*American Mineralogist, Volume 68, pages 280–283, 1983*

# NEW MINERAL NAMES*

MICHAEL FLEISCHER AND ADOLF PABST

### Arsendescloizite*

Paul Keller and P. J. Dunn (1982) Arsendescloizite, a new mineral from Tsumeb. Mineralog. Record, 13, 155–157.

Microprobe analysis ($H_2O$ by TGA) gave $As_2O_5$ 26.5, PbO 52.3, ZnO 18.5, FeO 0.3, $H_2O$ 2.9, sum 100.5%, corresponding to $Pb_{1.06}(Zn_{1.03}Fe_{0.02})(AsO_4)(OH)_{1.4}$ or $PbZn(AsO_4)(OH)$, the arsenate analogue of descloizite. The mineral is slightly soluble in hot $HNO_3$.

Weissenberg and precession measurements show the mineral to be orthorhombic, space group $P2_12_12_1$, $a = 6.075$, $b = 9.358$, $c = 7.634$Å, Z = 4, D. calc. 6.57. The strongest X-ray lines (31 given) are 4.23(6)(111); 3.23(10)(102); 2.88(10)(210,031); 2.60 (8)(131); 2.09(6)(231); 1.656(6)(331,143,233); 1.559 (8)(313,060,251).

Crystals are tabular on {001}, up to 1.0 × 0.4 × 0.5 mm in size, and form rose-like aggregates. Observed forms {001}, {011}, {101}, {111}. Color pale yellow, luster brilliant subadamantine, streak white. H about 4, no cleavage was observed. Optically biaxial, negative, *ns* $\alpha = 1.990$, $\beta = 2.030$, $\gamma = 2.035$, $2V$ about 30°, $r > v$, $X = b$, $Y = a$.

The mineral is associated with willemite, chalcocite, mimetite, quartz, and goethite, on a matrix of tennantite and chalcocite.

The name is for the chemical and crystallographic relationship to descloizite. Type material is at the Univ. Stuttgart, Germany, and the Smithsonian Institution. **M.F.**

### Benavidesite*

Elisabeth Oudin, Paul Picot, Francois Pillard, Yves Moels, E. A. J. Burke, and M. A. Zakrzewski (1982) Benavidesite, $Pb_4(Mn,Fe)Sb_6S_{14}$, a new mineral of the jamesonite series. Bull. Mineral., 105, 166–169 (in French).

Electron microprobe analyses by R. Giraud on 2 samples from Uchucchacua gave Pb 39.9, 39.8; Mn 2.2, 1.6; Fe 0.8, 1.0; Sb 34.8, 35.8; S 21.1, 21.6, sum 99.8, 99.8%. Five analyses from Sätra gave (range and average) Pb 39.5–40.2, 39.9; Cu 0.1–0.2, 0.1; Mn 1.7–1.85, 1.8; Fe 0.9–1.2, 1.1; Zn 0.1–0.15, 0.1; Sb 32.2–33.9, 33.0; Bi 2.0–3.6, 2.6; S 21.5–21.9, 21.7, sum 100.3%. These correspond to $Pb_{4.09}(Mn_{0.69}Fe_{0.42}Cu_{0.03}Zn_{0.03})(Sb_{5.74}Bi_{0.26})S_{14.38}$, the Mn analogue of jamesonite.

Single crystal study was not possible. The powder pattern was indexed on a monoclinic cell, $a = 15.74$, $b = 19.14$, $c = 4.06$Å, $\beta = 91.50°$, Z = 2, D. calc. 5.60. The strongest lines (34 given) are 4.10(3)(240); 3.45(10)(250); 2.829(4)($\bar{4}11$,530); 2.737($\bar{4}21$,360).

The mineral is lead-gray, streak brownish-gray. Pleochroism weak. Strongly anisotropic with colors brown to bluish. Internal reflections rarely observed in dull red. Cleavage not observed. Polysynthetic twinning common. Reflectances (max. and min.) are given at 21 wave lengths: 400 nm, 42.0, 40.7; 460, 42.4, 39.5; 540, 42.4, 39.0; 600, 41.3, 38.3; 640, 40.8, 37.9; 680, 38.7, 36.1%. Hardness (Vickers) (load 15 g) 77–116, average 97 kg/sq. mm.

