

ENCYCLOPEDIA OF MINERAL NAMES: SECOND UPDATE

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We are pleased to present the second update to the *Encyclopedia of Mineral Names (The Canadian Mineralogist, Special Publication 1)*. The entries listed below largely describe new species of minerals that have appeared in the literature since mid-1999. A copy of this update will be supplied free of charge on demand. It can also be downloaded from the MAC's website, www.mineralogicalassociation.ca.

The information given below is presented in two separate lists. First is the listing of new mineral species discovered since the First Update, two years ago. The information is presented as in the *Encyclopedia*, with a focus on the origin of the name of the mineral. The second list contains miscellaneous entries, some inadvertently left out of the previous compilations, some recently approved by the CNMMN but not recently discovered, some still not well established but apparently not yet discredited, and one (**prouditite**) corrected from a previous listing.

We acknowledge the assistance of many readers who took the trouble to offer corrections, not only to the names of mineral species, but also to details about type localities. All these corrections have been made on the master listing, and will be reflected in the next edition of the book. Please do not hesitate to contact one of us to report any correction or addendum.

Mineral Species Described in the Last Two Years

Adamsite

$\text{NaY}(\text{CO}_3)_2 \cdot 6\text{H}_2\text{O}$, triclinic, $P\bar{1}$

Named after Frank Dawson Adams (1859–1942), Professor of Geology and Principal, McGill University, Montreal, Canada, investigator of the Grenville Province and the Monteregian igneous complexes, and the first to write about the Monteregian Hills as a petrographically distinct province. Pioneer in the experimental deformation of rocks. Author of *The Birth and Development of the Geological Sciences* (1938). Found in a cavity in the "Poudrette" alkaline pegmatite dyke, Mont Saint-Hilaire, Rouville County, Quebec, Canada.

Grice, J.D. *et al.* (2000): *Can. Mineral.* **38**, 1457.

Arakiite

$(\text{Zn}, \text{Mn}^{2+})(\text{Mn}^{2+}, \text{Mg})_{12}(\text{Fe}^{3+}, \text{Al})_2(\text{As}^{3+}\text{O}_3)(\text{As}^{5+}\text{O}_4)_2(\text{OH})_{23}$, monoclinic, *Cc*

Named after Takaharu Araki (b. 1929), of Lynwood, Washington, formerly at the University of Chicago, structural crystallographer, mineralogist, ceramist and patents analyst, who established the structure of many complex oxysalts, including that of hematolite, closely related to arakiite.

Found on a museum specimen, Långban, Värmland, Sweden.

Roberts, A.C. *et al.* (2000): *Mineral. Rec.* **31**, 253. Cooper, M.A. & Hawthorne, F.C. (1999): *Can. Mineral.* **37**, 1471.

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Bakhchisaraitsevite

$\text{Na}_2(\text{Mg,Fe})_5(\text{PO}_4)_4(\text{H}_2\text{O})_7$, monoclinic, $P2_1/c$

Named after Aleksandr Yur'evich Bakhchisaraitsev (1947–1998), of the Geological Institute, Kola Science Centre of the Russian Academy of Sciences, Apatity, Russia, known for his studies of minerals of the Kola Peninsula by X-ray diffraction and thermal analysis. Found in cavities in deformed veins of dolomite carbonatite, Kovdor phoscorite–carbonatite complex, Kola Peninsula, Russia.

Liferovich, R.P. *et al.* (2000): *Neues Jahrb. Mineral., Monatsh.*, 402. Yakubovich, O.V. *et al.* (2000): *Can. Mineral.* **38**, 831. Jambor, J.L. (2001): *Am. Mineral.* **86**, 767.

Bariosincosite

$\text{Ba}(\text{V}^{4+}\text{O})_2(\text{PO}_4)_2 \cdot 4\text{H}_2\text{O}$, tetragonal, $P4/n$ (?)

The barium-dominant analogue of **sincosite**.

The name reflects its composition and relationship to **sincosite**. Found in the suite of secondary minerals at the Spring Creek copper mine, on the flank of Mount Remarkable, near Wilmington, Flinders Range, South Australia.

Pring, A. *et al.* (1999): *Mineral. Mag.* **63**, 735. Roca, M. *et al.* (1997): *Inorg. Chem.* **36**, 3414.

Batiferrite

$\text{Ba}(\text{Ti}_2\text{Fe}^{3+}_8\text{Fe}^{2+}_2)\text{O}_{19}$, hexagonal, $P6_3/mmc$

A member of the *Magnetoplumbite* group.

The name reflects the main elements present and the relationship with the hexaferrites.

Found in the Slabik company quarry at Üdersdorf (5 km south-southwest of Daun), the Stolz quarry at Graulai (1 km north-northeast of Lammersdorf) and Altburg (1.5 km west of Schalkenmehren), western Eifel area, Germany.

Lengauer, C.L. *et al.* (2001): *Mineral. Petrol.* **71**, 1.

Bederite

$\square\text{Ca}_2\text{Mn}^{2+}_2\text{Fe}^{3+}_2\text{Mn}^{2+}_2(\text{PO}_4)_6(\text{H}_2\text{O})_2$, orthorhombic, $Pcab$

Isostructural with **wicksite** and **grischunite**.

Named after Robert Beder (1888–1930), originally from Basel, Switzerland and later from Córdoba, Argentina, for his major contributions to the development of mineralogy in Argentina, particularly in the area of morphological crystallography. Found in nodules in the El Peñón granitic pegmatite, Nevados de Palermo, Salta Province, Argentina.

Galliski, M.A. *et al.* (1999): *Am. Mineral.* **84**, 1674.

Belloite

$\text{Cu}(\text{OH})\text{Cl}$, monoclinic, $P2_1/a$

Named after Andrés Bello (1780–1865), founder and first rector of the Universidad de Chile in Santiago. Found in an altered quartz – feldspar – tourmaline rock in an abandoned mine at Sierra Gorda, near Antofagasta, Chile.

Schlüter, J. *et al.* (2000): *Neues Jahrb. Mineral., Monatsh.*, 67. Jambor, J.L. (2000): *Am. Mineral.* **85**, 1843. Effenberger, H. (1984): *Monatsh. Chem.* **115**, 725.

Biehlite

$(\text{Sb,As})_2\text{MoO}_6$, monoclinic, *C2/c*

Named after Friedrich Karl Biehl (b. 1887), of Osnabrück, Germany, the first mineralogist to do scientific work on the Tsumeb deposit. Found in the oxidized zone of the Tsumeb deposit, Namibia.

Schlüter, J. *et al.* (2000): *Neues Jahrb. Mineral., Monatsh.*, 234. Jambor, J.L. (2001): *Am. Mineral.* **86**, 197.

Bigcreekite

$\text{Ba}_2\text{Si}_2\text{O}_5 \cdot 4\text{H}_2\text{O}$, orthorhombic, *Pnma*

Named after its discovery locality. Found in a contact-metasomatic assemblage on Esquire #7 claim, along Big Creek, National Forest Route 9, eastern Fresno County, California, U.S.A.

Basciano, L.C. *et al.* (2001): *Can. Mineral.* **39**, 761.

Bismutopyrochlore

$(\text{Bi,U,Ca,Pb})_{1+x}(\text{Nb,Ta})_2\text{O}_6(\text{OH}) \cdot n\text{H}_2\text{O}$, amorphous (cubic upon annealing), *Fd3m* (upon annealing)

A member of the *Pyrochlore* group.

The name reflects its composition as a Bi-dominant analogue of **pyrochlore**. Found as euhedral crystals, now metamict, in the Mika granitic pegmatite dyke, Eastern Pamirs, Russia.

Chukanov, N.V. *et al.* (1999): *Zap. Vser. Mineral. Obshchest.* **128**(4), 36. Grew, E.S. (2000): *Am. Mineral.* **85**, 1561.

Bleasdaleite

$(\text{Ca,Fe}^{3+})_2\text{Cu}_5(\text{Bi,Cu})(\text{PO}_4)_4(\text{H}_2\text{O,OH,Cl})_{13}$, monoclinic (pseudotetragonal), *C2/m* (?)

Named after Reverend John Ignatius Bleasdale (1822–1884), of the Archdiocese of Melbourne, Australia, founding member of the Royal Society of Victoria, who drew attention to the richness and diversity of Victoria's gem minerals. Found in cavities in a granitic pegmatite, Lake Boga, Victoria, Australia.

Birch, W.D. *et al.* (1999): *Aust. J. Mineral.* **5**, 69. Jambor, J.L. (2000): *Am. Mineral.* **85**, 1321.

