NEW MINERAL NAMES*

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Chromdravite*


Analysis by K. K. Gunbar after correction for 6.5% impurity of chromian phengite (analyzed) gave SiO2 30.75, TiO2 0.13, Al2O3 2.92, Cr2O3 31.60, V2O5 1.46, Fe2O3 7.65, MnO 0.19, MgO 9.05, CaO 0.16, Na2O 2.66, B2O3 9.00, loss on ignition 4.43, sum 100.00%. Microprobe analysis gave SiO2 37.9, Al2O3 5.1, Cr2O3 30.1, V2O5 0.5, Fe2O3 8.8, MnO 0.7, MgO 6.5%. The corrected chemical analysis gives the formula (Na0.95Ca0.05)(Mg2.5%Mn0.03 V0.22Al0.16Ti0.02)3.00(Fe7.37Al0.21Mn0.03)6.00(B2.91 Al0.05)3.00Si5.81 Al1.19Se6.00O2s(Fe0.23OHs)3.78(4H2O). This is, therefore, unlike chromian varieties previously described, a new member of the tourmaline group with Mg dominant in the Y position, Cr in the Z position.


The mineral occurs in micaceous metasomatites in the Onezhki depression, central Karelia, associated with chromian phengite (Cr2O3 17.13%), taeniolite, and vanadian muscovite, quartz, and dolomite.

The name is for the composition. Type material is in the mineralogical museum of the Leningrad Mining Institute. M.F.

Kularite (= Monazite)


The name kularite (for the Kular ridge, Siberia) is given to the so-called "gray monazite" or "black monazite," which has been described by many investigators. Chemical analyses including the individual lanthanides, are given of 7 samples that contain SiO2 0.03-0.95, ThO2 1.12-1.40%, D = 4.0-4.5, slightly electromagnetic. The X-ray pattern is stated to be the pattern of typical monazite without any adventitious reflections.

Discussion

An entirely unnecessary and useless name. M.F.

Lithosite*


Microprobe analyses of the mineral gave SiO2 50.0, 49.6; Al2O3 20.7, 20.4; K2O 28.4, 28.0; H2O (loss on ignition) 2.34, sum of averages 100.94%, corresponding to K3Al6Si6O23·2H2O. Easily decomposed by cold 10% HCl. The infra-red spectrum indicates the presence of molecular water.

X-ray study shows it to be monoclinic, pseudo-orthorhombic, a = 15.197, b = 10.233, c = 8.435Å; β = 90.21°, Z = 2, D (calc.) = 2.54, (meas.) = 2.51. The strongest X-ray lines (47 given) are 3.46(84)(212,401); 3.26(84)(122,031); 3.07(100)(312,420); 2.82(73)(330,402); 2.10(83)(004).

The mineral occurs as irregular grains, 1-3 mm in size. It is colorless, water-clear, luster vitreous, fracture conchoidal. Hardness by micro-impression, load 50-70 g 412-E24, av. 559 kg/sq.mm, or about 5½ Mohs. It is optically biaxial, positive, α = 1.510, β = 1.513, γ = 1.527, 2V = 47°, Z = b, Y near a, X near c. Under X-rays it acquires a bright rose color, which persists for at least 8 months; it is then pleochroic with X and Y colorless, Z bright rose.

The mineral occurs in the S.E. part of the Khibina alkaline massif, Kola Peninsula, in veins of ultra-agpatic pegmatite cutting nepheline syenites (rischorrites). It occurs in cavernous parts of drill cores consisting of orthoclase, sodalite, aegirine, pectolite, lamprophyllite, lomonosovite, and shafaranskovite.

The name is from the Greek lithos (stone), because it consists of the most abundant components of the Earth's crust. Type material is at the Fersman Museum, Acad. Sci. USSR, Moscow, and the museum of the Geological Institute, Kola Branch, Acad. Sci. USSR, Apatite. M.F.

