA, On the alkali amphiboles from the potassium alkaline quartz syenites near the village of Svidnya, district of Sofia: *Izv. Geol. Inst. Bulg. Akad. Nauk* pp. 41–62 (1951).

Name given to an amphibole found in potassium-rich quartz syenites in the western Balkan Mountains. It occurs as crystals up to 12 mm, with {110} and {010} but no terminal faces. Chemical analysis: SiO_2 49.53, TiO_2 4.10, Al_2O_3 2.28, Fe_2O_3 16.89, FeO 3.94, MnO 0.48, CaO 1.99, MgO 5.60, K_2O 1.04, Na_2O 8.20, H_2O^+ 1.81, H_2O^- 2.82, total 98.68%. Plane of optic axes \perp to (010), $Z = b$, $Y \wedge c$ 11 to 43° (increasing towards the periphery); dispersion strong (up to $9^\circ 30'$): $v > r$. $2V_\alpha$ varies from about 0° to 77° (increasing towards the periphery). Birefringence likewise changes from 0.006 to 0.012. $\alpha = 1.665$, $\gamma = 1.675$. Pleochroism: Z —yellowish violet to violet, Y —yellowish green, olive green to bluish green, X —pale yellow. Absorption: $Z > Y > X$. It is considered a transition member in the katarphorite-arfvedsonite series. The crystals are as a rule zoned and often contain a core of katarphorite with optic axes plane \parallel (010), $Y = b$, $Z \wedge c = 26^\circ$, $2V_\alpha = 46^\circ$ to 0° to the periphery, Z —olive green, Y —brownish violet, X —pale yellow. Peripherally svidneite goes into torendrikite, which displays similar pleochroism and optic orientation but has $Y \wedge c = 43$ to $50^\circ 50'$, and, locally, to riebeckite.

Another analysis of svidneite is given by L. Grozdanov [Contribution to the study of the chemical composition of svidneite and its genesis: *Godishnik Upravljeniego Geol. Prouchvaniya, Otdel. A* 14, 101–107 (1964)]: SiO_2 53.21, TiO_2 2.27, Al_2O_3 4.58, Fe_2O_3 9.62, FeO 3.60, MnO 0.18, MgO 13.80, CaO 3.10, Na_2O 5.60, K_2O 2.30, H_2O^+ 1.27, H_2O^- tr., total 99.53% (in this and in the previous analysis certain, although minute, admixture of aegirine should be borne in mind). Crystallochemical formula calculated after Phillips (*Mineral. Mag.* 33, pp. 701–711) is $[\text{Na}_{0.04}\text{K}_{0.42}\square_{0.54}] [\text{Na}_{1.52}\text{Ca}_{0.48}] [\text{Mg}_{2.96}\text{Fe}_{0.43}^{2+}\text{Mn}_{0.03}\text{Fe}_{1.04}^{3+}\text{Al}_{0.43}\text{Ti}_{0.21}] [\text{Si}_{7.65}\text{Al}_{0.35}\text{O}_{22}] [(\text{OH})_{1.22}\text{O}_{0.78}]_{2.00} = \text{A}_{1.00}\text{X}_{2.00}\text{Y}_{5.12}\text{Z}_{8.00}\text{O}_{22}[\text{O}, \text{OH}]_{2.00}$. Analyzed material (second analysis) has $G = 3.08$. X-ray studies gave $a = 9.97 \pm 0.03$, $b = 18.07 \pm 0.04$, $c = 5.30 \pm 0.02$ Å, $\beta = 104^\circ 24' \pm 12'$, $V = 925$ Å³, $Z = 2$. The mineral is considered by the second author to be an oxyamphibole, whose composition can be derived from that of magnesioriebeckite and whose lack of water is explained in connection with its simultaneous formation with magnetite.

Magnodravite

HSIU-CHANG WANG AND HSUEH-YEN, HSU, A new variety of dravite and its significance in mineralogy. *Kexue Tongbao* (foreign language edition) 17, no. 2, 91–96 (1966) (in English).