Bradaczekite

$\text{NaCu}_4(\text{AsO}_4)_3$, monoclinic, *C2/c*

Named after Hans Bradaczek (b. 1940), Professor of Crystallography at the Free University of Berlin, Germany. Found in a fumarole in the North Breach of the Great Fissure Tolbachik eruption, Kamchatka Peninsula, Russia.

Filatov, S.K. *et al.* (2001): *Can. Mineral.* **39**, 1115. Pertlik, F. (1987): *Acta Crystallogr.* **C43**, 381.

Brandholzite

$\text{Mg}(\text{H}_2\text{O})_6[\text{Sb}(\text{OH})_6]_2$, trigonal, *P3*

Named after the discovery locality, the Brandholz-Goldkronach mining district, Germany. Found as a product of alteration of stibnite in the oxidized zone exposed in the Schmidten-Schacht and Jakobi-Schacht pits along the Fürstenzeche lode, Brandholz-Goldkronach mining district, in the western part of the Fichtelgebirge, Bavaria, Germany.

Friedrich, A. *et al.* (2000): *Am. Mineral.* **85**, 593.

Cabalzarite

$\text{Ca}(\text{Mg,Al,Fe})_2(\text{AsO}_4)_2(\text{H}_2\text{O,OH})_2$, monoclinic, $C2/m$
A member of the *Tsumcorite* group

Named after Walter Cabalzar (b. 1919), retired school teacher and keen amateur mineralogist from Chur, Graubünden, Switzerland, who made important contributions to mineralogical research, in particular on new species from the canton Graubünden. Found in the Falotta manganese deposit, Graubünden, Switzerland, as a result of the retrograde mobilization of As following the Alpine metamorphism.

Brugger, J. *et al.* (2000): *Am. Mineral.* **85**, 1307.

Carmichaelite

$(\text{Ti,Cr})\text{O}_{1.5}(\text{OH})_{0.5}$, monoclinic, $P2_1/c$

Named after Ian Stuart Edward Carmichael (b. 1930), Professor of Geology, University of California, Berkeley, California, coauthor of *Igneous Petrology* (1974), in recognition of his work on Fe–Ti oxides in volcanic rocks. Found as inclusions in pyrope in mantled-derived xenoliths in a diatreme, Garnet Ridge, Coloradeau Plateau, Arizona.

Wang, Liping *et al.* (2000): *Am. Mineral.* **85**, 792.

Cerchiarite

$\text{Ba}_4\text{Mn}_4\text{Si}_6\text{O}_{18}(\text{OH})_7\text{Cl}$, tetragonal, $I4/mmm$

Named after the type locality. Found at the Cerchiar manganese (braunite) mine, Val di Vara, eastern Liguria, Italy.

Basso, R. *et al.* (2000): *Neues Jahrb. Mineral., Monatsh.*, 373. Jambor, J.L. (2001): *Am. Mineral.* **86**, 197.

Chabazite-Sr

$(\text{Sr, Ca})[\text{Al}_2\text{Si}_4\text{O}_{12}] \cdot 6\text{H}_2\text{O}$, trigonal, $R\bar{3}m$
A member of the *Zeolite* group.

See **chabazite-Ca**. The Sr-dominant member of the **chabazite** series. Found in an aegirine–K-feldspar pegmatite cross-cutting nepheline and nosean syenites on Suoluaiv Mountain, Lovozero alkaline complex, Kola Peninsula, Russia.

Pekov, I.V. *et al.* (2000): *Zap. Vser. Mineral. Obshchest.* **129**(4), 54. Jambor, J.L. (2001): *Am. Mineral.* **86**, 939.

Chromceladonite

$\text{KCrMg}\square[\text{Si}_4\text{O}_{10}](\text{OH})_2$, monoclinic, $C2$
A member of the *Mica* group.

The name reflects its composition as the Cr-dominant analogue of **aluminoceladonite**. Found in metasomatized rocks in the Srednyaya Padma U–V deposit, in southern Karelia.

Pekov, I. *et al.* (2000): *Zap. Vser. Mineral. Obshchest.* **129**(1), 38.

Clearcreekite

$\text{Hg}^{1+}_3(\text{CO}_3)(\text{OH}) \cdot 2\text{H}_2\text{O}$, monoclinic, $P2_1/c$
Polymorphic relationship with **peterbaylissite**.

Named after the discovery locality. Found in a small prospect pit near the long-abandoned Clear Creek mercury mine, New Idria district, San Benito County, California, U.S.A.

Roberts, A.C. *et al.* (2000): *Can. Mineral.* **38**, 779.

Cobaltlotharmeyerite

$\text{Ca}(\text{Co,Fe,Ni})_2(\text{AsO}_4)_2(\text{OH,H}_2\text{O})_2$, monoclinic, $C2/m$

Named as the Co-dominant analogue of **lotharmeyerite**. Found in a mine dump, Schneeberg, Saxony, Germany.

Krause, W. *et al.* (1999): *Neues Jahrb. Mineral., Monatsh.*, 505. Jambor, J.L. (2000): *Am. Mineral.* **85**, 873.

Coskrenite-(Ce)

$(\text{Ce,Nd,La})_2(\text{SO}_4)_2(\text{C}_2\text{O}_4) \cdot 8\text{H}_2\text{O}$, triclinic, $P\bar{1}$

Named after Thomas Dennis Coskren (b. 1942), environmental geochemist and mineralogist from Columbia, Maryland, who discovered the mineral. Found in the soil and on the ceiling of a rock shelter, a product of weathering of pyritic phyllite, Alum Cave Bluff, Great Smoky Mountains, Tennessee, U.S.A.

Peacor, D.R. *et al.* (1999): *Can. Mineral.* **37**, 1453.

Dashkovaite

$\text{Mg}(\text{HCO}_3)_2 \cdot 2\text{H}_2\text{O}$, monoclinic, $P2_1/c$

Named after Ekaterina Romanovna Dashkova (1744–1810), Director of the St. Petersburg Academy of Sciences and President of the Russian Academy of Sciences (1783–1796). Found in a borehole at the Korshunovskoye boron deposit, Irkutsk District, Siberia, Russia.

Chukanov, N.V. *et al.* (2000): *Zap. Vser. Mineral. Obshchest.* **129**(6), 49.

Dukeite

$\text{Bi}^{3+}_{24}\text{Cr}^{6+}_8\text{O}_{57}(\text{OH})_6(\text{H}_2\text{O})_3$, trigonal, $P31c$

Named after Duke University, Durham, North Carolina, U.S.A., and the Duke family, specifically the Mary Duke Biddle Foundation, as an acknowledgement of its support for the mineralogical research that led to the discovery of this mineral in the University's collection. Lavra da Posse, São José de Brejaúba, Conceição do Mato Dentro County, Minas Gerais, Brazil.

Burns, P.C. *et al.* (2000): *Am. Mineral.* **85**, 1822.

Edgarite

FeNb_3S_6 , hexagonal, $P6_322$

Named after Alan Douglas Edgar (1935–1998), of the University of Western Ontario, London, Canada, investigator of alkaline rocks and of metasomatism in the upper mantle.

Found in fenitized roof-pendants in foyaite of the Khibina alkaline complex, Kola Peninsula, north-western Russia.

Barkov, A.Y. *et al.* (2000): *Contrib. Mineral. Petrol.* **138**, 229. Jambor, J.L. (2000): *Am. Mineral.* **85**, 1843.

Ercitite

$\text{NaMn}^{3+}(\text{PO}_4)(\text{OH})(\text{H}_2\text{O})_2$, monoclinic, $P2_1/n$

Named after Timothy Scott Ercit (b. 1957), of the Canadian Museum of Nature, Ottawa, Canada, eminent student of the mineralogy of granitic pegmatites, and of their oxide minerals. Found along a fracture in a nodule of lithiophilite embedded in a quartz + spodumene pseudomorph after petalite in the upper intermediate zone of the Tanco granitic pegmatite, Bernic Lake, Manitoba.

Fransolet, A.-M. *et al.* (2000): *Can. Mineral.* **38**, 893.

Fencooperite

$\text{Ba}_6\text{Fe}^{3+}_3\text{Si}_8\text{O}_{23}(\text{CO}_3)_2\text{Cl}_3 \cdot \text{H}_2\text{O}$, trigonal, *P3m1*

Named after Joseph Fenimore ("Fen") Cooper, Jr. (b. 1937), of Santa Cruz, California, building and road specification engineer and avid collector of rare minerals, who helped collect the fencooperite-bearing material. Found in barium-silicate-rich lenses in metasedimentary rocks at Trumbull Peak, Mariposa County, California.

Roberts, A.C. *et al.* (2001): *Can. Mineral.* **39**, 1059. Grice, J.D. (2001): *Can. Mineral.* **39**, (in press).

