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NEW MINERAL NAMES

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Unamed polymorph of carbon

A. EL GORESY AND G. DONNAY (1968) A new allotropic form of carbon from the Ries crater. *Science* **161,** 363–364.

The mineral occurs as thin lamellae (3 to 15 microns wide), alternating with graphite and perpendicular to the (0001) face of graphite. Electron probe analysis showed only C as a major element, with less than 0.5% Si and Cl, probably due to contamination. The X-ray powder pattern (after deducting graphite lines) showed 22 lines. The strongest lines are 4.47 (vvs)(11.0), 4.26 (vvs)(11.1), 4.12 (vs)(10.3)(an impurity line ?), 3.03 (s)(20.3), 2.55 (s)(30.1), 2.28 (s)(20.5). These are indexed on a primitive hexagonal cell with a 8.948±0.009, c 14.078±0.017 Å. No 0001 reflections are observed, so that a layer structure can be ruled out. If a holohedral space group $P6/m\ m\ m$ is assumed with $Z=168$, the calculated density is 3.43 g/cm^3. The mineral was recovered from shocked graphite gneisses from Möttingen in the Ries Crater, Germany, by treatment with HF. The insoluble residue included with the new mineral, graphite, zircon, and rutile. Examination of numerous shocked graphite gneiss specimens showed that only a small fraction contained the new mineral; it was found only in specimens in which the silicates were fused to glass.

DISCUSSION.-Further study is needed. Several of the strong lines are very close to quartz lines.

Despujolsite

C. GAUDEFROY, M.-M. GRANGER, F. PERMINGEAT, AND J. PROTAS (1968) La despujolsite, une nouvelle espece minerale. *Bull. Soc. Franc. Mineral. Cristallogr.* **91,** 43–50.

Qualitative tests showed the presence of Ca, Mn, and S. Dissolved by HCl with release of chlorine, turns brown and then black with dilute HNO_3, not attacked by cold acetic acid. Electron probe microanalysis gave the ratios Ca/Mn=3.10, S/Mn=2.15, indicating the formula $3CaO \cdot MnO_2 \cdot 2SO_3 \cdot nH_2O$.

X-ray study showed that the mineral is isostructural with the calcium germanium sulfate schaurteite [*Amer. Mineral.* **53,** 507, (1968)] with formula $Ca_3Ge^{4+}(SO_4)_2(OH)_6 \cdot 3H_2O$; the formula of despujolsite is therefore $Ca_3Mn^{4+}(SO_4)_2(OH)_6 \cdot 3H_2O$.

X-ray study showed despujolsite to be hexagonal, space group $P\bar{6}2c$, $a=8.56\pm0.02$, $c=10.76\pm0.04$A., $Z=2$. G. calcd. 2.54, measured 2.46±0.02. The strongest X-ray lines are 7.40(s)(10.0), 4.26(vs)(11.0), 3.34(vvs)(11.2), 2.570(s)(20.3), 2.235(ms)(30.2), 2.198 (ms)(12.3), 2.129(vs)(22.0), 2.025(s)(30.3, 31.1), 1.669(ms). The structure is given; Mn atoms (along the 6_3 axis) are surrounded by $6(OH)^-$ ions; Ca atoms by $4(OH)^-$ ions, 4 water molecules, and 2 O atoms belonging to sulfate tetrahedra.

The mineral occurs in aggregates of lemon-yellow hexagonal prisms up to 0.5 mm. long. Luster vitreous. The crystals show $(10\bar{1}0)$ dominant, $(10\bar{1}2)$, and (0001). Goniometric study gave $c/a=1.2666\pm0.004$ (X-ray 1.257±0.007). Brittle, fracture conchoidal. H. about $2\frac{1}{2}$. Optically uniaxial, positive, ns $\omega=1.656$, $\epsilon=1.682\pm0.002$, weakly pleochroic with O slightly paler yellow than E. Under crossed nicols, slightly abnormal greenish yellow of first order.

The mineral occurs at Tachgagalt, Morocco, in cavities between crystals of gaudefroyite [*Amer. Mineral.* **50,** 806 (1965)]. Externally resembles jouravskite from the same deposit [*Amer. Mineral.* **50,** 2102 (1965)].

The name is for Pierre Despujols, found of the Service Carte Geologique, Morocco. It was approved before publication by the Commission on New Minerals and Mineral Names, IMA.