The mineral occurs at Uchucchacua, Peru, in acicular crystals up to 200 × 20 microns, associated with galena, manganoan sphalerite, pyrite, pyrrhotite, and alabandite, with gangue of quartz, bustamite, rhodonite, and calcite. Also found at Sätra, Sweden, in a metamorphosed pyrite–pyrrhotite deposit in rhyolitic and dacitic rocks; in rounded grains up to 50 μm in diameter, associated with galena, freibergite, gudmundite, manganoan sphalerite, bismuth, and spessartine.

The name is for A. Benavides, for his contribution to the development of mining in Peru. Type material is at the Ecole Natl. Superieure des Mines, Paris (Uchucchacua) and at the Free University, Amsterdam, Netherlands (Sätra). **M.F.**

### Kolfanite*

A. V. Voloshin, Yu. P. Men'shikov, L. I. Polezhaeva, and A. A. Lentsi (1982) Kolfanite, a new mineral from granite pegmatite, Kola Peninsula. Mineralog. Zhurnal, 4, 90–95 (in Russian).

Analysis by microprobe (standards diopside for Ca, hematite for Fe, pyrope for Al and Si, synthetic NiAs for As, apatite for P, Sb for Sb) gave: $As_2O_5$ 43.30, $P_2O_5$ 0.96, $Sb_2O_5$ 2.20, CaO 14.97, $Fe_2O_3$ 32.09, $Al_2O_3$ 0.05, $SiO_2$ 1.20, $H_2O$ (by loss of weight when heated) 5.10, sum 99.07%, corresponding to $Ca_{1.95}(Fe_{2.93}Al_{0.01})(As_{2.74}Sb_{0.10}P_{0.10})O_{14}\cdot 2.06H_2O$, or $Ca_2Fe_3^{+3}O_2(AsO_4)_3\cdot 2H_2O$, corresponding to arseniosiderite but with less water.

The X-ray pattern is indexed on a monoclinic cell with $a = 17.86$, $b = 19.66$, $c = 11.11$Å, $\beta = 96°$, D. calc. 3.75, meas. 3.3, very close to the data of Moore and Araki (Inorg. Chem. 16, 1096–1106 (1977)) for arseniosiderite. The X-ray pattern, however, has three weak lines that exclude the space group *Aa* proposed for arseniosiderite by Moore and Araki. The strongest lines of kolfanite (32 given) are 8.90(10)(200); 5.64(5)(031); 3.29(9)(402); 2.72(10)(204); 2.216(8)(800); 1.646(8)(406).

Color red, in thin plates orange to yellow, luster adamantine. Microhardness 64 kg/sq. mm at 20 g load, 73 kg/sq. mm at 100 g load. Brittle. Optically biaxial, negative, *ns* $\alpha = 1.810$, $\beta = 1.923$, $\gamma = 1.933$, $2V = 5$–7°, pleochroic, *X* pale yellow, *Y* and *Z* dark orange. Cleavage in one direction.

The mineral occurs in hydrothermally altered granite pegmatite, Kola Peninsula formed by the alteration of holtite. It is associated with mitridatite, arseniosiderite, and laueite. The name is an abbreviation of *Kol*a *F*ilial *A*kad. *N*auk. Type material is at the Fersman Mineralogical Museum, Acad. Sci. USSR, Moscow, and the Mineralogical Museum of the Geol. Inst., Kola Branch, Acad. Sci. USSR. **M.F.**

### Mgriite*

Yu. M. Dymkov, T. I. Loseva, E. N. Zav'yalov, B. I. Ryzhov, and L. I. Bochek (1982) Mgriite, $(Cu,Fe)_3AsSe_3$, a new mineral. Zapiski Vses. Mineral. Obsh., 111, 215–219 (in Russian).