Ferrokinoshitalite

$(\text{Ba,K})(\text{Fe}^{2+},\text{Mg})_3(\text{Si}_2\text{Al}_2)\text{O}_{10}(\text{OH,F})_2$, monoclinic, *C2/m*

The polytype in the type material is 1M. A member of the *Brittle Mica* group.

The name reflects the mineral's composition: the ferrous-iron-dominant analogue of **kinoshitalite**. Found in metamorphosed exhalative sedimentary rocks (banded iron-formations) enclosing the massive Pb–Zn–Cu–Ag sulfide orebodies at the Broken Hill mine, near Aggeneys, northern Cape Province, South Africa.

Guggenheim, S. & Frimmel, H.E. (1999): *Can. Mineral.* **37**, 1445. Frimmel, H.E. *et al.* (1999): *Am. Mineral.* **80**, 833.

Ferrorhodsitite

$(\text{Fe,Cu})(\text{Rh,Pt,Ir})_2\text{S}_4$, cubic, *Fd3m*

The Fe analog of **cuprorhodsitite**.

The name reflects its composition: the presence of iron (Lat. *ferrum*), rhodium and sulfur. Found as inclusions in **isoferroplatinum** in placers derived from the Chadsky and Kondersky dunite massifs, Yakutia-Saha, Russia.

Rudashevsky, N.S. *et al.* (1998): *Zap. Vser. Mineral. Obshchest.* **127**(5), 37. Kovalenker, V.A. (1999): *Am. Mineral.* **84**, 1685.

Florenskyite

FeTiP , orthorhombic, *Pnma*

Named after Cyril Pavlovich Florensky (1915–1982), of the Vernadsky Institute of Geochemistry and Analytical Chemistry, Moscow, Russia, geochemist, one of the founders of comparative planetology (*Icarus* **61**, 351), interested in the chemical differentiation of planets, the evolution of their surface features, and the origin of life. Found in the Kaidun carbonaceous chondritic meteorite, which fell in South Yemen in 1980.

Ivanov, A.V. *et al.* (2000): *Am. Mineral.* **85**, 1082.

Fluorannite

$\text{KFe}^{2+}_3\text{AlSi}_3\text{O}_{10}\text{F}_2$, monoclinic, *C2/m*

A member of the *Mica* group. It is the 1M polytype.

The name reflects its enrichment in fluorine and its relationship with annite. Found in the Huangshan granite in the western suburb of Suzhou City, about 80 km west of Shanghai, People's Republic of China.

Shen Ganfu *et al.* (2000): *Acta Petrol. Mineral.* **19**(4), 356.

Fluoro-magnesio-arfvedsonite

$\text{NaNa}_2(\text{Mg,Fe}^{2+})_4\text{Fe}^{3+}[\text{Si}_8\text{O}_{22}](\text{F,OH})_2$, monoclinic, *C2/m*

A member of the *Amphibole* group.

Named as the fluorine-dominant analogue of **magnesio-arfvedsonite**. Found in albite–microcline fenites in the contact zone of the Ilmen alkaline complex, western slope of the Ilmen Mountains, Ilmen Nature Reserve, southern Urals, near Miass, Chelyabinsk region, Russia.

Bazhenov, A.G. *et al.* (2000): *Zap. Vser. Mineral. Obshchest.* **129**(6), 28.

Formicaite

$\text{Ca}(\text{HCO}_3)_2$, tetragonal, $P4_12_12_1$

The name recalls the mineral's identity to synthetic β -calcium formiate. Found in the **kurchatovite–sakhaitite** ores in the Solongo boron deposit in Buryatia, and in the Novofrolovskoye copper deposit, in the Urals, Russia.

Chukanov, N.V. *et al.* (1999): *Zap. Vser. Mineral. Obshchest.* **128**(2), 43. Pertsev, N.N. (2000): *Am. Mineral.* **85**, 1321.

Georgbokiite

$\text{Cu}_5\text{O}_2(\text{SeO}_3)_2\text{Cl}_2$, monoclinic, $P2_1/c$

Named after Georgii Borisovich Bokii (b. 1909), founder of the Department of Crystallography, Moscow State University, Russia, in honor of his contributions to crystal chemistry and mineralogy, particularly in the area of nomenclature of polytypes and classification of minerals. A product of fumarolic activity, Southern Breach, Tolbachik Main fissure eruption (1975–1976), Kamchatka, Russia.

Vergasova, L.P. *et al.* (1999): *Dokl. Akad. Nauk* **364**, 527. Krivovichev, S.V. *et al.* (1999): *Z. Kristallogr.* **214**, 135. Puziewicz, J. (2000): *Am. Mineral.* **85**, 627.

Gilmarite

$\text{Cu}^{2+}_3(\text{AsO}_4)(\text{OH})_3$, triclinic, $P1$

Dimorphic relationship with **clinoclase**.

Named after Gilbert Mari (b. 1944), mineralogist at the Université de Nice – Sophia Antipolis, France, in recognition for his work on the old copper mines in the Alpes Maritimes area. Found in carbonate veins at the Roua copper deposit, in the upper Var valley, Alpes Maritimes, France, worked since the Chalcolithic period.

Sarp, H. & Černý, R. (1999): *Eur. J. Mineral.* **11**, 549. Jambor, J.L. (2000): *Am. Mineral.* **85**, 263.

Gladiusite

$(\text{Fe}^{2+}, \text{Mg})_4\text{Fe}^{3+}_2(\text{PO}_4)(\text{OH})_{11}(\text{H}_2\text{O})$, monoclinic, $P2_1/n$

Named in accordance with the morphology of the crystals, which resemble double-edge swords (Lat. *gladius*). Found in hydrothermally altered parts of the phoscorite–carbonatite unit of the Kovdor alkaline-ultrabasic complex, Kola Peninsula, Russia.

Liferovich, R.P. *et al.* (2000): *Can. Mineral.* **38**, 1477. Sokolova, E.V. *et al.* (2001): *Can. Mineral.* **39**, 1121.

Gottlobite

$\text{CaMg}(\text{VO}_4, \text{AsO}_4)(\text{OH})$, orthorhombic, $P2_12_12_1$

A member of the **Adelite** group.

Named after the discovery locality. Found in barite veins in Fe–Mn ore at the abandoned Glücksstern mine at Gottlob hill, Friedrichroda, Thuringia, Germany.

Witzke, T. *et al.* (2000): *Neues Jahrb. Mineral., Monatsh.*, 444. Jambor, J.L. (2001): *Am. Mineral.* **86**, 767.

Haigerachite

$\text{KFe}^{3+}_3(\text{H}_2\text{PO}_4)_6(\text{HPO}_4)_2 \cdot 4\text{H}_2\text{O}$, monoclinic, $C2/m$

Named after a village and valley near the type locality. Found as a secondary mineral on dumps at the Silberbrünnle mine near Gegenbach, in the central Black Forest, Germany.

Walenta, K. & Theye, T. (1999): *Aufschluss* **50**, 1. Jambor, J.L. (2000): *Am. Mineral.* **85**, 263.

Henrymeyerite

$\text{BaFe}^{2+}\text{Ti}_7\text{O}_{16}$, tetragonal, $I4/m$

Named after Henry Oostenwald Albertjin Meyer (1937–1995), Professor of Geology at Purdue University, Lafayette, Indiana, U.S.A., in honor of his contributions to the petrology and mineralogy of mantle-derived rocks and kimberlites, and his services to Mineralogical Society of America and the International Mineralogical Association. Found in a vug in a vein of tetra-ferriphlogopite – calcite – dolomite carbonatite of the Kovdor alkaline ultramafic complex, Kola Peninsula, Russia.

Mitchell, R.H. *et al.* (2000): *Can. Mineral.* **38**, 617.

Hexaferrum

(Fe, Ir, Os, Ru) , hexagonal, $P6_3/mmc$
Polymorphic relationship with **iron**.

The name alludes to the composition and symmetry of the mineral. Found in magnesiochromite in the Chirynaisky dunite–harzburgite massif, Koryak Mountains, Kamchatka Peninsula, Russia.

Mochalov, A.G. *et al.* (1998): *Zap. Vser. Mineral. Obshchest.* **127**(5), 41. Kovalenker, V.A. (1999): *Am. Mineral.* **84**, 1686.

Hydroxylclinohumite

$\text{Mg}_9(\text{SiO}_4)_4(\text{OH, F})_2$, monoclinic, $P2_1/b$

Forms a solid solution with **clinohumite**. A member of the *Humite* group.

The name denotes its relationship with **clinohumite**. Found in a magnesian skarn at the Zelentsovskaya ilmenite–magnetite mine, near Magnitka, Zlatoust District, southwestern Urals, Russia.

