

## ENCYCLOPEDIA OF MINERAL NAMES: THIRD UPDATE

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I am pleased to present the third update to the *Encyclopedia of Mineral Names (The Canadian Mineralogist, Special Publication 1)*. The entries listed below describe new species of minerals that have appeared in the literature since mid-2001. 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](http://www.mineralogicalassociation.ca). The information is presented as in the *Encyclopedia*, with a focus on the origin of the name of the mineral. Please do not hesitate to contact me to report any correction or addendum.

### Allabogdanite

(Fe,Ni)<sub>2</sub>P, orthorhombic, *Pnma*

Dimorphic relationship with **barringerite**

Named after Alla Nikolaevna Bogdanova (b. 1947), crystallographer from the Geological Institute, Kola Science Center of the Russian Academy of Sciences, Apatity, Kola Peninsula, Russia. Found in the Onello iron meteorite, a unique nickel-rich ataxite found in 1997 in alluvium of the Bol'shoy Dolguchan River, Onello River basin, Aldan Shield, Sakha-Yakutia, Russia, in recognition of her work on new mineral species.

Britvin, S.N. *et al.* (2002): *Am. Mineral.* **87**, 1245.

### Alsakharovite-Zn

NaSrKZn(Ti,Nb)<sub>4</sub>[Si<sub>4</sub>O<sub>12</sub>]<sub>2</sub>(O,OH)<sub>4</sub>•7H<sub>2</sub>O, monoclinic, *Cm*

A member of the *Gutkovaite* subgroup of the *Labuntsovite* group

Named after Aleksey Sergeyeovich Sakharov (1910–1996), investigator of pegmatites of the Lovozero complex. Found in eudialyte – aegirine – feldspar pegmatite, Mount Lepke-Nelm, Lovozero alkaline complex, Kola Peninsula, Russia.

Pekov, I.V. *et al.* (2003): *Zap. Vser. Mineral. Obshchest.* **132**(1), 52.

### Anorthominasragrite

V<sup>4+</sup>O(SO<sub>4</sub>)(H<sub>2</sub>O)<sub>5</sub>, triclinic, *P1̄*

Shares a polymorphic relationship with **orthominasragrite** (orthorhombic) and **minasragrite** (monoclinic)

The name denotes its relation to **minasragrite**; it is the triclinic (“anorthic”) polymorph. Found in the fossilized remains of a Triassic silicified tree in the Shinarump conglomerate member of the Chinle Formation, Temple Mountain, Emery County, Utah, U.S.A.

Cooper, M.A. *et al.* (2003): *Can. Mineral.* **41**, 959.

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### Artsmithite

$\text{Hg}^{1+}_4\text{Al}(\text{PO}_4)_{2-x}(\text{OH})_{1+3x}$  ( $x = 0.26$ ), monoclinic,  $C2/c$

Named after Arthur ("Art") E. Smith, Jr. (b. 1935), a petroleum geologist from Houston, Texas, who collected the sample, an avid mineral collector and micromounter since 1956, who specializes in Arkansas and Texas minerals; author of *Collecting Arkansas Minerals: a Reference and Guide* (1995). Found as a secondary mineral at the Funderburk Hg-bearing prospect, on the flank of Skeleton Mountain, along Lake Greeson, Pike County, Arkansas, U.S.A.

Roberts, A.C. *et al.* (2003): *Can. Mineral.* **41**, 721.

### Baumstarkite

$\text{AgSbS}_2$ , triclinic,  $P\bar{1}$

Trimorphic relationship with **miargyrite** and **cuboargyrite**

Named after Manfred Baumstark (b. 1954), mineral dealer of Buhl/Baden, Germany, who provided the crystals and noted their triclinic symmetry. Found coating miargyrite at the San Genaro mine, Huancavelica Department, Peru.

Effenberger, H. *et al.* (2002): *Am. Mineral.* **87**, 753.

### Bobjonesite

$\text{V}^{4+}\text{O}(\text{SO}_4)(\text{H}_2\text{O})_3$ , monoclinic,  $P2_1/n$

Named after Robert (Bob) Jones (b. 1926), of Cave Creek, Arizona, for his enormous contributions to the mineralogical community through writing, lecturing and editing books on mineral occurrences. Found in fossil trees of Triassic age in the Temple Mountain region, Emery County, Utah.