Tombarthite

HENRICH NEUMANN AND BORGHILD NILSSEN (1968) Tombarthite, a new mineral from Høgetveit, Evje, south Norway. *Lithos* **1**, 113–123.

Analyses were made of two samples purified by magnetic and heavy mineral separations; they were checked optically and by X-ray study; the latter gave a few lines thought to be the strongest lines of goethite. The analyses are by B. Bruin (conventional wet methods) and of the individual rare earths by S. Bergstöl by X-ray fluorescence; sample I was about 400 mg, II about 725 mg. The low summation in analysis 1 is believed to be due to failure to drive off all the water.

A dehydration study shows that a little more than half the water is driven off below 500°C and a little less than half between 700° and 950°C. The DTA curve shows a small exothermic reaction at 250–400° and a marked exothermic break at about 950°C.

Assuming that H_2O in analysis 1 is 2.5% low, the analyses are recalculated to give:

$$1\text{—}(\mathrm{RE, Ca, Mn, Th, U})_4(\mathrm{Si}_{1.58}\mathrm{H}_{9.68})(\mathrm{O}_{8.93}\mathrm{OH}_{9.22}) \quad \text{or}$$

$$(\mathrm{RE, Ca, Mn, Th, U})_4(\mathrm{Si}_{1.58}\mathrm{H}_{9.68})(\mathrm{O}_{11.08}\mathrm{OH}_{4.92})\cdot 2.15\ \mathrm{H_2O};$$

$$2\text{—}(\mathrm{RE, Ca, Mn, Th, U})_4(\mathrm{Si}_{1.96}\mathrm{H}_{8.16})(\mathrm{O}_{8.11}\mathrm{OH}_{10.45}) \quad \text{or}$$

$$(\mathrm{RE, Ca, Mn, Th, U})_4(\mathrm{Si}_{1.96}\mathrm{H}_{8.16})(\mathrm{O}_{10.67}\mathrm{OH}_{5.33})\cdot 2.52\ \mathrm{H_2O}.$$

Ideal formula $\mathrm{Y}_4(\mathrm{Si}+4\mathrm{H})_4\ \mathrm{O}_{12-n}(\mathrm{OH})_{4+2n}$.

ρ measured for 1, 3.51; calculated 3.68.

ρ measured for 2, 3.65; calculated 3.64.

ANALYSES

Mineral			Rare Earths		
	1	2		1	2
SiO_2	12.60	15.90	Y_2O_3	29.96	28.00
FeO	0.78	5.52	La_2O_3	0.06	0.06
MgO	0.33	0.26	Ce_2O_3	0.42	0.42
MnO	3.68	1.02	Pr_2O_3	0.08	0.08
CaO	3.56	4.88^a	Nd_2O_3	0.52	0.48
ThO_2	3.08	0.85	Sm_2O_3	0.58	0.57
UO_2	1.31	0.57	Eu_2O_3	0.05	0.05
Rare earths	50.84	47.54	Gd_2O_3	1.45	1.53
Na_2O	0.08	—	Tb_2O_3	0.47	0.47
K_2O	0.08	—	Dy_2O_3	4.19	3.85
SrO	0.05	—	Ho_2O_3	1.08	0.90
PbO	trace	—	Er_2O_3	4.25	3.91
P_2O_5	absent	absent	Tm_2O_3	0.76	0.64
H_2O^b	21.19	22.71	Yb_2O_3	6.05	5.79
			Lu_2O_3	0.93	0.79
	97.58	99.25^c			
				50.84	47.54

[a] includes 5% SrO

[b] loss on ignition

[c] given as 99.20% in original

Hydrothermal experiments on mixtures of 1 PrO_2+1 SiO_2 at 400° and 580°C at H_2O pressure of 1200 atm. gave reaction products with monazite structure and cell size close to that of tombarthite. When heated to 1200°C in air, an apatite structure was formed.

X-ray study shows that the mineral is crystalline, although slightly metamict. The pattern is very similar to that of monazite; the strongest lines for samples 1 and 2, resp. are: 6.95(20), 6.95(100), (100); 6.55 (100), 6.53 (100)(001);—, 4.28 (50)(101); —, 3.60 (100)(020); 3.42 (80), 3.42 (40), ($\bar{2}01$); 3.23b (70), 3.21 (50), (120); 3.02 (20), 3.04 (50), ($\bar{2}11$); 3.00 (30), 2.99 (50), ($\bar{1}21$); 2.97 (60), —, ($\bar{1}12$); 2.89 (50), 2.87 (50), (201); 2.77 (30), 2.74 (50), (121); 2.30 (30), 2.30 (50), (130). These are indexed on the monazite structure, $P2_1/n$, as a 7.12, b 7.29, c 6.71 Å; β 102°41′ (sample 1); a 7.12, b 7.24, c 6.69Å., β 102°29′.