Microprobe analyses of 4 samples gave (range and average): Cu 36.8–37.7, 37.2; Fe 1.8; As 14.5–14.9, 14.7; Se 46.8–47.7,

---

*Minerals marked with asterisks were approved before publication by the Commission on New Minerals and Mineral Names of the International Mineralogical Association.

0003–004X/83/0102–0280$0.50

47.2; sum 99.1–101.1, 100.9%, corresponding to $(Cu_{2.92}Fe_{0.16})As_{0.98}Se_{2.96}$ or $Cu_3AsSe_3$.

X-ray study showed the mineral to be cubic, $a = 5.530 \pm 0.005$Å., space group probably $O^7$–$Pd3m$, Z = 1, D. calc. 4.9. The strongest lines (16 given) are 3.18(10); 1.952(10); 1.671 (5); 1.268(4); 1.129(4).

In reflected light, gray with a brownish tint. Reflectance: 460 nm, 26.7; 540, 26.9; 580, 27; 660, 26.4%. No cleavage. Hardness 287–379 kg/sq. mm, at 20 g load. Brittle.

The mineral occurs, associated with clausthalite, berzelianite, umangite, and other selenides in ankerite–calcite veins of the SW part of the Erzgebirge, Saxony, East Germany.

The name is for the abbreviation of Moscow Geol.-Razved Inst., where it was discovered. Type material is at the Fersman Mineralogical Museum, Acad. Sci. USSR, Moscow. **M.F.**

## Minrecordite*

C. G. Garavelly, Filippo Vurro, and G. C. Fioravanti (1982) Minrecordite, a new mineral from Tsumeb. Mineralog. Record, 13, 131–136.

The mineral occurs as small twisted crystals on dioptase; one variety is milky-white with pearly luster, a second variety is colorless. Analysis of the first variety (4 by microprobe) averaged (wt.%) $CaCO_3$ 43.97, $ZnCO_3$ 51.56, $MgCO_3$ 2.52, $FeCO_3$ 1.78, $MnCO_3$ 0.16, corresponding to $Ca_{0.98}(Zn_{0.92}Mg_{0.07}Fe_{0.03})(CO_3)_2$, the Zn-analogue of dolomite. The second is a magnesian variety with formula $Ca_{1.09}(Zn_{0.70}Mg_{0.13}Fe_{0.07}Mn_{0.01})(CO_3)_2$. Slowly dissolved by acids in cold, dilute HCl, rapidly dissolved by warm acids.

The nearly pure end-member is trigonal, space group $R\bar{3}$, $a = 4.8183$, $c = 16.0295$Å, D meas. 3.45, calc 3.445; the magnesian variety had $a = 4.8355$, $c = 16.1433$Å., D meas. 3.32, calc 3.306. The strongest X-ray lines of the end-member (20 given) are 2.890(100)(104; 2.4095(25)(110); 1.806(33)(018); 1.789(40)(116).

Crystals, up to 0.5 mm in size, show only the form $\{10\bar{1}4\}$. Cleavage $\{10\bar{1}4\}$ perfect. Optically uniaxial, negative, *ns* (end-member) $\omega = 1.750$, $\varepsilon = 1.550$ (both ±0.002); magnesian variety $\omega = 1.734$, $\varepsilon = 1.542$, both ±0.003. Associated minerals include zincian dolomite, malachite, and duftite.

The name is for the journal Mineralogical Record. The holotype specimen is at the University of Bari, Italy, number HO-4/81. **M.F.**

## Mohite*

V. A. Kovalenker, V. S. Malov, T. L. Evstigneeva, and L. N. Vyal'sov (1982) Mohite, $Cu_2SnS_3$, a new sulfide of tin and copper. Zapiski. Vses. Mineralog. Obshch., 111, 110–114 (in Russian).