Schindler, M. *et al.* (2003): *Can. Mineral.* **41**, 83.

### Bobkingite

$\text{Cu}^{2+}_5\text{Cl}_2(\text{OH})_8(\text{H}_2\text{O})_2$ , monoclinic,  $C2/m$

Named after Robert King (b. 1923), Professor of Mineralogy at Leicester University, Leicester, U.K., a prominent collector of minerals and a founding member of the Russell Society. Found as a secondary phase on copper minerals in veins in an altered diorite, New Cliffe Hill quarry, Stanton-upon-Bardon, Leicestershire, U.K.

Hawthorne, F.C. *et al.* (2002): *Mineral. Mag.* **66**, 301.

### Borocookeite

$\text{Li}_{1+3x}\text{Al}_{4-x}(\text{BSi}_3)\text{O}_{10}(\text{OH},\text{F})_8$ ,  $0 < x < 0.33$ , monoclinic,  $C1$  (pseudo  $C2/m$ )

A member of the *Chlorite* group

The name reflects its composition as a boron-dominant analogue of **cookeite**. Found as a late-stage pocket mineral in the Sosedka and Mokhovaya granitic pegmatites, Malkhan gem tourmaline deposit, Chikoy District, Chita region, Russia.

Zagorsky, V.Y. *et al.* (2003): *Am. Mineral.* **88**, 830.

### Brinrobertsite

$(\text{Na},\text{K},\text{Ca})_x(\text{Al},\text{Mg},\text{Fe})_4(\text{Si},\text{Al})_8\text{O}_{20}(\text{OH})_4 \cdot 3.5\text{H}_2\text{O}$ ,  $x = 0.35$ , monoclinic, C-centered cell

Named after Brin Roberts, geologist, of the University of London, London, U.K. Found as a major constituent of mudstone (metabentonite) near Bangor, northern Wales.

Dong, H. *et al.* (2002): *Mineral. Mag.* **66**, 605.

### **Brodtkorbite**

$\text{Cu}_2\text{HgSe}_2$ , monoclinic,  $P2_1/n$

Named after Milka Kronegold de Brodtkorb (b. 1932), Professor at the universities of Buenos Aires and La Plata, Argentina, in recognition of her fundamental and numerous contributions to the economic geology and mineralogy of Argentina. Found in a telethermal selenide vein-type assemblage at the Tuminico Ia selenium deposit, Sierra de Cacho (Sierra de Umango) district, southwest to Bajo Jagüe, La Rioja, Argentina.

Paar, W.H. *et al.* (2002): *Can. Mineral.* **40**, 225.

### **Burnsite**

$\text{KCdCu}_7\text{O}_2(\text{SeO}_3)_2\text{Cl}_9$ , hexagonal,  $P6_3/mmc$

Named after Peter Carman Burns (b. 1966), Professor of Crystallography at the University of Notre Dame, Notre Dame, Indiana, U.S.A., in recognition of his contributions to structural mineralogy and, in particular, to knowledge about the structures of  $\text{Cu}^{2+}$  oxysalt minerals. Found in a fumarole in the North Breach of the great fissure Tolbachik eruption, Kamchatka Peninsula, Russia.

Krivovichev, S.V. *et al.* (2002): *Can. Mineral.* **40**, 1171. Burns, P.C. *et al.* (2002): *Can. Mineral.* **40**, 1587.

### **Buryatite**

$\text{Ca}_3(\text{Si,Fe}^{3+},\text{Al})[\text{SO}_4][\text{B}(\text{OH})_4](\text{OH})_5\text{O} \cdot 12\text{H}_2\text{O}$ , hexagonal,  $P31c$  (?)

Named after the discovery locality. Found in drill core of kurchatovite–sakhaitite ore, Solongo deposit, Buryatiya, Russia.

Malinko, S.V. *et al.* (2001): *Zap. Vser. Mineral. Obshchest.* **130**(2), 72. Grew, E.S. (2002): *Am. Mineral.* **87**, 1509.

### **Bushmakinite**

$\text{Pb}_2\text{Al}(\text{PO}_4)(\text{VO}_4)(\text{OH})$ , monoclinic,  $P2_1/m$

A member of the *Brackebuschite* group

Named after Anatolii Filippovich Bushmakin (1947–1999), X-ray crystallographer of the Institute of Mineralogy of the Urals section of the Russian Academy of Science, Miass, Russia, who made significant contributions to the mineralogy of the oxidized zone of the Berezovskoye deposit. Found in the oxidized zone of the Berezovskoye gold deposit, middle Urals, Russia.