Gekimiyants, V.M. *et al.* (1999): *Zap. Vser. Mineral. Obshchest.* **128**(5), 64. Ferraris, G. *et al.* (2000): *Z. Kristallogr.* **125**, 169. Puziewicz, J. (2000): *Am. Mineral.* **85**, 1843.

Isovite

$(\text{Cr, Fe})_{23}\text{C}_6$, cubic, $Fm3m$

The Cr-dominant analogue of **haxonite**.

Named after the discovery locality. Found in gold- and platinum-bearing placers along the Is River, Isovsky District, middle Urals, Russia.

Generalov, M.E. *et al.* (1998): *Zap. Vser. Mineral. Obshchest.* **127**(5), 26. Kovalenker, V.A. (1999): *Am. Mineral.* **84**, 1686.

Itoigawaite

$\text{SrAl}_2\text{Si}_2\text{O}_7(\text{OH})_2 \cdot \text{H}_2\text{O}$, orthorhombic, $Cmcm$

The Sr-dominant analogue of **lawsonite**.

Named after the discovery locality. Found at Oyashirazu, near Itoigawa Station, Itoigawa-Ohmi District, Niigata Prefecture, central Japan, in the Renge Belt, a classic locality of high-P metamorphism.

Miyajima, H. *et al.* (1999): *Mineral. Mag.* **63**, 909.

Johntomaite

$\text{Ba}(\text{Fe}^{2+}, \text{Ca})_2\text{Fe}^{3+}_2(\text{PO}_4)_3(\text{OH})_3$, monoclinic, $P2_1/m$

A member of the *Bjarebyite* group. It is the ferric-iron-dominant analogue of **kulanite**, and the ferrous-iron-dominant analogue of **perloffite**.

Named after John Toma (b. 1954), mineral collector from Adelaide, South Australia, who discovered the species. Found in the oxidized zone at the Spring Creek copper mine, near Wilmington, southern Flinders Ranges, South Australia, Australia.

Kolitsch, U. *et al.* (2000): *Mineral. Petrol.* **70**, 1.

Juanitaite

$(\text{Cu}, \text{Ca}, \text{Fe})_{10}\text{Bi}(\text{AsO}_4)_4(\text{OH})_{11} \cdot 2\text{H}_2\text{O}$, tetragonal, $P4_2/nmm$

Named after Juanita Curtis (b. 1917), of Long Beach, California, U.S.A. amateur mineralogist and volunteer in the Mineral Sciences Department of the Natural History Museum of Los Angeles County, who first noticed the crystals, and suspected them to represent a new species. Found in gossan at the Gold Hill mine, Tooele County, Utah.

Kampf, A.R. *et al.* (2000): *Mineral. Rec.* **31**, 301.

Kampfite

$\text{Ba}_6[(\text{Si}, \text{Al})\text{O}_2]_8(\text{CO}_3)_2\text{Cl}_2(\text{Cl}, \text{H}_2\text{O})_2$, hexagonal, $P6_3/mmc$ (?)

Forms part of the **monteregianite-(Y)** – **wickenburgite** series.

Named after Anthony Robert Kampf (b. 1948), of the Los Angeles County Museum of Natural History, for his significant contributions to the crystallographic investigation of new and rare minerals. Found in sanbornite-bearing gneiss, Esquire #1 claim, Rush Creek, eastern Fresno County, California.

Basciano, L.C. *et al.* (2001): *Can. Mineral.* **39**, 1053.

Kapitsaite-(Y)

$(\text{Ba}, \text{K}, \text{Pb}^{2+}, \text{Na})_4(\text{Y}, \text{Ca}, \text{REE})_2[\text{Si}_8\text{B}_2(\text{B}, \text{Si})_2\text{O}_{28}\text{F}]$, triclinic, $\bar{1}$

The yttrium-dominant analogue of **hyalotekite**.

Named after P'yotr Leonidovich Kapitsa (1894–1984), academician, of the Academy of Sciences, Moscow, Russia, Nobel Laureate in Physics, noted investigator of theoretical and solid-state physics, of the crystalline state and of low-temperature phenomena. Found in a peralkaline granitic pegmatite in the moraine of the Dara-i-Pioz glacier, Alaikii Range, Tien-Shan, northern Tajikistan.

Pautov, L.A. *et al.* (2000): *Zap. Vser. Mineral. Obshchest.* **129**(6), 42. Sokolova, E.V. *et al.* (2000): *Neues Jahrb. Mineral., Monatsh.*, 74. Jambor, J.L. (2001): *Am. Mineral.* **86**, 768.

Khmaralite

$^{[6]}(\text{Mg}_{5.46}\text{Al}_{8.61}\text{Fe}^{2+}_{1.88}\text{Fe}^{3+}_{0.05})^{[4]}(\text{Al}_{5.67}\text{Si}_{4.80}\text{Be}_{1.46}\text{Fe}^{3+}_{0.07})\text{O}_{40}$, monoclinic, $P2_1/c$

An ordered derivative of **sapphirine-2M**

Named after the discovery locality. Found in a peraluminous granitic pegmatite at “Zircon Point” on Khmara Bay, in Antarctica; the name of the bay honors Ivan Fedorovich Khmara (1936–1956), a tractor driver on the Soviet Antarctic Expedition who perished in Antarctica.

Barbier, J. *et al.* (1999): *Am. Mineral.* **84**, 1650.

Kozoite-(Nd)

$\text{Nd}(\text{CO}_3)(\text{OH})$, orthorhombic, *Pm* $\bar{c}n$

Isostructural with **ancylite-(Ce)**, **calcio-ancylite-(Ce)**, **calcio-ancylite-(Nd)**, **ancylite-(La)** and **gysinite-(Nd)**. Dimorphic relationship with **hydroxylbastnäsite-(Nd)**.

Named after Kozo Nagashima (1925–1985), Professor of Chemistry, University of Tsukuba, pioneer in the mineralogy, crystal chemistry and crystallography of rare-earth minerals. Note that **nagashimalite** was named after his father, Otokichi Nagashima. Found in alkali olivine basalt at Niikoba, Hizencho, Higashi Matsuura-gun, Saga Prefecture, Japan.

Miyawaki, R. *et al.* (2000): *Am. Mineral.* **85**, 1076.

Krettnichite

$\text{PbMn}^{3+}_2(\text{VO}_4)_2(\text{OH})_2$, monoclinic, *C2/m*

The Mn^{3+} -dominant analogue of **mounanaite**. A member of the *Tsumcorite* group.

Named after the discovery locality. Found in a hydrothermal manganite–quartz vein in dumps at the manganite deposit, Krettnich, Saarland, Germany.

Brugger, J. *et al.* (2001): *Eur. J. Mineral.* **13**, 145.

Kuzmenkoite

$\text{K}_2\text{□}_2(\text{Mn,Fe})(\text{Ti,Nb})_4[\text{Si}_4\text{O}_{12}]_2(\text{OH})_4 \cdot 5\text{H}_2\text{O}$, monoclinic, *C2/m*

Structurally related to **labuntsovite**.

Named after Marii Vasilievne Kuz'menko (1918–1995), of the Kola Science Centre, Apatity, Russia, specialist in the geochemistry and mineralogy of rare elements, and an investigator of the Lovozero complex. Found in hydrothermally altered murmanite-bearing lujavrite, Mount Flora, Lovozero alkaline complex, Kola Peninsula, Russia.

Chukanov, N.V. *et al.* (1999): *Zap. Vser. Mineral. Obshchest.* **128**(4), 42. Golovina, N.I. *et al.* (1998): *Dokl. Ross. Akad. Nauk* **362**(3), 350. Grew, E.S. (2000): *Am. Mineral.* **85**, 1562.

Laforêtite

AgInS_2 , tetragonal, $\bar{I}42d$ (?)

The Ag-dominant analogue of **roquesite**.

Named after Claude P. Laforêt (b. 1936), metallographer at the BRGM, France, who studied ore parageneses, defined new ore minerals, and first noticed the mineral at the Montgros mine. Found included in galena in dumps of the Montgros Pb–Zn mine near Langeac, Haute-Loire, France.

Meisser, N. *et al.* (1999): *Eur. J. Mineral.* **11**, 891. Jambor, J.L. (2000): *Am. Mineral.* **85**, 875.

Lemleinite

$\text{NaK}_2(\text{Ti,Nb})_2\text{Si}_4\text{O}_{12}(\text{O,OH})_2 \cdot 2\text{H}_2\text{O}$, monoclinic, *C2/m*

Named after Georgii Glebovich Lemlein (1901–1962), of St. Petersburg, Russia, prominent mineralogist and crystallographer. Found in hyperagpaitic pegmatites emplaced in apatite–nepheline ores at Mount Koashva, Khibina alkaline complex, Kola Peninsula, Russia.