Electron microprobe analyses of 7 grains (standards pure Sn and Sb and stoichiometric $CuFeS_2$ and NiAs) gave (range and av.) Cu 36.79–38.34, 37.69; Sn 32.35–36.55, 35.15; Sb none–3.72, 0.67; S 27.17–28.74, 27.91; sum 100.94–101.61, 101.42%.

X-ray data were indexed on the triclinic cell proposed for synthetic $Cu_2SnS_3$ by Wang (1974), giving $a = 6.64$, $b = 11.51$, $c = 19.93$Å, $\alpha = 90°$, $\beta = 109°45'$, $\gamma = 90°$, Z = 12. The strongest lines (21 given) are 3.13(10)(006,200); 1.920(7)(206,060).

The mineral occurs as small grains, usually elongated (up to 10 × 50–80 μm) in goldfieldite–famatinite–tetrahedrite ores of the Kochbulak deposit, eastern Uzbekistan, associated with kuramite, mawsonite, and emplectite, and especially at the contact of tetrahedrite with famatinite.

Color gray with greenish tint. Reflectance was measured at 440–740 nm 460, 24.7; 540, 25.5; 580, 25.7; 660, 25.9%. Under crossed Nicols, distinctly anisotropic, without marked color effects. Hardness 151–203, av. 179 kg/sq. mm (10 g load).

The name is for Gunter Moh, Univ. of Heidelberg, Germany, who first synthesized the compound. **M.F.**

## Namuwite*

R. E. Bevins, S. Turgoose, and P. A. Williams (1981) Namuwite, $(Zn,Cu)_4SO_4(OH)_6 \cdot 4H_2O$, a new mineral from Wales. Mineral. Mag., 45, 51–54.

Namuwite was recognized on a specimen in the collection of the National Museum of Wales labelled "Hydrozinite (coloured by malachite) Averllyn Mine (1917) Bettws-y-coed Carn 271 111 Gr414". The Aberllyn mine is in the Llanrwst mining district, North Wales, formerly worked for lead. Namuwite occurs as a rounded encrustation on hydrozincite occupying an area 1.5 × 5.0 cm and up to 0.5 cm thick. To the unaided eye namuwite appears amorphous, but under the SEM is seen to consist of aggregates of perfect or nearly perfect hexagonal plates up to 60 μm across. Analysis by atomic absorption and thermogravimetric methods gave ZnO 37.8, CuO 22.0, $SO_3$ 14.9, $H_2O^-$ 11.1, $H_2O^+$ 13.4, sum 99.2%, corresponding closely to the formula in the title. The powder pattern, which closely matches that of synthetic $Zn_4SO_4(OH)_6 \cdot 4H_2O$, is indexed on a hexagonal cell with $a = 8.29$ and $c = 10.50(1)$Å; Z = 2, D meas. 2.77, calc. 2.84. Principal lines of the powder pattern are 10.59(100)(0001); 4.15(25)$(11\bar{2}0)$; 2.71(42)$(21\bar{3}0)$; 2.63(41)$(21\bar{3}1)$. There being no systematic absences the space group remains undetermined. Namuwite is pale sea-green, with pearly luster and a very pale green streak; H (Mohs) is 2, basal cleavage is perfect. It is optically uniaxial, sign undetermined due to extremely low birefringence, and $n = 1.577(5)$. The name is for the National Museum of Wales, where the type specimen has been redeposited. **A.P.**

## Natrite*

A. P. Khomyakov (1982) Natrite, $Na_2CO_3$, a new mineral. Zapiski Vses. Mineralog. Obsh., 111, 220–225 (in Russian).

Analysis gave $CO_2$ (gravimetric) 41.04, $Na_2O$ 54.59, $K_2O$ 0.02 (by flame photometry), $H_2O$ (loss of weight 20–150°) 3.7, sum 99.35%. Spectrographic analysis showed traces of Ca, Mn, Fe, Mg, Al, Si, Ti, Cu. Thermal analysis of carefully selected material showed a loss in weight 20–900°C of about 1%; the infrared spectrum of freshest material showed no bands of molecular water. The composition is $Na_2CO_3$. The DTA curve showed small endothermic effects at 120° (loss of $H_2O$ from admixed thermonatrite), 360° and 495° (polymorphic transformations) and a large endothermic break at 890°C (fusion). The mineral dissolves readily in water to a strongly alkaline solution.