Pekov, I.V. *et al.* (2002): *Zap. Vser. Mineral. Obshchest.* **131**(2), 62.

### **Bussenite**

$\text{Na}_2\text{Ba}_2\text{Fe}^{2+}\text{TiSi}_2\text{O}_7(\text{CO}_3)(\text{OH})_3\text{F}$ , triclinic,  $P1$

Named after Irina Vladislavovna Bussen (b. 1915), mineralogist and petrologist, St. Petersburg, Russia, specialist in the petrology and mineralogy of the Khibina–Lovozero alkaline complex, long associated with the Geological Institute of the Kola Branch of the Russian Academy of Sciences in Apatity. Found in a hydrothermal vein cutting urtite, Kukisvumchorr Mountain, Khibina alkaline complex, Kola Peninsula, Russia.

Khomyakov, A.P. *et al.* (2001): *Zap. Vser. Mineral. Obshchest.* **130**(3), 50. Jambor, J.L. (2002): *Am. Mineral.* **87**, 1509.

### **Carraraite**

$\text{Ca}_3\text{Ge}(\text{OH})_6(\text{SO}_4)_{1.08}(\text{CO}_3)_{0.92} \cdot 12\text{H}_2\text{O}$ , hexagonal,  $P6_3/m$   
A member of the *Ettringite* group

Named after the discovery locality, in the Carrara region. Found in cavities within marble, Gioia quarry, Colonnata Valley, Carrara region, Apuan Alps, Italy.

Merlino, S. & Orlandi, P. (2001): *Am. Mineral.* **86**, 1293.

### **Cattiite**

$\text{Mg}_3(\text{PO}_4)_2 \cdot 22\text{H}_2\text{O}$ , triclinic,  $P\bar{1}$

Named after Michele Catti (b. 1945), Professor of Physical Chemistry, Department of Material Sciences, University of Milano Bicocca, Milano, Italy. Found in a dolomite carbonatite vein, Zhelezny iron mine, Kovdor carbonatite complex, Kola Peninsula, Russia.

Britvin, S.N. *et al.* (2002): *Neues Jahrb. Mineral., Monatsh.*, 160. Grew, E.S. (2003): *Am. Mineral.* **88**, 1175.

### **Čejkaite**

$\text{Na}_4(\text{UO}_2)(\text{CO}_3)_3$ , triclinic,  $P1$  (?)

Named after Jiří Čejka (b. 1929), formerly Director of the Museum of Natural History of the National Museum in Prague, Czech Republic, in recognition of his contributions to the crystal chemistry of uranium minerals. Found in the Geschiever vein of the Svornost mine, Jáchymov, southern slope of the Krušné hory Mountains, 20 km north of Karlovy Vary, northwestern Bohemia, Czech Republic.

Ondruš, P. *et al.* (2003): *Am. Mineral.* **88**, 686.

### **Cerite-(La)**

$(\text{La,Ce,Ca})_9(\text{Fe,Ca,Mg})(\text{SiO}_4)_3[\text{SiO}_3(\text{OH})]_4(\text{OH})_3$ , trigonal,  $R3c$

The name reflects its composition and relationship to **cerite-(Ce)**; it is its La-dominant analogue. Found in an aegirine – natrolite – microcline vein in foyaite on Mount Yukspor, Khibina alkaline complex, Kola Peninsula, Russia.

Pakhomovsky, Ya.A. *et al.* (2002): *Can. Mineral.* **40**, 1177.

### **Ciprianiite**

$^X\text{Ca}_4^Y[(\text{Th,U})(\text{REE})]^Z\text{Al}^T\text{□}_2(\text{Si}_4\text{B}_4\text{O}_{22})^W(\text{OH,F})_2$ , monoclinic,  $P2/a$   
A member of the *hellandite* group

Named after Curzio Cipriani (b. 1927), Professor of Mineralogy and head of the Museum of Natural History at the Università di Firenze, in Florence, Italy, in recognition of his work on the systematics of minerals. Found in alkali syenite ejectum, Vico volcanic complex, Tre Croci, near Vetralla, Viterbo Province, Italy.