When the mineral is heated to 500°, the X-ray pattern becomes somewhat blurred. Above 700° the pattern is that of the apatite group with a 9.34, c 6.78 Å. plus some additional lines.

The mineral occurs in brownish-black masses up to more than 1 cm wide. Luster somewhat dull. Fracture conchoidal. H. 5–6. Under the microscope most grains are isotropic with n 1.639±0.002; some grains were slightly birefringent but no optical figures could be obtained. The mineral occurs, surrounded by feldspar, and in contact with or intergrown with thalenite, in a feldspar quarry in the Högetveit pegmatite dike, Evje parish, Norway.

Type material is at the Mineralogisk-Geologisk Museum, Oslo. The name is for Prof. Tom F. W. Barth of Oslo Univ., who has studied the mineralogy and geology of the area. The mineral and name were approved before publication by the Commission on New Minerals and Mineral Names, IMA.

NEW DATA

Melnikovite vs. greigite

A. P. POLUSHKINA AND G. A. SIDORENKO (1968) Melnikovite ought to be considered a definite mineral species. *Zap. Vses. Mineral. Obshch.* **97,** 321–324 [in Russian].

The authors have examined samples of melnikovite from the type locality, Saratov region, USSR, and find them to be cubic Fe_3S_4, identical with material described as greigite by Skinner, Erd, and Grimaldi [*Amer. Mineral.*, **49,** 543–555 (1964)]. They review the literature and recommend that the name greigite be dropped in favor of melnikovite.

DISCUSSION.—The data and proposal were submitted to the Commission on New Minerals and Mineral Names, IMA which voted in May, 1968, by a vote of 9–6 with one abstention, to retain the name greigite. The principal reason for this reversal of priority was that from 1912 to 1963 the name melnikovite had been commonly used to designate a wide variety of poorly crystallized iron sulfides (some shown to be pyrite or marcasite), and the retention of the name for a specific cubic mineral would have caused confusion.

Serpierite, devillite

DOMENICO FARAONE, CESARE SABELLI, AND PIER F. ZANAZZI (1967) Su du solfati basici idrati: serpierite e devillite. *Atti. Accad. Naz. Lincei, Rend. Cl. Sci. Fis. Mat. Nat.*, **43,** 369–382.

Analysis of serpierite from Laurium gave CaO 10.85, CuO 31.42, ZnO 16.79, SO_4 24.46, H_2O 16.85, sum 100.37%, corresponding to the formula $Ca(Cu, Zn)_4(SO_4)_2(OH)_6 \cdot 3H_2O$, with Cu/Zn=1.9. Morphological study showed it to be monoclinic, $a:b:c=3.5513:1:3.4940$, β113°45′; 12 forms are listed. Weissenberg and rotation diagrams showed space group $C2/c$, a 22.186, b 6.250, c 21.853 (all±0.002) Å, β#113°22′±1′, $a:b:c=3.5498:1:3.4965$, $Z=1$, ρ(calc) 3.08, (meas) 3.07. Optically biaxial, neg., α 1.583, β 1.641, γ 1.648, $Y=b$, $Z \simeq c$, $X \wedge a=24°$, X pale green, Y bluish green, Z blue green, $2V$ calc. 37°. The strongest

X-ray lines are 10.22 (vs)(200), 5.09 (s)(400), 4.744 (m)($31\bar{1}$, $11\bar{3}$), 3.386 (s)(600), 3.1696 (m)(511, $15\bar{5}$, 115).

Devillite, $CaCu_4(SO_4)_2(OH)_6 \cdot 3H_2O$, is monoclinic, $P2_1/c$, a 20.870±0.002, b 6.135 ±0.002, c 22.191±0.003Å., β 102°44′. Similarities and differences of the minerals are discussed.

Carpathite (pendletonite=carpathite)

V. A. Frank-Kamenetskii, S. K. Filatov, and Ya. L. Giller (1967) The crystal structure and chemical formula of carpathite. *Mineral. Sbornik L'vov Gos. Univ.* **21,** 275–278 [in Russian].