X-ray study showed the mineral to be identical with synthetic monoclinic $\gamma$-$Na_2CO_3$ (JCDS card no. 19-1130), $a = 8.906$, $b = 5.238$, $c = 6.045$Å, $\beta = 101°21'$, Z = 4. This cell is not the true one because a number of weak reflections cannot be indexed. The mineral may be triclinic. The strongest lines (58 given) are 2.962(100)(002); 2.602(40)$(11\bar{2})$; 2.545(60)(310); 2.366(70)$(11\bar{2})$; 2.254 (35)(202); 2.175(35)$(22\bar{1})$.

Color white to transparent-colorless, rarely rose to yellow-

0003-004X/83/0102-0281$0.50

orange grains and granular masses. Luster vitreous, becomes dull on exposure, fracture step-like. H 133–175, av. 154 kg/sq. mm, approx. 3½. D 2.54. Optically biaxial, neg., *ns* $\alpha = 1.410$, $\beta = 1.535$, $\gamma = 1.543$ (all ±0.002), $2V$ 28°. Cleavage (001) perfect, (100), (110) less perfect. Fine polysynthetic twins are found along these planes. $Y$ is close to $b$.

The mineral occurs in deep zones of the Khibina and Lovozero massif, Kola Peninsula, associated with shortite, pirssonite, gaylussite, villiaumite, *etc*.

The name is for the composition. Type material is at the Fersman Mineralogical Museum, Acad. Sci. USSR, Moscow, and the Geol. Museum, Kola Branch Acad. Sci., Apatite. **M.F.**

### Neltnerite*

Celestine Baudracco-Gritti, René Caye, Francois Permingeat, and Jean Protas (1982) Neltnerite, $CaMn_6SiO_{12}$, a new mineral species of the braunite group. Bull. Mineral., 105, 161–165 (in French).

Microprobe analyses, average of 14 by F. Autefage and average of 16 by R. Giraud, gave, respectively, $SiO_2$ 10.16, 10.34; CaO 8.94, 8.64; $Mn_2O_3$ 78.94, 80.27; $Fe_2O_3$ 1.29, 1.07, sum 99.33, 100.32%, corresponding respectively to $(Ca_{0.948},Mn^{+2}_{0.058})(Mn^{+3}_{5.892},Fe^{+3}_{0.096})\ Si_{1.006}O_{12}$ and $(Ca_{0.909},Mn^{+2}_{0.106})(Mn^{+3}_{5.891},Fe^{+3}_{0.079})Si_{1.015}O_{12}$.

X-ray study showed the mineral to be tetragonal, space group $I4_1/acd$, $a = 9.464$, $c = 18.854$Å., Z = 8, D. calc. 4.65, meas. 4.63±0.05. The strongest lines (35 given) are 2.728(10)(224); 1.672(8–9)(440,048); 1.427(6)(264,2·2·12); 1.085(5).

Color black, luster submetallic, no cleavage, fracture subconchoidal. Vickers hardness 1200–1220 (100 g load) = Mohs 6. In reflected light weakly anisotropic with gray to brownish-gray colors. Reflectances: 470 nm, 21.3, 22.3; 546, 19.2, 20.2; 589, 18.5, 19.5; 650, 17.65, 18.65%.

The mineral occurs at Tachgagalt, Morocco, in small grains, rarely in dipyramidal crystals up to 1 mm with predominant faces. $(13\bar{1})$, $(31\bar{1})$, $(3\bar{1}\bar{1})$, (131), (311), $(3\bar{1}1)$, (101), (011). Associated minerals are braunite and a calcian braunite, marokite, and crednerite. The name is for Louis Neltner, a pioneer student of the geology of the High Atlas in Monaco. Type material is at the Ecole Nationale Superieuredes Mines, Paris. **M.F.**

### Suzukiite*

Satoshi Matsubara, Akira Kato, and Shunzo Yui (1982) Suzukiite, $Ba_2V_2^{+4}(O_2)(Si_4O_{12})$, a new mineral from the Mogurazawa mine, Gumma Prefecture, Japan. Mineralog. Journal (Tokyo), 11, 15–20 (in English).