Della Ventura, G. *et al.* (2002): *Am. Mineral.* **87**, 739. Oberti, R. *et al.* (2002): *Am. Mineral.* **87**, 745.

### **Clinobarylite**

$\text{BaBe}_2\text{Si}_2\text{O}_7$ , monoclinic,  $Pm$

The name alludes to its dimorphic relationship with **barylite**. Found in alkaline pegmatite veins, Yukspor Mountain, Khibina alkaline complex, Kola Peninsula, Russia.

Chukanov, N.V. *et al.* (2003): *Zap. Vser. Mineral. Obshchest.* **132**(1), 29.

### Cobaltarthurite

$\text{Co}^{2+}\text{Fe}^{3+}_2(\text{AsO}_4)_2(\text{OH})_2 \cdot 4\text{H}_2\text{O}$ , monoclinic,  $P2/c$   
A member of the *Arthurite* group

The name reflects the composition; it is the cobalt-dominant analogue of **arthurite**. Found in an oxidized zone at the Dolores showing, near Pasrana, a village about 10 km east of Mazarrón in the Province of Murcia, southeastern Spain.

Jambor, J.L. *et al.* (2002): *Can. Mineral.* **40**, 725. Raudsepp, M. & Pani, E. (2002): *Can. Mineral.* **40**, 733.

### Cobaltkieserite

$\text{CoSO}_4 \cdot \text{H}_2\text{O}$ , monoclinic,  $C2/c$   
A member of the *Kieserite* group

The name reflects its composition and relationship with **kieserite**. Found in quartzite, Bastnäs, Skinnskatteberg, Sweden.

Holtstam, D. (2002): *Geol. Fören. Stockholm Förh.* **124**, 117. Jambor, J.L. (2003): *Am. Mineral.* **88**, 931.

### Cobaltneustädtelite

$\text{Bi}_2\text{Fe}^{3+}\text{Co}^{2+}\text{O}(\text{OH})_3(\text{AsO}_4)_2$ , triclinic,  $P\bar{1}$   
A member of the *Medenbachite* group

Named as the Co-dominant analogue of **neustädtelite**. Found on the dumps of the Guldener Falk mine near Schneeberg-Neustädtel, Schneeberg area, Saxony, Germany.

Krause, W. *et al.* (2002): *Am. Mineral.* **87**, 726.

### Cobalttsumcorite

$\text{Pb}(\text{Co},\text{Fe}^{3+})_2(\text{AsO}_4)_2(\text{H}_2\text{O},\text{OH})_2$ , monoclinic,  $C2/m$   
A member of the *Tsumcorite* group

The name reflects its composition as the Co-dominant analogue of **tsumcorite**. Found in dump material from an oxidation zone in the "Am Roten Berg" mining area, 4.8 km southwest of Schneeberg, Germany.

Krause, W. *et al.* (2001): *Neues Jahrb. Mineral., Monatsh.*, 558. Jambor, J.L. (2002): *Am. Mineral.* **87**, 996.

### Cronusite

$\text{Ca}_{0.2}(\text{H}_2\text{O})_2\text{CrS}_2$ , trigonal,  $R3m$  (?)

Named after Cronus, one of the Titans in Greek mythology, the son of Uranus and Gaea, the name referring to its mixed meteoritic and terrestrial origin. Found as a product of the terrestrial alteration of caswellsilverite in the Norton County enstatite achondrite, which fell in 1948 in Norton County, Kansas, and also in Nebraska, U.S.A.

Britvin, S.N. *et al.* (2001): *Zap. Vser. Mineral. Obshchest.* **130**(3), 29. Jambor, J.L. (2002): *Am. Mineral.* **87**, 1510.

### Decrespignyite-(Y)

$(\text{Y},\text{REE})_4\text{Cu}(\text{CO}_3)_4\text{Cl}(\text{OH})_5 \cdot 2\text{H}_2\text{O}$ , monoclinic,  $P2$

Named after Robert James Champion de Crespigny (b. 1950), executive chairman of Normandy Mining Limited, Chancellor of the University of Adelaide, Chairman of the South Australian Museum in Adelaide, in recognition of his contributions to the mining industry and education in South

Australia. Found as a supergene mineral in narrow fissures in dolomitic slate, Paratoo copper mine, near Yunta, Olary District, South Australia.