Lun'okite*


Microprobe analysis of the mineral gave P2O5 35.42, Al2O3 13.42, MnO 18.97, FeO 5.55, MgO 3.59, CaO 3.21, H2O 19.40, sum 99.56%, corresponding to the formula (Mn0.77Ca0.23)(Mg0.35Fe0.35;Mn0.30;Al0.05)(PO4)4.06(OH)1.10·3.78H2O, or (Mn, Ca)(Mg,Fe,Mn)Al(PO4)2(OH)·4H2O, the Mn analogue of overite (CaMgAl) and of segelevite (CaMgFe72). The D.T.A. curve shows a sharp endothermic peak at 210°C and a broad one at 340°C, and an exothermic peak at 640°C. Loss in weight 3.2% H2O at 60-160°C, 4.4% at 160-200°C, 11.8% 200-600°C. The infra-red spectrum is given.

The X-ray pattern is similar to those of overite and segelevite and is indexed in space group P6ca with unit cell a = 14.95, b =
18.71, c = 6.96 Å, Z = 8, D (calc.) = 2.69, (meas.) = 2.66. The strongest X-ray lines (47 given, many broad or diffuse) are 9.39(9), 3.48(6), 2.92(7), 2.80(10), 2.02(16). The mineral occurs as radiating aggregates, 0.5-1.0 mm, in fractures in granitic pegmatites and on crusts of nodules of mitridatite in fractures. Associated minerals are eosphorite, laueite, and kingsmoundite.

The name is for the Lun'ok River. Type material is at the Fersman Mineralogical Museum, Moscow, and at the Geological Institute of the Kola Branch, Acad. Sci. USSR, Apatite. M.F.

**Nd-churchite = neodymian churchite**


A chemical analysis and X-ray powder data (both normal) are given. X-ray spectrographic analysis shows yttrium to be predominant as usual (Y/(Y + Lr) = 61.6%). Nd is the most abundant lanthanide (15 at.% of the lanthanides, excluding Y). The 'new variety’ is called Nd-churchite.

**Discussion**

A useless name for the variety neodymian churchite. It is also sure to cause confusion. The I. M. A. Commission uses names such as Monazite-(Nd) to denote mineral species with Nd predominant. This variety is not even a new one; Semenov and Khomyakov (Diagn. Svoista Mineral, 1981, p. 88–93) published an analysis of churchite with Nd = 19.3 at.% of the lanthanides, excluding Y. M.F.

**Rayite**


Microprobe analysis (average of four analyses) yielded: Pb 47.06, Cu 0.03, Ag 4.54, TI 2.04, Sb 27.42, S 19.59, sum = 100.68. This is interpreted, in part by a structural similarity to semseyite, as: Pb5(2)(Ag, Ti)6Sb2(Sb5, Sb2)5O2Sb, with a suggested substitution of 2Pb → Ag2 + Sb3+ for compensation in charge balance. This leads to an idealized formula Pb5(2)(Ag, Ti)6Sb2(Sb5, Sb2)5O2Sb, or alternatively, Pb5(2)(Ag, Ti)6Sb2(Sb5, Sb2)5. X-ray single crystal study was not possible. The strongest lines in the powder pattern are: 3.90(3)(115, 311), 3.74(3)(131), 3.37(10)(401), 3.26(9)(316), 2.98(5)(317), 2.06(3)(620). These were indexed by analogy with semseyite and yielded the lattice parameters a = 13.60(2), b = 11.96(2), c = 24.49(5) Å, β = 103.94(12)°.

Rayite forms tabular 30 μm grains and 0.5 mm patches associated with galena, meneghinite, and owyheeite. It is gray in color and streak and has metallic luster. Cleavage was not observed. D (calc.) is 6.13; no observed value was obtainable due to small crystal size. In reflected light, rayite is white with greenish and blueish tints; birefringence is weak; pleochroism is greenish to greenish-blue; anisotropism is perceptible; internal reflections absent. Reflectances are (d, %): 480, 37.6–40.4; 540, 37.5–39.6; 580, 37.2–38.9; 640, 36.3–37.5

Rayite is found at Rajpura-Dariba, Rajasthan, India. The name is for the late Professor Santosh K. Ray of President College in Calcutta. Type material is at the Indian Institute of Technology, Kharagpur, India, and at the I.G.E.M. of the USSR Academy of Sciences, Moscow. P.J.D.