Microprobe analysis, using analyzed yoshimuraite (for Ba, Sr, Ti, Si) and synthetic $V_6O_{11}$ (for V) as standards, gave $SiO_2$ 33.59, $TiO_2$ 0.20, $VO_2$ 23.56, BaO 38.38, SrO 3.21, sum 98.94%, corresponding to $(Ba_{1.78}Sr_{0.22})(V^{+4}_{2.02}Ti_{0.02})Si_{3.97}O_{14}$, or (Ba,Sr) $V^{+4}Si_2O_7$, the barium analogue of haradaite (60, 340 (1975)). The absorption spectrum indicates the V to be $V^{+4}$.

X-ray study indicates the mineral to be orthorhombic, space group *Amam* or *Ama*2, $a = 7.089$, $b = 15.261$, $c = 5.364$Å, Z = 2 $(Ba_2V_2Si_4O_{14})$, D. calc. 4.03, meas. 4.0. The strongest X-ray lines (21 given) are 7.63(100)(020); 3.818(60)(040); 3.353(60)(140); 3.276(25)(131); 2.394(35)(160).

Color bright green, luster vitreous, streak pale green. Cleavages {010} perfect, {100} and {001} distinct. H 4–4½. Optically biaxial, neg., $2V$ about 90°, $r < v$, very strong; *ns* $\alpha = 1.730$, $\beta = 1.739$ (calc), $\gamma = 1.748$, $X = a$, $Y = b$. Pleochroic, $X$ pale green, $Y$ light yellow green, $Z$ bluish-green, absorption $X < Y < Z$.

The mineral occurs as tiny flakes and aggregates in massive rhodonite-rhodochrosite ore, associated with quartz, barite, alabandite, and nagashimalite.

The name is for the late Professor Jan Suzuki (1896–1970), petrologist and mineralogist, of Hokkaido University. Type material is at the National Science Museum, Tokyo, no. NSM M-21385. **M.F.**

### Theisite*

S. A. Williams (1981) Theisite, a new mineral from Colorado. Mineral. Mag., 45, 49–50.

Theisite ocurs in thin seams cutting an assemblage of mostly secondary minerals in the severely oxidized zone of a small uranium prospect near Durango, Colorado. No further locality information is given. Principal associated minerals include uraninite, galena, malachite and azurite. Wet chemical analysis gave CuO 33.3, ZnO 33.1, CaO 0.3, $As_2O_5$ 14.8, $Sb_2O_5$ 7.0, $H_2O$ 10.5, sum 99.0%, corresponding closely to the formula $Cu_5Zn_5\{(As,Sb)O_4\}_2(OH)_{14}$. Cell dimensions, based on an X-ray powder diffraction pattern indexed by the Ito method, are $a = 8.225$, $c = 14.97$Å hexagonal, or $a = 8.225$, $b = 7.123$, $c = 14.97$Å orthorhombic pseudohexagonal; Z = 2, D meas. 4.3, calc. 4.45. Principal lines of the powder pattern are 14.973(9)(001); 7.483(5)(002); 3.741(10)(004); 2.534(9)(222); orthorhombic indexing. Theisite in sectile basal cleavage plates up to 2 mm across, which are curved or crumpled, has a Mohs hardness of 1½. The color is langite green while the streak is nearly white. In thin section crystals are pale blue-green, nonpleochroic, and resemble tyrolite or tlalocite; they are sensibly uniaxial negative with $\alpha = 1.755$, $\beta = \gamma = 1.785$. The name is for Dr. Nicholas J. Theis, who found the mineral. **A.P.**

### Yafsoanite*

A. A. Kim, N. V. Zayakina, and Yu. G. Lavrent'ev (1982) Yafsoanite, $(Zn_{1.38}Ca_{1.36}Pb_{0.26})_3TeO_6$, a new tellurium mineral. Zapiski Vses. Mineralog. Obshch., 111, 118–121 (in Russian).