Khomyakov, A.P. *et al.* (1999): *Zap. Vser. Mineral. Obshchest.* **128**(5), 54. Rastsvetaeva, R.K. *et al.* (1996): *Dokl. Akad. Nauk* **351**, 207. Puziewicz, J. (2000): *Am. Mineral.* **85**, 1844.

Levinsonite-(Y)

$(Y,Nd,Ce)Al(SO_4)_2(C_2O_4) \cdot 12H_2O$, monoclinic, $P2/n$

Named after Alfred Abraham Levinson (b. 1927), Professor of Mineralogy at the University of Calgary, Calgary, Alberta, Canada, originator of the system of nomenclature used for rare-earth minerals. Found in an evaporite assemblage, Alum Cave Bluff, Great Smoky Mountains National Park, Tennessee, U.S.A.

Rouse, R.C. *et al.* (2001): *Geochim. Cosmochim. Acta* **65**, 1101.

Lisitsynite

$KBSi_2O_6$, orthorhombic, $P2_12_12_1$

A member of the *Zeolite* group.

Named after Apollon Evgenievich Lisitsyn (1928–1999), of the Institute of Mineral Resources, Moscow, Russia, specialist in the mineral resources, geology and mineralogy of boron deposits. Found in hyperalkaline rocks exposed in the Koashva quarry, Khibina alkaline complex, Kola Peninsula, Russia.

Khomyakov, A.P. *et al.* (2000): *Zap. Vser. Mineral. Obshchest.* **129**(6), 25. Sokolova, E.V. *et al.* (2000): *In Applied Mineralogy* (D. Rammilmair *et al.*, eds.). Balkema, Rotterdam, The Netherlands (245). Sokolova, E.V. *et al.* (2001): *Can. Mineral.* **39**, 159.

Litvinskite

$Na_2(\square,Na,Mn)Zr[Si_6O_{12}(OH,O)_6]$, monoclinic, Cm

A member of the *Lovozerite* group.

Named after Galina Petrovna Litvinskaya (1920–1994), of the Department of Crystallography and Crystal Chemistry, Moscow State University, Moscow, Russia, specialist in morphological crystallography. Found in a hyperagpaitic pegmatite in the Umbozero mine, Mount Alluaiv, Lovozero alkaline complex, Kola Peninsula, Russia.

Pekov, I.V. *et al.* (2000): *Zap. Vser. Mineral. Obshchest.* **129**(1), 45.

Londonite

$(Cs,K,Rb)Al_4Be_4(B,Be)_{12}O_{28}$, cubic, $P\bar{4}3m$

Forms a series with *rhodizite*.

Named after David London (b. 1953), Professor of Geology and Geophysics at the University of Oklahoma, Norman, Oklahoma, U.S.A., in recognition of his experimental studies of evolved granitic melts and the origin of textures typical of granitic pegmatites. Found in the Antandrokomby granitic pegmatite, Manandona valley, Antsirabe region, Madagascar.

Simmons, W.B. *et al.* (2001): *Can. Mineral.* **39**, 747.

Lulzacite

$Sr_2Fe^{2+}(Fe^{2+},Mg)_2Al_4(PO_4)_4(OH)_{10}$, triclinic, $P\bar{1}$

Isostructural with *jamesite*.

Named after Y. Lulzac (b. 1934), exploration geologist with the BRGM, who discovered the mineral. Found in quartz veinlets in a quartzite–limestone sequence in a quarry 8 km west of Châteaubriant, Loire-Atlantique, France.

Moëlo, Y. *et al.* (2000): *C.R. Acad. Sci. Paris* **330**, 317. Jambor, J.L. (2000): *Am. Mineral.* **85**, 1844.

Malinkoite

NaBSiO_4 , hexagonal, $P6_3$

Named after Svetlana Vyacheslavovna Malinko (b. 1927), of the Institute of Mineral Resources, Moscow, Russia, mineralogist and discoverer of many boron minerals. Found in a hyperagpaitic pegmatite at Mount Karnasurt, in the Lovozero alkaline complex, Kola Peninsula, Russia.

Khomyakov, A.P. *et al.* (2000): *Zap. Vser. Mineral. Obshchest.* **129**(6), 35. Sokolova, E.V. *et al.* (2001): *Can. Mineral.* **39**, 159.

Manganonaujakasite

$\text{Na}_6(\text{Mn,Fe})\text{Al}_4\text{Si}_8\text{O}_{26}$, monoclinic, $C2/m$

The name reflects the relationship with **naujakasite** and the enrichment in manganese. Found in lovozerite–lomonosovite lujavrite, Lovozero alkaline complex, Kola Peninsula, Russia.

Khomyakov, A.P. *et al.* (2000): *Zap. Vser. Mineral. Obshchest.* **129**(4), 48.

Mozgovaite

$\text{PbBi}_4(\text{S,Se})_7$, orthorhombic, $Bbmm$

Named after Nadezhda Nikolaevna Mozgova (b. 1931), mineralogist, IGEM, Academy of Sciences, Moscow, Russia, in recognition of her important contributions to knowledge of ore minerals, in particular the sulfosalts. Found as a sublimate in a high-temperature fumarole, La Fossa crater of Vulcano, Aeolian Islands, Italy.

Vurro, F. *et al.* (1999): *Can. Mineral.* **37**, 1499.

Nabiasite

$\text{BaMn}_9[(\text{V,As})\text{O}_4]_6(\text{OH})_2$, cubic, $Pa\bar{3}$

Named after the discovery locality. Found in veinlets cross-cutting Mn ores at the Pla de Labasse deposit near the hamlet Nabias, central Pyrénées, France.

Brugger, J. *et al.* (1999): *Eur. J. Mineral.* **11**, 879. Jambor, J.L. (2000): *Am. Mineral.* **85**, 875.

Niobokupletskite

$\text{K}_2\text{Na}(\text{Mn,Zn,Fe})_7(\text{Nb,Zr,Ti})_2\text{Si}_8\text{O}_{26}(\text{OH})_4(\text{O,F})$, triclinic, $P\bar{1}$

Forms a series with **kupletskite** and **astrophyllite**. A member of the *Astrophyllite* group.

The name reflects its niobium content, and relationship with **kupletskite**. Found in nepheline syenite pegmatite, Poudrette Quarry, Mont Saint-Hilaire, Quebec, Canada.

Piilonen, P.C. *et al.* (2000): *Can. Mineral.* **38**, 627.

Obertiite

$\text{NaNa}_2(\text{Mg}_3\text{Fe}^{3+}\text{Ti}^{4+})\text{Si}_8\text{O}_{22}\text{O}_2$, monoclinic, $C2/m$

A member of the *Amphibole* group.

Named after Roberta Oberti (b. 1952), of the University of Pavia, Italy, in honor of her seminal contributions to the crystal chemistry of amphibole-group minerals. Found in vugs in basaltic ejecta at the Bellerberg quarry, Laacher See volcanic district, Eifel, Germany.

Hawthorne, F.C. *et al.* (2000): *Am. Mineral.* **85**, 236.

Orlandiite

$\text{Pb}_3\text{Cl}_4(\text{SeO}_3) \cdot \text{H}_2\text{O}$, triclinic, $P\bar{1}$

Named after Paolo Orlandi (b. 1946), Professor of Mineralogy at the University of Pisa, Italy, in recognition of his work in establishing new mineral species from Italy. Found in the selenium-rich part of the oxidation zone at the Baccu Locci lead–arsenic mine near Villaputzu, Sardinia, Italy.

Campostrini, I. et al. (1999): *Can. Mineral.* **37**, 1493.

Paganoite

$\text{NiBi}^{3+}\text{As}^{5+}\text{O}_5$, triclinic, $P\bar{1}$

Named after Renato Pagano (b. 1938) and Adriana Pagano (b. 1939), of Cinisello, Milan, Lombardy, Italy, a husband-and-wife team of amateur mineralogists who have made significant contributions to the advancement of specimen mineralogy in Europe for over thirty-five years. Johanngeorgenstadt, Saxony, Germany.

Roberts, A.C. et al. (2001): *Eur. J. Mineral.* **13**, 167. Jambor, J.L. (2001): *Am. Mineral.* **86**, 939.

Palladodymite

$(\text{Pd,Rh})_2\text{As}$, orthorhombic, $Pnma$

The Pd-dominant analogue of **rhodarsenide**.

Trimorphic relationship with **palladoarsenide** and **palladobismutharsenide**.

The name is derived from the essential constituent, *palladium*, and from Gr. *dymos*, twin, in reference to its kinship with **rhodarsenide**. Found in a small unnamed placer deposit in the upper Miass River, southern Urals, Russia.