**Richelsdorffite**


Richelsdorffite is monoclinic, space group C2/m, with a = 14.17(6), b = 14.42(3), c = 13.57(5) Å and β = 102.0(2)°, Z = 4, D (obs.) = 3.20, D (calc.) = 3.27 g/cm³. The principal lines of the powder pattern are: 13.290(10)(001); 6.612(3)(002); 4.408(5)(003); 3.024(8)(241,403); 2.644(2)(422,005). The turquoise to sky-blue tiny tabular crystals are biaxial negative with 2V (obs) = 69°. Indices of refraction, calculated from reflectivities on (001) and (010) surfaces, are: α = 1.698(3), β = 1.765(3), γ = 1.799(4). Optical orientation and pleochroism are: X inclined to c pale blue, Y nearly parallel to a greenish-blue, Z parallel to b light greenish-blue, dispersion r > v. The luster is vitreous, (001) cleavage is perfect, hardness (Mohs) is 2. The mineral is readily soluble in dilute HCl. Microprobe analysis gave: CaO 8.97, CuO 28.71, ZnO 0.23, FeO 0.01, Sb2O5 11.88, As2O5 31.18, Cl 1.83, H2O (by difference) 17.19, total 100.00%. The formula was confirmed by structure determination (Tillmann and Susse, 1982).

Richelsdorffite was first found in Permian sandstone in the Richelsdorf Mountains, Hesse, with calcite, duftite, tirolite and tetrahedrite, later also in cavities in barite and as an inclusions on blocks of Kupferschiefer. Subsequently it was also recognized in cavities in quartz with calcite, tetrahedrite, galena, brochantite and devilline at St. Andreasberg in the Harz. Richelsdorffite is mostly in very small spheroidal aggregates up to 0.2 mm in diameter. Rarely, tabular single crystals may attain dimensions up to 0.5 mm. Type material is at the University of Goettingen, Germany. A.P.

**Simonite**


Microprobe analysis of a red mineral occurring within rebullite (Am. Mineral., 68, 644) yielded Ti 24.00, Hg 23.80, Sb 1.68, As 25.55, S 24.97, sum = 100%. Single-crystal and structure study found simonite to be monoclinic, space group P21/n, with a = 5.948(2), b = 11.404(6), c = 15.979(5) Å, β = 90.15(1°), Z = 4 for TiHgAs3Sb6, and D(calc.) = 5.036. The R value was 0.05 for 2462 observed reflections and 0.07 for all reflections.

**Discussion**

A full description, with physical, optical, X-ray powder data, and paragenetical information, is needed. P.J.D.

Microprobe analysis yielded ZrO2 + HfO2 43.97, TiO2 56.30, sum = 100.27 percent, corresponding to (Zr,Ti)O2 with Zr:Ti = 1:2. UO2 is 0.1–0.2 wt.% in the crystals studied. An alternative formula is Zr2Ti3O8.

X-ray powder data are indexed on an orthorhombic unit cell with \( a = 4.708, b = 5.533, \) and \( c = 5.019 \AA, (all \pm 0.005 \AA), Z = 4 \). Extinctions are said to be consistent with space group \( Pbcn \). These data are said to be supported by a single crystal study in preparation. The strongest lines in the X-ray powder diffraction pattern are: 3.61(25)(110), 2.92(100)(111), 1.72(30)(130), 1.69(25)(221), 1.516(35)(113).

Srilankite is black with submetallic to adamantine luster, hardness (Vickers) 900–1000; (Mohs) ~ 6%. It has conchoidal fracture and is brittle; an unindexed cleavage is distinct at high magnifications. Optically, srilankite is biaxial, \( 2V = 16(1)^\circ \); translucent with blue color and high birefringence. Reflectances (nm, %) are: 480, 19.4–18.6; 546, 18.4–16.0; 589, 18.5–16.4; 649, 18.7–17.0.