Wallwork, K. *et al.* (2002): *Mineral. Mag.* **66**, 181.

### Dickthomssenite

$\text{Mg}(\text{V}_2\text{O}_6) \cdot 7\text{H}_2\text{O}$ , monoclinic,  $C2/c$

Named after Richard W. Thomssen (b. 1933), consulting geologist from Dayton, Nevada, U.S.A., who has had a long and distinguished career in mineral exploration and ore deposit geology, and since 1994, has been editor of the *International Micromounter's Journal*. Found near log fragments in sandstone at the Firefly-Pigmy uranium–vanadium mine, 16 km east of La Sal, southeastern San Juan County, Utah.

Hughes, J.M. *et al.* (2001): *Can. Mineral.* **39**, 1691.

### Ekatite

$(\text{Fe}^{3+}, \text{Fe}^{2+}, \text{Zn})_{12}(\text{OH})_6[\text{AsO}_3]_6[\text{AsO}_3, \text{HOSiO}_3]_2$ , hexagonal,  $P6_3mc$

Named after Dieter Ekat (1935–1996), Namibian mining engineer and former owner of the Rubicon mine, Namibia. Found in a zone of secondary oxidation, Tsumeb deposit, Namibia.

Keller, P. (2001): *Eur. J. Mineral.* **13**, 769. Jambor, J.L. (2002): *Am. Mineral.* **87**, 355.

### Emilite

$\text{Cu}_{10.7}\text{Pb}_{10.7}\text{Bi}_{21.3}\text{S}_{48}$ , orthorhombic,  $Pmc2_1$

A 45 Å derivative of the bismuthinite–aikinite solid-solution series

Named after Emil Makovicky (b. 1941), Professor of Mineralogy, University of Copenhagen, Denmark, specialist of the crystal chemistry of sulfosalts. Found in the metamorphosed Felbertal scheelite deposit, Tauern Window, Austria.

Balić-Žunić, T. *et al.* (2002): *Can. Mineral.* **40**, 239.

### Eveslogite

$(\text{Ca}, \text{K}, \text{Na}, \text{Sr}, \text{Ba})_{48}[(\text{Ti}, \text{Nb}, \text{Fe}, \text{Mn})_{12}(\text{OH})_{12}\text{Si}_{48}\text{O}_{144}](\text{F}, \text{OH}, \text{Cl})_{14}$ , monoclinic,  $P2/m$  (?)

A layered structure with similarities to astrophyllite-group minerals

Named after its discovery locality. Found in a veinlet cutting nepheline syenite, Mount Eveslogchorr, Khibina alkaline complex, Kola Peninsula, Russia.

Men'shikov, Yu.P. *et al.* (2003): *Zap. Vser. Mineral. Obshchest.* **132**(1), 59.

### Feklichevite

$\text{Na}_{11}\text{Ca}_9(\text{Fe}^{3+}, \text{Fe}^{2+})_2\text{Zr}_3\text{Nb}[\text{Si}_{25}\text{O}_{73}](\text{OH}, \text{H}_2\text{O}, \text{Cl}, \text{O})_5$ , trigonal,  $R3m$

A member of the *eudialyte* group

Named after Vladimir Georgevich Feklichev (1933–1999), mineralogist and crystallographer with the Institute of Mineralogy, Geochemistry, and Crystallography of Rrae Elements, Russian Academy of Sciences, Moscow, author of *Beryl – Morphology, Composition and Structure of Crystals* (1964) and *Diagnostic Constants of Minerals* (1992). Found in a pegmatitic vein of cancrinite syenite, Kovdor phlogopite mine, Kovdor alkaline-ultrabasic complex, Kola Peninsula, Russia.

Pekov, I.V. *et al.* (2001): *Zap. Vser. Mineral. Obshchest.* **130**(3), 55. Jambor, J.L. (2002): *Am. Mineral.* **87**, 1732.

### **Ferripedrizite**

$\text{NaLi}_2(\text{Fe}^{3+}_2\text{Mg}_2\text{Li})\text{Si}_8\text{O}_{22}(\text{OH})_2$ , monoclinic, *C2/m*  
A member of the *Amphibole* group

Named as the  $\text{Fe}^{3+}$ -dominant, <sup>B</sup>Na-poor analogue of **sodic-ferripedrizite**. Found in episyenitic rocks of the Eastern Pedriza Massif, Madrid, Spain.