Britvin, S.N. et al. (1999): *Zap. Vser. Mineral. Obshchest.* **128**(2), 39.

Petterdite

$\text{PbCr}^{3+}_2(\text{CO}_3)_2(\text{OH})_4 \cdot \text{H}_2\text{O}$, orthorhombic, $Pbnm$ (?)

The Cr-dominant analogue of **dundasite**.

Named after William Frederick Petterd (1849–1910), an amateur collector from Hobart, Tasmania, who published several significant catalogues on the mineralogy of Tasmania, e.g., *Catalogue of the Minerals of Tasmania* (1910). Found in the oxidized zone at the Red Lead mine, Zeehan–Dundas mining field, northwestern Tasmania, Australia.

Birch, W.D. et al. (2000): *Can. Mineral.* **38**, 1467.

Pillaite

$\text{Pb}_9\text{Sb}_{10}\text{S}_{23}\text{ClO}_{0.5}$, monoclinic, $C2/m$

Named after Leopoldo Pilla (1805–1848), Professor of Mineralogy and Geology at the University of Pisa, Italy, whose research focused on volcanology, in particular of Vesuvius, Etna, Stromboli and the Flegrean Fields, and on the geological evolution of Tuscany. Buca della Vena mine, Apuan Alps, northern Tuscany, Italy.

Orlandi, P. et al. (2001): *Eur. J. Mineral.* **13**, 605. Meerschaut et al. (2001): *Eur. J. Mineral.* **13** (in press).

Polyakovite-(Ce)

$(\text{REE,Ca})_4(\text{Mg,Fe}^{2+})(\text{Cr}^{3+},\text{Fe}^{3+})_2(\text{Ti,Nb})_2\text{Si}_4\text{O}_{22}$, monoclinic, $C2/m$

Named after Vladislav Olegovich Polyakov (1950–1993), of the Institute of Mineralogy, Ilmen Natural Reserve, Miass, Russia, who contributed significantly to the mineralogy of the Urals and initiated study of this mineral. Found in a carbonatite vein in mine N97, Ilmen Natural Reserve, southern Urals, Russia.

Popov, V.A. et al. (2001): *Can. Mineral.* **39**, 1095.

Potassic-ferrisadanagaite

$K_2(\text{Mn,Fe})(\text{Fe}^{2+},\text{Mg})_3(\text{Fe}^{3+},\text{Al})_2[\text{Si}_5\text{Al}_3\text{O}_{22}](\text{OH})_2$, monoclinic, $C2/m$
A member of the *Amphibole* group.

The name reflects its bulk composition, a K- and Fe^{3+} -dominant **sadanagaite**. Found in the contact zone of the Ilmen alkaline complex, southern Ural Mountains, Russia.

Bazhenov, A.G. *et al.* (1999): *Zap. Vser. Mineral Obshchest.* **128**(4), 50. Grew, E.S. (2000): *Am. Mineral.* **85**, 1563. Sokolova, E. *et al.* (2000): *Can. Mineral.* **38**, 669.

Raadeite

$\text{Mg}_7(\text{PO}_4)_2(\text{OH})_8$, monoclinic, $P2_1/n$
The Mg- and PO_4 -dominant analogue of **allactite**.

Named after Gunnar Raade (b. 1944), Curator of Minerals, Natural History Museum, Oslo, Norway, in recognition of his contribution to the mineralogy of magnesium phosphates. Found in nodules of apatite and magnesium phosphates in a serpentinite body near Tingelstadjern, Modum district, southern Norway.

Chopin, C. *et al.* (2001): *Eur. J. Mineral.* **13**, 319.

Rappoldite

$\text{Pb}(\text{Co,Ni})_2(\text{AsO}_4)_2 \cdot 2\text{H}_2\text{O}$, triclinic (pseudomonoclinic), $P\bar{1}$
The Co-dominant analogue of **helmutwinklerite**; a member of the *Tsumcorite* group.

Named after its discovery locality. Found as a secondary mineral at the Rappold mine, Schneeberg-Neustädtel, Saxony, Germany.

Effenberger, H. *et al.* (2000): *Mineral. Mag.* **64**, 1109. Jambor, J.L. (2001): *Am. Mineral.* **86**, 940.

Remondite-(La)

$\text{Na}_3(\text{La,Ce,Ca})_3(\text{CO}_3)_5$, monoclinic, $P2_1$ (?)

The name reflects its composition as the La-dominant analogue of **remondite-(Ce)**. Found in a hyperagpaitic pegmatite at Mount Koashva, Khibina alkaline complex, Kola Peninsula, Russia.

Pekov, I.V. *et al.* (2000): *Zap. Vser. Mineral. Obshchest.* **129**(1), 53.

Rengeite

$\text{Sr}_4\text{ZrTi}_4\text{Si}_4\text{O}_{22}$, monoclinic, $P2_1/a$
The Sr-Zr analogue of **perrierite**.

Named after Mount Renge near the discovery locality and the Renge metamorphic belt. Occurs associated with omphacite and jadeite near the town of Ohmi and near the city of Itoigawa, Niigata Prefecture, central Japan.

Miyajima, H. *et al.* (2001): *Mineral. Mag.* **65**, 111.

Rollandite

$\text{Cu}_3(\text{AsO}_4)_2 \cdot 4\text{H}_2\text{O}$, orthorhombic, $Pnma$

Named after Pierre Rolland (b. 1940), eminent mineral collector specializing in the Roua mines. Found in the old Cu mines of Roua, at the western margin of the Barrot Dome, Alpes-Maritimes, France.

Sarp, H. & Černý, R. (2000): *Eur. J. Mineral.* **12**, 1045. Jambor, J.L. (2001): *Am. Mineral.* **86**, 768.

Scainiite

$\text{Pb}_{14}\text{Sb}_{30}\text{S}_{54}\text{O}_5$, monoclinic, $C2/m$

Named after Giuseppe Scaini (1906–1988), of Piacenza, Italy, engineer and skillful investigator of systematic and Italian mineralogy. Found in fractures in dolomitic lenses in massive Fe–Ba ore at the Buca della Vena mine in the Apuan Alps, near Pietrasanta, northern Tuscany, Italy.

Orlandi, P. *et al.* (2000): *Eur. J. Mineral.* **11**, 949. Jambor, J.L. (2000): *Am. Mineral.* **85**, 1323.

Schiavinatoite

$(\text{Nb},\text{Ta})\text{BO}_4$, tetragonal, $I4_1/amd$

The Nb-dominant analogue of **béhierite**.

Named after Giuseppe Schiavinato (1915–1996), Professor of Mineralogy at the University of Milan, Italy, specialist in the mineralogy of the Alps, who helped the development of mineralogical sciences in Italy, and who became director of the University and President of the Consiglio Nazionale della Ricerche in Italy. Found in parts of zoned crystals of **béhierite** in a highly evolved granitic pegmatite, Antsongombato, south of Betafo, some tens of kilometers south of Mahaiza, Madagascar.

Demartin, F. *et al.* (2001): *Eur. J. Mineral.* **13**, 159.

Serrabrancaite

$\text{MnPO}_4 \cdot \text{H}_2\text{O}$, monoclinic, $C2/c$

A member of the *Kieserite* group.

Named after the discovery locality. Found in the Alto Serra Branca peraluminous granitic pegmatite, near Pedra Lavrada, Paraíba State, Brazil.

Witzke, T. *et al.* (2000): *Am. Mineral.* **85**, 847. Lightfoot, P. *et al.* (1987): *Inorg. Chem.* **26**, 3544.

Silvialite

$\text{Ca}_4\text{Al}_6\text{Si}_6\text{O}_{24}\text{SO}_4$, tetragonal, $I4/m$

Forms a series with **marialite** and **meionite**. A member of the *Scapolite* group.

The name, after Silvia Hillebrand, daughter of Gustav Tschermak, was first suggested in 1914 for a hypothetical SO_4 analogue of **meionite**. Found in xenoliths of garnet granulite hosted by olivine nephelinite, McBride Province, North Queensland, Australia.

Teertstra, D.K. *et al.* (1999): *Mineral. Mag.* **63**, 321. Brauns, R. (1914): *Neues Jahrb. Mineral. Beil.-Bd.* **34**, 121.

Sodic-ferripedrizite

$\text{Na}(\text{LiNa})(\text{Fe}^{3+}_2\text{Mg}_2\text{Li})\text{Si}_8\text{O}_{22}(\text{OH})_2$, monoclinic, $C2/m$

A member of the *Amphibole* group.