Srilankite occurs in pebbles from a gemstone mine in Rakwana, Sabaragamuwa, Sri Lanka. The pebbles are mainly zirconolite and baddeleyite with minor amounts of geikielite, spinel, and perovskite. Srilankite occurs as \(< 1 \) mm inclusions in such pebbles.

The name is for the country of origin, Sri Lanka. P.J.D.


Electron probe analyses of three grains and their average gave SiO2 56.1–56.4, 56.3; ZrO2 17.6–18.0, 17.8; MnO 0.4–0.5, 0.4; Na2O 18.8–19.4, 19.0, loss when heated to 900°C (H2O) 6.67, sum (av.) 99.87%, corresponding to the formula \( Na_2ZrSi_6O_{17} · 2H_2O \). The DTA curve showed two endothermic effects at 185 and 250°C and loss of water up to 280°C corresponding to the formula with up to 4Vo Mn hydroxides and small inclusions of francolite. Corrected for these, the analysis corresponded to \( (Mg_{0.96}Mn_{0.04})Fe_2(PO_4)(OH)_2 · 7H_2O \). Single crystal X-ray data shows the mineral is triclinic, space group \( P1 \) or \( P1' \), with \( a = 10.39, b = 10.56, c = 10.60 \), \( \alpha = 116.4, \beta = 107.8, \gamma = 113.4^\circ \). Z = 1, D (calc.) 3.68, (meas.) 3.7. The X-ray powder pattern is similar to munitide and ranunculite. The strongest X-ray lines (25 given) are 7.80(100)(100), 4.70(30)(102), 3.87(80)(200), 3.74(20)(122,212), 3.63(20)(221,212), 3.39(20)(132), 3.15(10)(230,203), 2.95(40)(033), 2.86(20)(135), 2.57(20)(200).

The mineral occurs as bright yellow, aggregates of flat, triangular or rhombohedral crystals with a maximum length of 0.2 mm. Optically biaxial positive; \( n_{\alpha} = 1.639 \), \( n_{\beta} = 1.665 \), \( n_{\gamma} = 1.704 \), \( 2V = 89^\circ \); optical orientation \( Z - [011], Y - [011] \) and \( X - [100] \); pleochroic with \( Y \) pale green-yellow, \( Z \) bright yellow. Most crystals have a 180° rotational twin about [011] and [011]. It is not fluorescent under UV radiation.

The mineral occurs within a quartz–K-feldspar-columbite zone of a complex pegmatite. Associated minerals include beryl, metamict zircon and minor amounts of meta-autunite, phosphanite and ranunculite. The name is in reference to the triangular habit of the crystals and the mineral belongs to the ranunculite group. Type material is preserved in the Royal Museum of Central Africa in Tervuren. J.D.G.


Analysis by G. E. Ch. on 100 mg gave MgO 8.79, MnO 1.88, CaO 2.54, FeO none, Fe_2O_3 29.87, Al_2O_3 none, P_2O_5 30.47, H_2O 12.28, H_2O· 14.83, sum 100.66%. The sample contained up to 4% Mn hydroxides and small inclusions of francolite. Corrected for these, the analysis corresponded to \( (Mg_{0.96}Mn_{0.04})Fe_2(PO_4)(OH)_2 · 7H_2O \). The DTA curve showed two endothermic effects at 185 and 250°C and loss of water up to 280°C of 27.4%, up to 1000°C, 33.2%, corresponding to the formula with 8H_2O, which is accepted. The mineral fuses at 980°C.

X-ray study shows the mineral to be triclinic, \( a = 5.20, b = 10.70, c = 7.14 \AA, \alpha = 108°36', \beta = 106°56', \gamma = 72°43' \), space group probably \( P1 \). It is isostructural with laueite (MnFe_2O_4).
gordonite (MgAl), paravasite (FeAl₂), and sigloite (Fe³⁺, Fe⁴⁺)Al₂. The strongest X-ray lines (16 given) are 9.86(100)(010), 6.57(80)(001), 4.95(50)(020,011), 4.85(50)(100), 3.28(60)(112), 3.20(80)(122).