Electron microprobe analyses (standards synthetic ZnS and PbS, diopside, metallic Te, and $TeO_2$ (for O) were made. The average of 6 analyses on crystals plus radiating-fibrous materials and of 4 analyses of concentric-zoned deposits, respectively, were: ZnO 24.56, 27.38; PbO 12.82, 8.88; CaO 16.79, 18.47; $SiO_2$ 0.21, 1.56; $TeO_3$ 42.11, 39.91; excess O 2.02, 2.77; sum 98.60, 98.97%, corresponding to $(Zn_{1.32}Ca_{1.31}Pb_{0.25})Te_{1.04}O_6$ and $(Zn_{1.46}Ca_{1.42}Pb_{0.26})TeO_6$. The mineral lost 2.54% by weight when heated at 500° for 3 hours; the X-ray pattern was unchanged. Dissolved by acids, not reactive with KOH or $FeCl_2$.

X-ray study showed the mineral to be cubic, space group $Pm3n$ or $P\bar{4}3n$, $a = 6.315\pm0.002$Å. The strongest lines (21 given) are 3.16(8)(200); 2.821(9)(210); 2.581(10)(211); 1.683(10)(231); 1.024(5)(523,611).

The mineral occurs as intergrowths, single crystals (0.1–0.5 mm), and as radiating-concentric material. Color light to dark brown, luster vitreous. Faces shown include cube, octahedron, and rhombododecahedron. Isotropic, $n = 1.800\pm0.005$. Hardness rather variable, mostly around 696 kg/sq. mm.

The mineral occurs in a gold deposit, central Aldan. The name is for the Yakut Filial, Siberian Branch, Academy of Sciences

0003–004X/83/0102–0282$0.50

(Yafsoan in Russian). Type material is at the Fersman Mineralogical Museum, Acad. Sci., Moscow and the Inst. of Geology, Yakut Filial, Siberian Branch, Acad. Sci. USSR. **M.F.**

### Discredited Minerals
### α-$MnSiO_3$ Θ Hausmannite

Bruno Simons and Friedrich Liebau (1982) α-$MnSiO_3$ discredited. Neues Jahrb. Mineral., Monatsh., 165–168.

Liebau, Sprung, and Thilo (Zeitschr. anorg. Chem. 297, 213–225 (1958)) described a phase as α-$MnSiO_3$; it was formed by heating $Mn_2SiO_4$ with $SiO_2$. Korczynska-Orzaca (Mineralog. Polonica, 6, 75–80 (1975)) found a mineral with the same X-ray pattern as "α-$MnSiO_3$". The present paper shows that this X-ray pattern is that of hausmannite. **M.F.**

# BOOK REVIEWS

METEORITES: A PETROLOGIC–CHEMICAL SYNTHESIS. By Robert T. Dodd. Cambridge University Press, 1981. xi +368 pages, 25 sets of photographs, 47 line drawings, 45 tables. $69.50.

Meteorites are the most important source of data for our understanding of the origin, early history and evolution of solids and, indeed, the planets, in our solar system. This is not only because meteorites, besides lunar samples, are the only extraterrestrial material available in abundance for study in the laboratory, but because many meteorites are the most ancient rocks, dating back to the time of formation of the solar system. Many are also texturally, chemically and isotopically primitive, reflecting the make-up of matter 4.55 billion years ago, and some even contain pre-solar and extra-solar system material. Meteorites further contain a record of the origin, evolution and properties of their parent bodies (the asteroids), namely of their accretion, structure, break-up and reassembly; their melting, differentiation, cooling and solidification; and their regolith history.