Named after the discovery locality and in accordance with the IMA classification of amphiboles. Found in desilicated granite (“episyenite”) at Arroyo de la Yedra in the eastern Pedriza massif, Sierra de Guadarrama, Central System, Spain.

Oberti, R. *et al.* (2000): *Am. Mineral.* **85**, 576.

Springcreekite

$\text{BaV}^{3+}_3(\text{PO}_4)_2(\text{OH},\text{H}_2\text{O})_6$, trigonal, $R\bar{3}m$
A member of the *Crandallite* group.

Named after the type locality. Found in dump material at the Spring Creek copper mine, near Wilmington, southern Flinders Range, South Australia. Australia.

Kolitsch, U. *et al.* (1999): *Neues Jahrb. Mineral., Monatsh.*, 529. Jambor, J.L. (2000): *Am. Mineral.* **85**, 1324.

Suredaite

PbSnS_3 , orthorhombic, *Pnma*

Named after Ricardo Jose Sureda Leston (b. 1946), Professor of Mineralogy and Economic Geology, University of Salta, Argentina, for his significant contributions to the mineralogy and metallogeny of northwestern Argentina. Found as a principal ore mineral in the Oploca vein system, Pirquitas Ag–Sn deposit, 135 km west of Abra Pampa, Province of Jujuy, northwestern Argentina.

Paar, W.H. *et al.* (2000): *Am. Mineral.* **85**, 1066.

Symesite

$\text{Pb}_{10}(\text{SO}_4)\text{O}_7\text{Cl}_4(\text{H}_2\text{O})$, triclinic, $B\bar{1}$

Named after Robert Frederick Symes (b. 1937), of the Department of Mineralogy, Natural History Museum, London, U.K., in recognition of his studies of the mineralogy of ore deposits of southwestern England, including the type locality. Coauthor of *Minerals of Cornwall and Devon* (1987). Found in the oxidized zone of a Carboniferous Mn–Pb–Cu deposit at Merehead Quarry, Somerset, U.K.

Welch, M.D. *et al.* (2000): *Am. Mineral.* **85**, 1526.

Tamaite

$(\text{Ca},\text{K},\text{Ba},\text{Na})_{3-4}\text{Mn}_{24}(\text{Si},\text{Al})_{40}(\text{O},\text{OH})_{112} \bullet 21\text{H}_2\text{O}$, monoclinic, $P2_1/a$

Named after the discovery locality. Found in veinlets at the weakly metamorphosed Mn ore deposit formerly exploited by the Shiromanu mine, near the town of Okutama, Tama District, about 60 km from Tokyo, Japan.

Matsubara, S. *et al.* (2000): *J. Mineral. Petrol. Sci.* **95**, 79. Jambor, J.L. (2001): *Am. Mineral.* **86**, 769.

Tatyanaitite

$(\text{Pt},\text{Pd},\text{Cu})_9\text{Cu}_3\text{Sn}_4$, orthorhombic, (?)

Forms a solid solution with **taimyrite**, the Pt-dominant analogue.

Named after Tat'yana L'vovna Evstigneeva (b. 1945), of the Institute of Geology of Ore Deposits, Petrography, Mineralogy, and Geochemistry, Russian Academy of Sciences, Moscow, in recognition of her work on platinum-group minerals and other ore minerals of the Noril'sk complex. Found in veinlets in massive sulfide ore from the Oktyabr'sky deposit, Noril'sk complex, Krasnoyarsk Territory, Siberia, Russia.

Barkov, A.Y. *et al.* (2000): *Eur. J. Mineral.* **12**, 391. Jambor, J.L. (2000): *Am. Mineral.* **85**, 1845. Barkov, A.Y. *et al.* (2000): *Can. Mineral.* **38**, 599.

Tegengrenite

$(\text{Mg},\text{Mn}^{2+})_2\text{Sb}^{5+}_{0.5}(\text{Mn}^{3+},\text{Si},\text{Ti})_{0.5}\text{O}_4$, rhombohedral (pseudocubic), $R\bar{3}$ or $R3$

Named after Felix Tegengren (1884–1980), renowned Finnish-Swedish economic geologist associated with the geological surveys of Sweden and China, who wrote treatises on the ore deposits of those

countries. Found in calcite marble at the Jakobsberg Fe–Mn deposit, Filipstad District, Värmland, Sweden.

Holtstam, D.E. & Larsson, A.-K. (2000): *Am. Mineral.* **85**, 1315.

Telluronevskite

Bi_3TeSe_2 , trigonal, $P\bar{3}m1$

The name reflects the chemical similarity to nevkite, $\text{Bi}(\text{Se},\text{S})$, and the role of Te. Found disseminated in quartzite, Vihorlat Mountains, 8 km south-southeast of Snina, near Košice in eastern Slovakia, Slovak Republic.

Řidkošil, T. *et al.* (2001): *Eur. J. Mineral.* **13**, 177.

Tumchaite

$\text{Na}_2(\text{Zr},\text{Sn})\text{Si}_4\text{O}_{11} \cdot 2\text{H}_2\text{O}$, monoclinic, $P2_1/c$

Named after the Tumcha River, which drains the Vuorijarvi Complex. Found in hydrothermally altered dolomite–calcite carbonatite in the Vuorijarvi alkali-ultrabasic complex, on the north shore of Lake Vuorijarvi, Murmansk region, northern Karelia, Russia.

Subbotin, V.V. *et al.* (2000): *Am. Mineral.* **85**, 1516.

Urusovite

$\text{Cu}^{2+}[\text{AlAs}^{5+}\text{O}_5]$, monoclinic, $P2_1/c$

Named after Vadim Sergeevich Urusov (b. 1936), of the Department of Crystallography and Crystal Chemistry of Moscow State University, specialist in simulations of structures, bond-valence calculations, mechanisms of solid solution, and thermodynamic properties; member of the Russian Academy of Sciences. Found in the Great fissure Tolbachik eruption, Kamchatka Peninsula, Russia, deposited in a fumarole at 410–420°C.

Vergasova, L.P. *et al.* (2000): *Eur. J. Mineral.* **12**, 1041. Krivovichev, S.V. *et al.* (2000): *Crystallogr. Rep.* **45**, 723. Jambor, J.L. (2001): *Am. Mineral.* **86**, 769.

Wallkilldellite-(Fe)

$(\text{Ca},\text{Cu})_4\text{Fe}^{2+}_6[(\text{As}^{5+},\text{Si})\text{O}_4]\text{O}_4(\text{OH})_8 \cdot 18\text{H}_2\text{O}$, hexagonal, $P6_3/mmc$ (?)

The Fe-dominant analogue of **wallkilldellite**.

The name denotes its relationship with **wallkilldellite**. Found as a product of oxidation at the Roua mine, Alpes-Maritimes, France.

Sarp, H. *et al.* (1999): *Riviera Scientifique* **1999**, 5. Jambor, J.L. (2001): *Am. Mineral.* **86**, 198.

Woodallite

$\text{Mg}_6\text{Cr}_2(\text{OH})_{16}\text{Cl}_2 \cdot 4\text{H}_2\text{O}$, trigonal, $R\bar{3}m$

The chromium-dominant analogue of **iowaite**, the chlorine-dominant analogue of **stichtite**, and isostructural with **hydrotalcite**.

Named after Roy Woodall (b. 1930), eminent Australian geologist who was instrumental in the initiation and development of the nickel and aluminum industries in Western Australia. Found in serpentinized and carbonated dunite and peridotite over the interval of maximum chlorine content in borehole MKD194, Mount Keith nickel deposit, northeastern Goldfields district of Western Australia, where it is associated with fragments of chromian spinel.

Grguric, B.A. *et al.* (2001): *Mineral. Mag.* **65**, 427.

Zálesiite

$(Ca,Y)Cu_6(AsO_4)_2(AsO_3OH)(OH)_6 \cdot 3H_2O$, hexagonal, $P6_3/m$
A member of the *Mixite* group.

The name reflects the discovery locality. Found as a product of oxidation of chalcopyrite and Co arsenides at the Zálesí (formerly Valdek) uranium deposit near Javorník, northern Moravia, Czech Republic.

Sejkora, J. *et al.* (1999): *Neues Jahrb. Mineral., Abh.* **175**, 105. Jambor, J.L. (2000): *Am. Mineral.* **85**, 1564.

Zincgartrellite

$Pb(Zn_xFe_{1-x})(Zn_xCu_{1-x})(AsO_4)_2(OH)_{1-x}(H_2O)_{1+x}$, triclinic (pseudomonoclinic), $P\bar{1}$
The Zn-dominant analogue of **gartrellite**. A member of the *Tsumcorite* group.

The name reflects its composition and relationship to **gartrellite**. Found as a secondary phase at the Tsumeb mine, Namibia.