The mineral occurs as crystals (up to 2mm), small prismatic, principal faces c (001), b (010), M (110), minor faces a (100), m (110). Pale yellow to orange-yellow and light brown. Luster vitreous to pearly on the perfect cleavage (010), and greasy on fracture. D 2.38, H 3.5, brittle. Dissolved by dilute acids. Optically biaxial, negative, α = 1.584, β = 1.637, γ = 1.670 (all ±0.002), 2V = 50°, r > v strong, Y ⊥ c = 26°. The infra-red spectrum is given.

The mineral is a supergene product of weathering of triplite in granite pegmatite, Il’men Mts., Urals, associated with hydrous Mn oxides, francolite, mitridatite, and berarafite.

The name is for naturalist, S. I. Ushkov (1880–1951), who studied the Il’men National Forest. Type material is in the Fersman Museum, Acad. Sci. USSR, Moscow, the Leningrad Mining Museum, and the museum of the Il’men National Forest.

M.F.

Unnamed aluminum silicates


Three unknown aluminum silicates occur in quartz-muscovite–biotite–garnet–staurolite–sillimanite gneisses from the Geco Mine, Manitouwadge, Ontario. These (1) colorless to pale brown, finely granular material in biotite, (2) dark, black to brown clots in quartz, and (3) brown to light brown felted material in biotite, (2) dark, black to light brown, finely granular material in biotite, and (3) dark, black to light brown, finely granular material in biotite.

Selected microprobe analyses, with H₂O by difference, yielded for mineral (1) SiO₂ 43.62, Al₂O₃ 37.57, TiO₂ 0.04, Fe₂O₃ 2.76, MgO 0.62, CaO 0.17, Na₂O 0.12, K₂O 0.04, H₂O 15.26, sum = 100.00%, corresponding to Al₂O₃ · SiO₂ · H₂O, close to kaolinite with additional interlayer water. (Four analyses given).

Mineral (2) yielded SiO₂ 41.48, Al₂O₃ 47.72, TiO₂ 0.06, Fe₂O₃ 1.19, MgO 0.44, CaO 1.14, MnO 0.03, Na₂O 0.67, K₂O 0.33, MgO 6.94, sum = 100% (one of 5 analyses given). There is much variation in the analyses which are clustered into three groups: 2Al₂O₃ · SiO₂ · H₂O, 3Al₂O₃ · 4SiO₂ · H₂O, and 4Al₂O₃ · 5SiO₂ · xH₂O, with x < 1.5.

Mineral (3) yielded SiO₂ 41.25, Al₂O₃ 51.39, TiO₂ 0.02, Fe₂O₃ 2.14, MgO 0.72, CaO 0.13, MnO 0.04, Na₂O 0.17, K₂O 0.71, H₂O 3.43, sum = 100.00% (one of 4 analyses given, all of which vary). These analyses correspond to compositions 3Al₂O₃ · 4SiO₂ · H₂O, 4Al₂O₃ · 5SiO₂ · 2H₂O, 5Al₂O₃ · 6SiO₂ · H₂O, and 6Al₂O₃ · SiO₂ (sillimanite). The foregoing analyses represent only a portion of the compositional variation in these materials. Only mineral (1) is reasonably consistent in composition.

These phases are interpreted to suggest that metamorphic sillimanite may form through stages from a kaolinitic precursor.

P.J.D.

Unnamed As₂S₃


This unknown phase forms very fine-grained myrmekitic intergrowths with tennantite in the deposit noted in the title. Preliminary microprobe analysis suggests it is As₂₁S₃, with very minor Sb substitution. It is characterized by a blue-gray reflectance color, moderate reflectivity, strong birefringence, strong anisotropism and internal reflections. Reflectivity at 548 nm is in air (Rₚ 18.6, Rg 28.2), in oil (Rₚ 7.0, Rg 12.8). P.J.D.