It is therefore not surprising that for many years and, particularly, since the late fifties, meteorites have become the treasured objects of studies by scientists from many different fields. This interdisciplinary nature of meteoritics has resulted in major contributions from diverse scientific fields and publication in many different journals and, thus, there has always been a real need for up-to-date syntheses. Although some excellent texts on meteorites have been published in the past, none have concentrated on a synthesis of mineralogic, petrographic and chemical data. The book by R. T. Dodd is an excellent attempt for just such a synthesis and, therefore, is exceedingly timely and fills a major gap in the literature. The author is very well known in the field and has made major contributions over many years to the petrology of stone meteorites, particularly chondrites, and their origin and evolution. Although the author's biases show through in places, I do not find this to be too much of a problem, since the book generally has abundant literature references to papers representing diverse points of view.

As the title implies, the emphasis of the book is on mineralogic, petrologic and chemical aspects of meteorites. Hence, considerable space is devoted to classification of meteorites on the basis of mineralogic, petrographic and chemical parameters. Chondrites in general and ordinary, carbonaceous and enstatite chondrites specifically are treated in detail, and the enstatite chondrite—enstatite achondrite association is delineated. Time and processes in the evolution of chondrites are reviewed and differentiated meteorites (irons, pallasites, and their associates) are described. The eucrite association, a group of differentiated, genetically related achondrites is reviewed, and so are the "unassociated" differentiated meteorites, *i.e.*, rocks that cannot now be clearly related to other meteorite groups (*e.g.*, the pyroxene–maskelynite, augite–olivine, olivine, olivine–pigeonite and fassaite achondrites, as well as the siderophyre and lodranite). Finally, source objects and parent bodies are discussed.

The book is remarkably free of typesetting and factual errors. A few, which the author may wish to correct in a second edition, are noted here. The jacket photo is not the Salta but the Thiel Mountains pallasite. p. 10: The description of Antarctic meteorite nomenclature is incomplete and should state that the capital letters A, B, C *etc.* stand for field parties A, B, C *etc.* at that particular locality and during that field season, such as Allan Hills A77005. p. 16, Table 2.3: Some chondrites classified by Dodd as type 7 are not simply the most highly recrystallized chondrites but clearly were partly or totally melted and should not be called type 7. p. 19, 20, Tables 2.1, 2.2: These tables would be more useful if the LL-group chondrites had been separated from those of the L-group. p. 22, 1.1: Figure 2.3 (not 2.2); in the text, chondrites are discussed in terms of Ni/Fe ratios, whereas in the associated Figure 2.3, data are plotted as Fe/Ni. This is confusing. Furthermore, the meteorite Segowlie (SE) is not indicated in Fig. 2.3. p. 25: Although ordinary chondrites of types 3–6 are related by recrystallization, this is clearly not the case for the carbonaceous chondrites of types 1–3 (*e.g.*, type 2 carbonaceous chondrites are mechanical mixtures of low- and high-temperature phases). It is high time that this erroneous aspect of the otherwise useful van Schmus-Wood petrologic chondrite classification is recognized and acknowledged. p. 50: The CAIs were first identified by both Christophe (1969) in Lance, and Keil *et al.* (1969) in Leoville (Keil *et al.* reported at the same meeting and published in the same book). p. 77: The ordinary chondrites are not necessarily the most abundant meteorites in the vicinity of the earth, only among those that survive entry and are found on earth. p. 119, l. 10t: Bovedy is an L-group chondrite, not H; l. 11t: delete L.

Although the book presents an encyclopedic amount of data, it is exceedingly well-written and very readable and should be useful to specialists and non-specialists alike. Graduate students should find it to be an outstanding supplementary text to courses dealing with cosmochemistry, planetary sciences, and meteoritics. This is simply an outstanding monograph that presents a comprehensive, authoritative, modern treatment of the mineralogy, petrology and chemistry of meteorites to which the author is to be congratulated. No meteorite researcher can afford not to read this book from cover to cover, and the only thing that may prevent him from doing so is the exorbitant price of the book.

KLAUS KEIL
*University of New Mexico*

0003–004X/83/0102–0283$0.50