Analysis gave SiO_2 32.79, B_2O_3 9.34, Al_2O_3 23.34, $\text{Fe}_2\text{O}_3 + \text{FeO}$ 3.81, MgO 22.64, CaO

2.30, Na₂O 0.35, H₂O⁺ 3.66, H₂O⁻ 0.69, F 0.06, P₂O₅ 0.05, CO₂ 0.20, sum 99.23%. Dividing the iron to give no surplus of OH, the formula derived is (Na_{0.01}Ca_{0.40}Mg_{0.50})(Mg_{5.01}Fe_{0.29}²⁺Al_{0.49}Fe_{0.51}³⁺)(B_{2.61}Al_{3.39})(Si_{5.38}Al_{0.62})[O_{25.98}(OH)_{3.99}F_{0.03}]

The mineral is deep blue in color. G. 2.99 ± 0.02 . Cleavage perpendicular to *c*, imperfect. Uniaxial, negative, $\omega = 1.6375$, $\epsilon = 1.6260$. Weakly pleochroic, ω bluish, ϵ pinkish, $\omega > \epsilon$. X-ray study gave a 16.00, *c* 7.24 Å., $c/a = 0.453$. The strongest X-ray lines (66 lines given) are 7.18 (10)(0001), 2.595 (10)(50 $\bar{5}$ 1), 2.981 (9)(21 $\bar{1}$ 2) [sic], 2.055 (8)(22 $\bar{4}$ 3), 4.27 (7)(21 $\bar{3}$ 1), 4.00 (7)(22 $\bar{4}$ 0), 3.512 (7)(10 $\bar{1}$ 2), 3.566 (6), 1.933 (6)(60 $\bar{6}$ 2), 1.284 (6).

The mineral occurs "in a certain borate deposit" in contact zones 10 cm. wide between pegmatitic quartz-feldspar veins and dolomite-magnesite marble.

DISCUSSION.—The formula of the dravite member of the tourmaline group is usually given as close to Na(Mg₃Al₃)(Al₃B)Si₆O₂₁(OH)₄. The variety here described is much higher in MgO.

NEW DATA

Hydrocerussite, Plumbonacrite

J. K. OLBY, The basic lead carbonates. *J. Inorg. Nucl. Chem.* **28**, 2507–2512 (1966).

It is shown that conflicting data in the literature on hydrocerussite are due to the existence of two closely related synthetic basic lead carbonates. One of these is hydrocerussite, 2PbCO₃·Pb(OH)₂, which is rhombohedral, $a = 8.444 \pm 0.005$ Å, $\alpha = 36^\circ 8' \pm 2'$; hexagonal cell $a = 5.239 \pm 0.005$, $c = 23.65 \pm 0.02$ Å. These agree with the data of Kokkoros and Vasiliadis, *Tschermaks Mineralog. Petrog. Mitt.* **3**, 298–304 (1953). The strongest X-ray lines are 2.623 (10)(110), 3.611 (9)(104), 3.286 (9)(105), 4.47 (6)(101), 4.247 (102)(6), 2.231 (5)(202).

The second phase has the composition 6PbCO₃·3Pb(OH)₂·PbO. It is hexagonal, $a = 9.076 \pm 0.01$, $c = 24.96 \pm 0.02$ Å. The strongest X-ray lines are 2.619 (10)(300), 4.26 (8)(112), 3.357 (7)(115), 1.699 (5)(4 $\bar{1}$ $\bar{2}$), 2.953 (4)(211), 2.235 (4)(222). These data agree with those of Cowley, *Acta Crystallogr.* **9**, 391–396 (1956) and of Katz and Reed, *Acta Crystallogr.* **10**, 142 (1957) on "hydrocerussite." This phase is called plumbonacrite, a name proposed by Heddle, *Mineralog. Mag.* **8**, 200–203 (1889) for a mineral from Wanlockhead, Scotland, which contained PbO 92.85, H₂O 2.01, CO₂ 4.76, insol 0.78, sum 100.40%.

DISCUSSION.—Heddle's plumbonacrite has been considered to be hydrocerussite. The occurrence of this substance as a mineral remains to be proved.

Bazzite

W. NOWACKI AND K. D. PHAN, Composition quantitative de la bazzite de Val Strem (Suisse), determinee par la microsonde electronique de Castaing: *Bull. Soc. Franc. Mineral. Cristallogr.* **87**, 453 (1964).

N. B. CHISTYAKOVA, V. A. MOLEVA, AND Z. P. RAZMANOVA, The first find of bazzite in the U.S.S.R.: *Dokl. Akad. Nauk SSSR* **169**, 1421–1424 (1966).