Caballero, J.M. *et al.* (2002): *Am. Mineral.* **87**, 976.

### **Ferrohögbohmite-2N2S**

$(\text{Fe}^{2+}_3\text{ZnMgAl})_{\Sigma 6}(\text{Al}_{14}\text{Fe}^{3+}\text{Ti})_{\Sigma 16}\text{O}_{30}(\text{OH})_2$ , hexagonal, *P6<sub>3</sub>mc*

Named as the Fe-dominant member of the *Högbohmite* polysomatic series. Found in an erratic block at Ain Taiba, Grand Erg Oriental, Sahara Desert, Algeria.

Hejny, C. *et al.* (2002): *Eur. J. Mineral.* **14**, 957. Grew, E.S. (2003): *Am. Mineral.* **88**, 1176.

### **Ferrokentbrooksit**

$\text{Na}_{15}\text{Ca}_6(\text{Fe},\text{Mn})_3\text{Zr}_3\text{NbSi}_{25}\text{O}_{73}(\text{O},\text{OH},\text{H}_2\text{O})_3(\text{Cl},\text{F},\text{OH})_2$ , trigonal, *R3m*  
A member of the *Eudialyte* group

The name reflects its composition: it is the ferrous-iron-dominant analogue of **kentbrooksit**. Found in a nepheline syenite dyke in the Poudrette quarry, Mont Saint-Hilaire, Rouville County, Quebec.

Johnsen, O. *et al.* (2003): *Can. Mineral.* **41**, 55.

### **Ferronordite-(La)**

$\text{Na}_3\text{Sr}(\text{La},\text{Ce})\text{FeSi}_6\text{O}_{17}$ , orthorhombic, *Pcca*

The La-dominant analogue of **ferronordite-(Ce)**. A member of the *Nordite* group.

The name reflects its composition and relationship to **nordite-(La)**. Found in the ussingite core of hyperagpaite pegmatite, Mount Bol'shoi Punkaruav, Lovozero alkaline complex, Kola Peninsula, Russia.

Pekov, I.V. *et al.* (2001): *Zap. Vser. Mineral. Obshchest.* **130**(2), 53. Jambor, J.L. (2002): *Am. Mineral.* **87**, 1510.

### **Ferrosaponite**

$\text{Ca}_{0.3}(\text{Fe}^{2+},\text{Mg},\text{Fe}^{3+})_3 \cdot (\text{Si},\text{Al})_4\text{O}_{10}(\text{OH})_2 \cdot 4\text{H}_2\text{O}$ , monoclinic, *P* lattice  
A member of the *Smectite* group

The name alludes to its composition; it is the ferrous-iron-dominant analogue of **saponite**. Found as a hydrothermal mineral related to basaltic pillow lavas, Levoberezhnye Iceland spar deposit, Nizhnyaya Tunguska River, Evenkiya, Siberia, Russia.

Chukanov, N.V. *et al.* (2003): *Zap. Vser. Mineral. Obshchest.* **132**(2), 68.

### **Fluoro-edenite**

$\text{NaCa}_2\text{Mg}_5(\text{Si}_7\text{Al})\text{O}_{22}\text{F}_2$ , monoclinic, *C2/m*  
A member of the *Amphibole* group

Named as the fluorine-dominant analogue of **edenite**. Found in altered benmoreitic lava associated with the Etna volcanic complex at Biancavilla, Catania, Italy.

Gianfagna, A. & Oberti, R. (2001): *Am. Mineral.* **86**, 1489.

### Gatelite-(Ce)

$(\text{Ca}_1\text{REE}_3)_\Sigma 4[\text{Al}_2(\text{Al},\text{Mg})(\text{Mg},\text{Fe},\text{Al})]_\Sigma 4[\text{Si}_2\text{O}_7][\text{SiO}_4]_3(\text{O},\text{F})(\text{OH},\text{O})_2$ , monoclinic,  $P2_1/a$   
A member of a polysomatic series having epidote and törnebohmit-(Ce) as end members

Named after Pierre Gatel (b. 1943), of Paris, France, mineral collector and founder of the Association Française de Microminéralogie. Found in a dolomite horizon, Trimouns talc deposit, Luzenac, Ariège, French Pyrénées.