Unknown Fe-Mn-phosphate


Microprobe analysis of a brown to yellow brown radial, fibrous unknown phosphate yielded FeO 31.5, MnO 21.9, P₂O₅ 30.8. The strongest lines in the X-ray powder diffraction pattern are 3.464(vs)(020), 3.264(s)(022), 3.218(s)(200). The pattern can be indexed on a monoclinic unit cell with a = 6.44(2), b = 6.93(2), c = 19.43(3), β = 93°15', V = 866Å³. The fiber axis is c. Optically, it is biaxial with small 2V, α = 1.80, γ = 1.85; X = c; absorption Z > Y - X. The small size and poor quality of the fibers precluded more precise optical or X-ray measurements. This phase may be similar to one reported by Frondel (Am. Mineral., 34, 513–540) from Waldgirmes, Hessen, Germany.

P.J.D.

Unnamed monoclinic dimorph of columbite (?)


Microprobe analyses are given of columbite containing 13.86–22.84% WO₃. The analysis with WO₃ 22.84% is calculated to the formula Mn₁₁₀₀(Mn₉₃₄Fe₁₀₈W₆₅T₂₀₅)O₈(ND₁₇T₂₀₂,2)O₈. X-ray powder data are given and calculated to a unit cell with a = 9.56, b = 11.53, c = 5.01Å, β = 92°00’.

Discussion

The X-ray powder data correspond reasonably well with lines of columbite + lines of wolframite. M.F.
**NEW MINERAL NAMES**

**Unnamed Na₂Ca₂Si₃O₈ and new data on combeite**


New microprobe analysis of combeite (43, 791 (1958), 67, 418 (1982)) from the type locality, Mt. Shaheru (Zaire), leads to the formula Na₂Ca₅Si₃O₈ with minor amounts of Fe, Zn, Mn and Mg. Microprobe analysis of a newly recognized mineral from the Eifel leads to the formula Na₂Ca₂Si₃O₈. The two minerals correspond to the high-temperature (above ca. 485° C) and low-temperature forms respectively of the synthetic phase Na₂Ca₂Si₃O₈ whose composition is known to range from Na₁₇Ca₂.₁₅Si₂O₆ to Na₁₂Ca₅Si₃O₈ (Moir and Glasser, 1974). The structure of combeite has been determined in the space group P3₂₁2₁, a = 10.429(2), c₁ = 13.149(3) Å, Z = 6. The structure of the mineral from the Eifel, which remains, unnamed, has been determined in the space group P3₁ (or P3₂₁2₁), a = 10.464(2), c₁ = 13.176(3) Å, Z = 6. The data are refined to R = 0.06. The structure of the mineral from the Eifel, which remains, unnamed, has been determined in the space group P3₁ (or P3₂₁2₁), a = 10.464(2), c₁ = 13.176(3) Å, Z = 6. D(calc.) = 2.85 and refined to R = 0.07. A.P.

**Unnamed silicide**


Globular deposits found in mafic or ultramafic rocks are stated to range from 0.05–0.8 mm, 0.2 mm, and consist of an outer shell of cohenite, a core of native Cr or ferrochrome, and an intermediate silicide. Microprobe analysis of the silicide gave Fe 21.8, Cr 55.2, Ti 7.1, Ni 0.2, Cu 0.1, Si 15.2, sum 99.6%, corresponding to (Cr,Fe,Ti)₃Si.

**Discussion**

Data inadequate. Material of this size could be examined optically and by X-ray methods. M.F.

**NEW DATA**

**Becquerelite**


Crystal structure study found bequerelite to be orthorhombic, space group Pn2₁a, with a = 13.86(2), b = 12.30(1), and c = 14.92(3) Å. Z = 4. The new chemical formula is Ca[(UO₂)₆ (PO₄)OH]₆ · 8H₂O. P.J.D.