Bazzite, described as a scandium silicate by Artini in 1915, had been shown to be isostructural with beryl, but the lack of quantitative analyses left it uncertain whether it was a scandian beryl or a scandium analogue of beryl. Microprobe analysis by Nowacki and Phan gave SiO₂ 64.8 ± 2.9, Sc₂O₃ 15.1 ± 0.4, Fe₂O₃ 8.3 ± 0.3, Al₂O₃ 0.5 ± 0.2%, indicating that bazzite is the scandium analogue of beryl. This has now been confirmed by the first complete analysis by Chistyakova *et al.*, from an occurrence in Central Kazakhstan. The analysis gave: SiO₂ 58.80, Al₂O₃ 0.25, Sc₂O₃ 14.44, Fe₂O₃ 2.21, FeO 3.68, MgO 0.82, MnO 1.58, BeO 12.90, Li₂O none, Na₂O 2.82, K₂O 0.22, Rb₂O 0.037, Cs₂O 0.31, H₂O⁺ 2.60, H₂O⁻ none, sum 100.67%. This gives the formula: Be_{3.06}[(Sc_{1.26}Fe_{0.17}Al_{0.03})(Fe_{0.31}⁺²Mn_{0.13}Mg_{0.12})_{0.56}](Na_{0.55}K_{0.03}Cs_{0.01})[Si_{5.93}Be_{0.07}O₁₈] \cdot 0.87H₂O.

Spectrographic analysis by A. S. Dudykin showed Ce 0.1, La 0.05, Pb 0.03, Sn, Ti, Ni, Sr, Y 0.01, Nb, V 0.003, Ga 0.0005, Mo 0.0002%. Color intense blue, weakly pleochroic from colorless to dark blue, $O > E$. Uniaxial, negative, $\omega = 1.627$, $\epsilon = 1.607$. $G = 2.77 \pm 0.01$. Electromagnetic. Microhardness 851–897 kg/sq. mm. X-ray powder data are given; they yield $a = 9.521 \pm 0.005$, $c = 9.165 \pm 0.005$ Å.

Shattuckite, Plancheite

H. T. EVANS, JR. AND MARY E. MROSE, Shattuckite and plancheite: a crystal chemical study: *Science* **154**, 506–507 (1966)

M. E. MROSE AND A. C. VLISIDIS, Proof of the formula of shattuckite, $\text{Cu}_5(\text{SiO}_3)_4(\text{OH})_2$ (abs.): *Amer. Mineral.* **51**, 266–267 (1966).

X-ray study shows that shattuckite is orthorhombic, space group $Pcab$, $a = 9.876$, $b = 19.812$, $c = 5.381$ Å., $Z = 4[(\text{Cu}_5\text{SiO}_3)_4(\text{OH})_2]$, $G = 4.11$ measured, 4.138 calcd. Shattuckite has $\alpha = 1.753$, $\beta = 1.782$, $\gamma = 1.815$, $2V = 88^\circ$ calcd. $X = b$, $Y = a$, X very pale blue, Y pale blue, Z deep blue. Plancheite is orthorhombic, space group $Pcnb$, $a = 19.04$, $b = 20.01$, $c = 5.27$ Å., $Z = 4[\text{Cu}_5(\text{Si}_4\text{O}_{11})_2(\text{OH})_4 \cdot \text{H}_2\text{O}]$. Plancheite has $\alpha = 1.697$, $\beta = 1.718$, $\gamma = 1.741$, $2V = 88\frac{1}{2}^\circ$ Calcd., $X = c$, $Y = b$, X very pale blue, Y and Z blue. Infra-red spectra show OH, but not H_2O in shattuckite, both OH and H_2O in plancheite. Shattuckite contains chains of $(\text{SiO}_3)_n$ very similar to those of pyroxenes; plancheite has double silicate chains resembling those of the amphiboles.

DISCUSSION.—This invalidates the previously reported identity of shattuckite with plancheite (*Amer. Mineral* **47**, 811 (1962)).

Strontium thomsonite

A. F. EFIMOV, A. A. GANZEEV, AND Z. T. KATAEVA, A find of strontium thomsonite in the U.S.S.R.: *Dokl. Akad. Nauk SSSR*, **169**, 1153–1155 (1966) (in Russian).

A strontian thomsonite (SrO 5.76%) had been described previously under this name (*Amer. Mineral.* **50**, 2100–2101 (1965)) from the Inagli massif, southern Yakutia. A new find is now described from hydrothermal veinlets associated with a massif of nepheline syenite, central Taimyr. Analysis by ZTK gave SiO_2 36.68, Al_2O_3 29.27, Fe_2O_3 0.05, MnO none, MgO 1.00, CaO 5.92, SrO 9.72, BaO 0.15, Na_2O 3.02, K_2O 2.16, H_2O^- 0.52, H_2O^+ 11.67, sum 100.26%, after deducting Mg and Si as sepiolite, corresponding to the formula $(\text{Na}_{1.4}\text{Ca}_{0.9}\text{Sr}_0)(\text{Al}_{4.84}\text{Si}_{5.16}\text{O}_{20} \cdot 5.46\text{H}_2\text{O})$. $H = 5.5$, $G = 2.44$, $n \beta = 1.528$, $\gamma = 1.534$.

DISCUSSION.—This is also a strontian thomsonite.