Effenberger, H. *et al.* (2000): *Mineral. Mag.* **64**, 1109. Jambor, J.L. (2001): *Am. Mineral.* **86**, 940.

Zincowoodwardite

$[Zn_{1-x}Al_x(OH)_2]_n[(SO_4)_{x/2}(H_2O)_n]$, trigonal, $R\bar{3}m$ (?), $P\bar{3}$ (?)
The $3R$ and $1T$ polytypes are intergrown. A member of the *Hydrotaalcite* group.

The name reflects its composition as the zinc-dominant analogue of **woodwardite**. Found in the cotype specimen of **glaucozerinite**, a higher hydrated analogue, from Laurion (Lavrion, Laurium), Greece, among other localities.

Witzke, T. & Raade, G. (2000): *Neues Jahrb. Mineral., Monatsh.*, 455. Jambor, J.L. (2001): *Am. Mineral.* **86**, 769.

Zugshunstite-(Ce)

$(Ce,Nd,La)Al(SO_4)_2(C_2O_4) \cdot 12H_2O$, monoclinic, $C2/c$

Named after the locality; it is the authors' best approximation of an anglicized equivalent to words used by the Cherokee Indians to refer to the Great Smoky Mountains. Found in an evaporite assemblage, Alum Cave Bluff, Great Smoky Mountains National Park, Tennessee, U.S.A.

Rouse, R.C. *et al.* (2001): *Geochim. Cosmochim. Acta* **65**, 1101.

Miscellaneous Entries

Calciosamarskite

(Ca,Y,REE,U,Th)(Nb,Ta)O₄, monoclinic (?). Generally metamict.

The name reflects a predominance of calcium in the *B* site and the relation to **samarskite-(Y)**. Found in a granitic pegmatite exploited for feldspar, the Woodcox mine, Hybla, Monteaagle Township, Hastings County, Ontario.

Ellsworth, H.V. (1928): *Am. Mineral.* **13**, 63. Hanson, S.L. *et al.* (1999): *Mineral. Mag.* **63**, 27.

Glucine

CaBe₄(PO₄)₂(OH)₄•0.5H₂O, (?)

The name reflects its beryllium content. Beryllium was earlier called glucinium, from Gk. *gluko*, sweet, alluding to the taste of some beryllium compounds. Boevskoye phenakite–beryl deposit, near Kamensk-Ural'skii, Middle Ural Mountains, Russia.

Grigor'ev, N.A. (1963): *Zap. Vses. Mineral. Obshchest.* **92**, 691. Fleischer, M. (1964): *Am. Mineral.* **49**, 1152.

Grayite

(Th,Pb,Ca)PO₄•H₂O, hexagonal, P6₂22

A member of the *Rhabdophane* group.

Named after Anton Gray, mining engineer, advisor to the United Kingdom Atomic Energy Authority. Wezda, Zimbabwe.

Bowie, S.H.U. (1957): Summer Progress for 1956, *Geol. Surv. Great Britain*, 47. Semenov, E.I. (1959): *Akad. Nauk S'R Kolskii Poluoostrova* **1**, 91. Fleischer, M. (1962): *Am. Mineral.* **47**, 419.

Gutsevichite

(Al,Fe³⁺)₃(PO₄,VO₄)₂(OH)₃•8H₂O, cubic, (?)

Named after Vasilii Petrovich Gutsevich (1893–1956), geologist, head, Department of Mineral Deposits, Mining and Metallurgy Institute, Alma-Ata, Kazakhstan. Kurumsak and Ran vanadium deposits, Karatau Range, Kazakhstan.

Ankinovich, E.A. (1961): *Zap. Vses. Mineral. Obshchest.* **90**, 104. Fleischer, M. (1961): *Am. Mineral.* **46**, 1200. Ankinovich, E.A. (1963): *Proc. Kazakh Mining Metall. Inst.* **18**, 125.

Iltisite

HgSAg(Cl,Br), hexagonal, P6₂ (?)

Polymorphic relationship with **capgaronnite**

Named after Antoine Iltis (b. 1942), from Rimbach, Alsace, France, salt miner and amateur mineralogist, who found the mineral. Found in small cavities in a quartzitic conglomerate, Cap Garonne mine, near Le Pradet, Var, France.

Sarp, H. *et al.* (1997): *Arch. Sci. Genève* **50**(1), 1.

Moganite

SiO₂, monoclinic, I2/a

Named after its discovery locality. Found at Mogán, Canary Islands, and first named in 1984, but without CNMMN approval until 1999.

Flörke, O.W. *et al.* (1984): *Neues Jahrb. Mineral., Abh.* **149**, 325. Dunn, P.J. (1985): *Am. Mineral.* **70**, 874. Miede, G. & Graetsch, H. (1992): *Eur. J. Mineral.* **4**, 693. Heaney, P.J. & Post, J.E. (1992): *Science* **255**, 441. Jambor, J.L. (1993): *Am. Mineral.* **78**, 677.

Orthojoaquinite-(La)

$\text{Ba}_2\text{NaLa}_2\text{Fe}^{2+}\text{Ti}_2\text{Si}_8\text{O}_{26}(\text{OH},\text{O},\text{F})\cdot\text{H}_2\text{O}$, orthorhombic, *Ccmm* (?)
A member of the *Joquinite* group.

Named as the La-dominant analogue of **orthojoaquinite-(Ce)**, toward which it shows solid solution. Found in nepheline–sodalite syenite pegmatites, Ilímaussaq alkaline complex, along the Narsaq River, Kvanefjeld Mountain, south Greenland.

Matsubara, S. (2001): *Can. Mineral.* **39**, 757. Semenov, E.I. *et al.* (1967): *Am. Mineral.* **52**, 1762.

Phengite

$\text{K}(\text{Al},\text{Fe}^{3+},\text{Fe}^{2+},\text{Mg},\square)_2[\text{Si},\text{Al}]_4\text{O}_{10}(\text{OH})_2$, monoclinic, *C2/m*
A series name for solid solutions involving **muscovite**, **aluminoceladonite** and **celadonite**.
A member of the *Mica* group.

The name phengit, from Gk. phengos, luster, was first used by Link (1810) for an uncertain species. Breithaupt (1841) was first to use it for white mica, and von Kobell (1853) refined the name as a synonym for **muscovite**.

Link, H.F. (1810): *Gesellschaft naturforschender Freunde, Magazin*. Berlin **4**, 227. Breithaupt, A. (1841): *Vollständiges Handbuch der Mineralogie* **2**, 398. Von Kobell, F. (1853): *Tafeln zur Bestimmung der Mineralien*. Munich, 62. Amisano-Canesi, A. *et al.* (1994): *Eur. J. Mineral.* **6**, 489. Rieder, M. *et al.* (1998): *Can. Mineral.* **36**, 905.

Proudite

$\text{Cu}_{0-1}\text{Pb}_{7.5}\text{Bi}_{9.3-9.7}(\text{S},\text{Se})_{22}$, monoclinic, *C2/m*

Named after Sir John Seymour Proud (b. 1907), of Turramurra, Australia, mining engineer, chairman of Peko-Wallsend, Ltd., developers of the Tennant Creek goldfield, where the mineral was found. Juno mine, Northern Territory, Australia.

Large, R.R. & Mumme, W.G. (1975): *Econ. Geol.* **70**, 369. Mumme, W.G. (1976): *Am. Mineral.* **61**, 839.

Pseudorutile

$\text{Fe}^{3+}_2\text{Ti}_3\text{O}_9$, hexagonal, *P6₃22*

From Gk. *pseudos*, false, and **rutile**, because it is not that mineral but similar to it. A neotype locality was proposed upon revalidation: South Neptune Island, South Australia. The mineral is common as an alteration product of **ilmenite** in placer deposits.

Teufer, G. & Temple, A.K. (1966): *Nature* **211**, 179. Fleischer, M. (1967): *Am. Mineral.* **52**, 299. Grey, I.E. & Reid, A.F. (1975): *Am. Mineral.* **60**, 898. Grey, I.E. *et al.* (1994): *Mineral. Mag.* **58**, 597.

Wattevillite

$\text{Na}_2\text{Ca}(\text{SO}_4)_2\cdot 4\text{H}_2\text{O}$ (?), orthorhombic or monoclinic, (?)

Named after Baron Oscar de Watteville, of Paris, France. Einigkeit mine, Bischofsheim, Bavaria, Germany.

Singer, S. (1879): *Beiträge zur Kenntniss der am Bauersberge bei Bischofsheim vor der Rhön vorkommenden Sulfate*. Würzburg, 18. Palache, C. *et al.* (1951): *Dana's System of Mineralogy* (7th ed.), New York **2**, 452.