**h Hilgardite, parahilgardite, tyretskite, strontiohilgardite**

kurgantaite = strontian tyretskite


Microprobe analyses for Ca, Sr, and Cl on hilgardite, parahilgardite, and tyretskite from the Choctaw Salt Dome, Louisiana, (type locality of the first two), of tyretskite from the Bouby potash mine, England, and of strontiohilgardite from Reyershausen, Germany, all lead to formulas of the type (Ca,Sr)₂B₂O₆ (Cl,OH) · H₂O. Cell dimensions, calculated from powder data indexed with the aid of precession patterns, are reported as follows: hilgardite (Choctaw) a = 6.32(2), b = 11.31(5), c = 11.44(4) Å; β = 90.00(3)°; parahilgardite (Choctaw) a = 6.31(3), b = 6.48(3), c = 17.51(1), α = 84.10(3), β = 79.61(3), γ = 60.85(3)°, P1; Cl-tyretskite (Bouby) a = 6.29(2), b = 6.46(4), c = 6.56(1), α = 74.14(1), β = 61.68(1), γ = 61.26(1), P1; strontiohilgardite (Reyershausen) a = 6.39(3), b = 6.48(2), c = 6.61(2), α = 75.59(2), β = 60.97(2), γ = 60.79(2)°, P1. The data of Kondrat'eva (1964) for tyretskite which had been described without name by Ivanov and Yarzhemskii (1954) (M.A. 17-500 for both references) are reinterpreted to give dimensions for what is now designated OH-tyretskite, a = 6.30(1), b = 6.47(1), c = 656(1), α = 74.27(5), β = 61.61(1), γ = 61.25(5)°, P1, very close to those of the Cl-tyretskite from Bouby, which had been reported by Hodenberg and Kühn (1977, Kali und Steinsalz, 4, 165–170). The formula for kurgantaite was initially given as (Sr, Ca)₂(B₂O₄)₆ · H₂O(?), (40, 941, 1955). The chemical data for kurgantaite (Yarzhemskii, 1952) after deduction for admixed celestite yield a formula similar to that of OH-tyretskite but with Sr in excess of Ca. From the X-ray data reported for kurgantaite much later by Kondrat'eva (1964) the revised cell dimensions are a = 6.38(1), b = 6.48(8), c = 6.61(7), α = 77.15(5), β = 61.27(5), γ = 60.71(8)° are obtained, close to the dimensions found for OH-tyretskite.

Three distinct structures are recognized among the minerals here considered: that of hilgardite (monoclinic) determined by Ghose and Wan (64, 187–195, 1979), that of tyretskite (triclinic) determined by Rumanova et al. (M.A. 17-500) who referred to it as “triclinic hilgardite”, and the undetermined structure of parahilgardite (triclinic). The mineral described as strontiohilgardite by Braitsch (44, 1102, 1959) is now recognized as having the structure of tyretskite so that its name is inappropriate. A revision of the nomenclature of this group is suggested but no action has been taken to obtain approval by the I.M.A. Commission.

**Lermontovite**


Lermontovite was described in 1957 (43, 379, 1958) as a hydrous U₄⁺U₅⁺ phosphate. Type material from a collection has been re-examined. The average of four analyses was UO₂ 65.63, ThO₂ 9.46, CaO 0.27, P₂O₅ 18.54, H₂O (by difference) 6.10%. Because of the gray-green color of the mineral, U is calculated as U₄⁺ and the formula derived is U₄⁺ (PO₄)(OH) · 0.8H₂O.

The mineral gave sharp electron diffraction patterns but “particles retain their ability to diffract for not more than 30–40 seconds.” The strongest lines are 4.87(80), 4.12(80), 3.92(100), 3.83(80), 3.29(95), 3.15(70), 3.11(70), 2.69(70). The mineral is orthorhombic, space group perhaps Ccca, a = 9.74, b = 19.0, c = 10.1 Å.
The mineral occurs as radiating fibrous aggregates, G 4.50–4.00, extinction parallel, n = 1.686–1.690, β = 1.707, γ = 1.724–1.726, Z = c = elongation. M.F.