Bonazzi, P. *et al.* (2003): *Am. Mineral.* **88**, 223.

### Gjerdingenite-Fe

$\text{K}_2[(\text{H}_2\text{O})_2(\text{Fe},\text{Mn})][(\text{Nb},\text{Ti})_4(\text{Si}_4\text{O}_{12})_2(\text{OH},\text{O})_4] \cdot 4\text{H}_2\text{O}$ , monoclinic,  $C2/m$   
A member of the *Labuntsovite* group

Named after the discovery locality. Found in miarolitic cavities of a sodic granite (“ekerite”) at Gjerdingselva, Lunner, Oppland, Oslo region, Norway.

Raade, G. *et al.* (2002): *Can. Mineral.* **40**, 1629. Chukanov, N.V. *et al.* (2002): *Eur. J. Mineral.* **14**, 165.

### Glagolevite

$\text{NaMg}_6[\text{Si}_3\text{AlO}_{10}](\text{OH},\text{O})_8 \cdot \text{H}_2\text{O}$ , triclinic,  $C1$   
The mineral has affinities with the *Chlorite* group

Named after A.A. Glagolev, specialist of ultramafic-alkaline complexes and carbonatites. Found in the Kovdor ultramafic-alkaline complex, Kola Peninsula, Russia.

Seredkin, M.V. *et al.* (2003): *Zap. Vser. Mineral. Obshchest.* **132**(1), 67.

### Gmelinite-K

$(\text{K},\text{Na},\text{Ca})_6[\text{Al}_7\text{Si}_{17}\text{O}_{48}] \cdot 22\text{H}_2\text{O}$ , hexagonal,  $P6_3/mmc$   
A member of the *Zeolite* group

See **gmelinite-Na**. The K-dominant member of the **gmelinite** series. Found in cavities in a brecciated pegmatite, Alluaiv Mountain area, Lovozero alkaline complex, Kola Peninsula, Russia.

Khomyakov, A.P. *et al.* (2001): *Zap. Vser. Mineral. Obshchest.* **130**(3), 65. Vezzalini, G. *et al.* (1990): *Neues Jahrb. Mineral., Monatsh.*, 504. Coombs, D.S. *et al.* (1997): *Can. Mineral.* **35**, 1571.

### Goldquarryite

$\text{CuCd}_2\text{Al}_3(\text{PO}_4)_4\text{F}_2(\text{H}_2\text{O})_{10}(\text{H}_2\text{O})_2$ , triclinic,  $P\bar{1}$

Named after the discovery locality, the Gold Quarry mine. Found as a supergene mineral between fragments in a sample of jasperoid breccia, Gold Quarry Au mine, near Carlin, Eureka County, Nevada.

Roberts, A.C. *et al.* (2003): *Mineral. Rec.* **34**, 237.

### Graulichite-(Ce)

$\text{CeFe}^{3+}_3(\text{AsO}_4)_2(\text{OH})_6$ , trigonal,  $R\bar{3}m$   
The Fe-dominant analogue of **arsenoflorencite-(Ce)**.  
A member of the *Crandallite* group and of the *Alunite* supergroup

Named after Jean-Marie Graulich (1920–2001), mining engineer and Director of the Geological Survey of Belgium, in recognition of his investigations of the Stavelot Massif. Found as brown to green coatings in quartzite, Hourt quarry, near Vielsalm, southeastern Stavelot Massif, Belgium.

Hatert, F. *et al.* (2003): *Eur. J. Mineral.* **15**, 734.



### Greifensteinite

$\text{Ca}_2\text{Be}_4(\text{Fe}^{2+}, \text{Mn})_5(\text{PO}_4)_6(\text{OH})_4 \cdot 6\text{H}_2\text{O}$ , monoclinic, *C2/c*  
The Fe-dominant analogue of **roscherite** and **zanazziite**

Named after the discovery locality. Found in miarolitic cavities in Li-rich granitic pegmatite at Greifenstein, Saxony, Germany.

Chukanov, N.V. *et al.* (2002): *Zap. Vser. Mineral. Obshchest.* **131**(4), 47. Rastsvetaeva, R.K. *et al.* (2002): *Dokl. Chem.* **383**, 78. Pertsev, N.N. (2003): *Am. Mineral.* **88**, 1176.