Carpathite (karpatite) was described by Piotrovskii (1955) as $C_{33}H_{17}O$ [abstr., *Amer. Mineral.* **42,** 120 (1957)]. Analysis gave C 92.15, H 4.06, O (diff.) 3.89%. Monoclinic $\beta = 110°$, ρ. 1.40, m.p. 430°, *H.* 1, biaxial, neg., *ns* α 1.780, β 1.977–1.982, γ 2.05–2.15. X-ray powder data were published by Giller in 1955.

The present paper gives X-ray powder data and single crystal data on crystals (by recrystallization of carpathite from aniline). The mineral is monoclinic, space group $P2_1/c$, $P2/c$, or P/c, a 10.035, b 4.695, c 16.014A., β 69.00°. The data agree well with published data on coronene, $C_{24}H_{12}$.

Murdoch and Geissman [*Amer. Mineral.* **52,** 611–616 (1967)] described the new mineral pendletonite as $C_{24}H_{12}$, identical with coronene. They found it to be monoclinic, space group $P2/c$, a 16.25, b 4.638, c 10.42A., β 111°10′. X-ray powder data agree closely with those of Frank-Kamenetskii *et al.* and moderately well with those of Giller. Analysis gave C 96.04; *H* 4.04%; apparently the determination of C in carpathite was too low, leading to erroneous report of the presence of O. G. 1.35, *H* less than 1, m.p. 450°, biaxial positive with *ns* α 1.76, β 1.78, γ much above 1.85.

Discussion.—The X-ray data make it evident that carpathite and pendletonite are identical, although there are serious discrepancies in the optical data. Carpathite (1955) has clear priority over pendletonite (approved by the Commission on New Minerals and Mineral Names, July 6, 1966) and therefore should be kept, despite the fact that the original analysis and formula were somewhat in error. The name pendletonite should be relegated to the synonymy.

DISCREDITED MINERALS

Högtveitite

Henrich Neumann and Borghild Nilssen (1968) Tombarthite, a new mineral from Högetveit, Evje, south Norway. *Lithos,* **1,** 113–123.

The name högtveitite was announced many years ago in his catalogue by the mineral dealer L. Eger of Vienna from the locality given above, but no description has been published. It has been supposed to be the alvite variety of zircon; more likely it is thalenite. It is suggested that the name be dropped.

Discussion.—I agree.

1966 Review List

Early in 1968 the annual review list of new names, discredited names, and changes in nomenclature that had been published in 1966 was voted upon by member of the Commission on New Minerals and New Mineral Names, IMA. The results are tabulated below.

Voting: Belgium, Bulgaria, Canada, Denmark, Spain, Finland, France, Italy, Japan, Netherlands, Czechoslovakia, U.S.S.R., U.S.A. The others members of the Commission who have not voted are: Germany, Austria, Brazil, Egypt, Great-Britain, Hungary, India, Norway, Switzerland.

Names approved before publication.

Abbecasite
Babefphite
Buergerite
Cafarsite
Coconinoite
Deerite
Gaspeite
Hendricksite
Howieite
Huemulite
Irarsite
Jennite
Kostovite
Kurchatovite
Landauite
Mckinstryite
Merenskyite
Meta-Ankoleite
Meta-Zellerite
Nissonite
Roedderite
Sakhaite
Tungusite
Zellerite
Zussmanite
Zvyagintsevite

Name descredited: Paternoite

Result of votes on other names published:

New names	yes	no	abstaining
Barytolamprophyllite	12	1	0
Berndtite	10	2	1
Fedorite	11	1	1
Feitknechite	11	2	0
Fluor bastnaesite	8	5	0
Gentnerite	0	13	0
Hydrokassite	0	13	0
Hydrosericite	0	12	1
Hydroxyl-ascharite	1	12	0
Hydroxyl-szajbelyite	3	7	3
Indium	12	0	1
Jaroslavite	12	0	1
Kassite	13	0	0
Magnodravite	4	6	3
Meta-jennite	4	8	1
Orthorhombic lamprophyllite	2	9	2
Orthorhombic lavenite	3	7	3
Ottemanite	10	2	1
Paraphane	0	11	2
Perryite	0	13	0
Pseudo-aenigmatite	1	10	2
Pseudo-rutile	0	12	1
Silicamanganberzeliite	0	13	0
Svidneite	3	6	4
Turite	0	13	0
Uranoanatase	0	10	3
Volkovskite	9	3	1
Discredited names:			
Cacoclasite	12	1	0
Karamsinite	12	0	1
Adelpholite	12	0	1