**Musgravite**, Taaffeite
(Taprobante = Taaffeite, Taaffeite-9R = Musgravite)


The chemistry and crystallography of these three minerals is reviewed. The identity of taprobante with taaffeite (67, 1067 (1982)) is confirmed; the name taprobante is dropped and the name taaffeite is retained for the hexagonal mineral, space group P63mc, a = 5.69, c = 18.3 Å, formula (Mg,Fe,Zn,Mn)₆Al₆BeO₁₂, Z = 2.

The mineral described from Australia by Hudson et al., Mineralog. Mag., 36, 305–310 (1967) and from Antarctica by Grew et al. (66, 1022–1033, 1981) as taaffeite-9R, rhombohedral, a = 5.675, c = 41.99 Å, composition (Mg,Fe,Zn)₆Al₆BeO₁₂, Z = 6, the Mg-analogue of pehrmanite (67, 859, 1982), was previously named taaffeite-9R. This name for the phase is dropped in favor of musgravite, a name originally approved by the IMA Commission. M.F.

**Pilsenite redefined**
**Wehrlite discredited**


**Wehrlite**

Topotype wehrlite is reexamined and found to be a mixture of Bi₄Te₃ and hessite, Ag₂Te. This explains the silver content of earlier studies and the variance in previous formulae. The mixture was identified using microprobe and X-ray diffraction methods.

**Pilsenite**

Pilsenite is redefined as the Bi₄Te₃ component of the above mixture. It is rhombohedral, space group R₃m with a = 4.446(2) and c = 41.94(2) Å, Z = 3. The strongest lines in the X-ray powder diffraction pattern are: 3.25(vs)(322), 2.36(s)(554), 2.22(s)(101), 1.998(s)(777), 1.833(s)(331), 1.485(s)(876).

Microprobe analysis of pilsenite from Deutsch-Pilsen, Hungary, yielded: Bi 65.2(64.7–66.0), Pb 1(1.0–1.3), Ag 0(0.0–0.3), Fe 0(0.0–0.3), Te 31.0(30.6–31.2), S 0(0.1–0.3), corresponding to (Bi₄.97Pb₀.07Ag₀.₅₇Te₃.₉₅S₀.₅₅), or ideally Bi₄Te₃. Both the discreditation and redefinition were approved by the I.M.A. P.J.D.

**Steenstrupe**


Crystal structure determination on a crystal from Tunugdliar-fik, South Greenland, was redefined to R = 0.073 for 1740 independent reflections. Unit cell parameters are a = 10.460(4), c = 45.479(15) Å, space group R₃m, Z = 3. A possible formula is Na₄Ce₆⁺(Mn²⁺Mn³⁺)Fe⁶⁺(Zr, Th)⁴⁺(OH)³⁺(PO₄)(PO₄₆)(Si₆O₁₈)·3H₂O. P.J.D.

**Sturtite = neotocite/hisingerite**


Examination of topotype sturtites from Broken Hill, New South Wales, Australia, using TEM techniques, chemical analyses, X-ray absorption edge spectroscopy, and Mössbauer spectroscopy indicate that “sturtites” have compositions and characteristics of the FeSiO₃–H₂O–MnSiO₃–H₂O series known as hisingerite/neotocite.

**Discussion**

Formal discreditation requires approval by the I.M.A. Commission on New Minerals and Mineral Names; such approval is not indicated in this paper. For further reference to hisingerite/neotocite, see Clark et al., 1978 (Mineral. Mag., 42, 279–280 & M26–M30), Fleischer (AM 65, 210), and Brigatti (Developments in Sedimentology, 35, 97–110).

**Tancoite**


Crystal structure analysis of tancoite confirms the formula LiNa₂H[Al(PO₄)₂(OH)] and provides new unit cell parameters a = 6.948(2), b = 14.089(4), c = 14.065(3), V = 1376.8 Å³, space group Pbcb, Z = 8. The structure was refined to an R value of 6.1% for 1086 observed reflections. P.J.D.