### Gutkovaite-Mn

$\text{Ca}_2\text{K}_4\text{Mn}_2\text{Ti}_8(\text{Si}_4\text{O}_{12})_4\text{O}_8 \cdot n\text{H}_2\text{O}$ ,  $n \approx 10$ , monoclinic, *Cm*  
A member of the *Gutkovaite* subgroup of the *Labuntsovite* group

Named after N.N. Gutkova (1896–1960?), who intensively studied the Khibina–Lovozero alkaline complex; the suffix denotes the dominance of Mn at the *D* site. Found at Mount Maly Mannepakhk, Khibina alkaline complex, Kola Peninsula, Russia.

Pekov, I.V. *et al.* (2002): *Zap. Vser. Mineral. Obshchest.* **131**(2), 51. Rastsvetaeva, R.K. *et al.* (2001): *Kristallografiya* **46**, 415. Chukanov, N.V. *et al.* (2002): *Eur. J. Mineral.* **14**, 165. Jambor, J.L. (2003): *Am. Mineral.* **88**, 931.

### Hillite

$\text{Ca}_2(\text{Zn}, \text{Mg})[\text{PO}_4]_2 \cdot 2\text{H}_2\text{O}$ , triclinic,  $\bar{P}1$   
A member of the *Fairfieldite* group

Named after Roderick Hill (b. 1949), crystallographer (X-ray and neutron diffraction) and solid-state chemist, who rose to become Chief of Mineral Research Division, CSIRO, Melbourne, Australia, and who first described the mineral and recognized it as a potentially new species. Found associated with collinsite in gossan covering argillaceous siltstone of the Lower Cambrian Parachilna Formation, Reaphook Hill, South Australia, Australia.

Yakubovich, O.V. *et al.* (2003): *Can. Mineral.* **41**, 981.

### Hoganite

$\text{C}_4\text{H}_8\text{O}_5\text{Cu}$  or  $\text{Cu}(\text{CH}_3\text{COO})_2 \cdot \text{H}_2\text{O}$ , monoclinic, *C2/c*

Named after Graham Paul Hogan (b. 1957), of Broken Hill, New South Wales, Australia, a miner and well-known collector of Broken Hill minerals, who discovered the mineral. Found in ferruginous gossan near a mass of decomposing leaves, Potosi Ag–Pb–Zn deposit, 2 km northeast of Broken Hill, New South Wales, Australia.

Hibbs, D.E. *et al.* (2002): *Mineral. Mag.* **66**, 459.

### Hubeite

$\text{Ca}_2\text{Mn}^{2+}\text{Fe}^{3+}[\text{Si}_4\text{O}_{12}(\text{OH})](\text{H}_2\text{O})_2$ , triclinic,  $\bar{P}1$

Named after its discovery locality. Found in the Daye mine, near Huangshi, Hubei Province, People's Republic of China.

Hawthorne, F.C. *et al.* (2002): *Mineral. Rec.* **33**, 465. Grew, E.S. (2002): *Am. Mineral.* **88**, 1177.

### Kanonerovite

$\text{MnNa}_3\text{P}_3\text{O}_{10} \cdot 12\text{H}_2\text{O}$ , monoclinic,  $P2_1/n$

Named after Aleksandr Anatol'evich Kanonerov (b. 1955), mining historian at the Nizhnii Tagil Museum of Mining Industry of the Middle Urals, and mineral collector who first collected the mineral

in 1995. Found in cavities of a muscovite-bearing granitic pegmatite, Kazennitsa pegmatite vein, Alabashka pegmatite field, Middle Urals, Russia.

Popova, V.I. et al. (2002): *Neues Jahrb. Mineral., Monatsh.*, 117. Jambor, J.L. (2002): *Am. Mineral.* **87**, 1732.

### **Karupmøllerite-Ca**

$(\text{Na,Ca,K})_4\text{Ca}_2\text{Nb}_8(\text{Si}_4\text{O}_{12})_4(\text{O,OH})_8 \cdot 14\text{H}_2\text{O}$ , monoclinic, *C2/m*

A member of the *Kuzmenkoite* subgroup of the *Labuntsovite* group

Named after Sven Karup-Møller (b. 1936), Professor of Mineralogy at the Technical University of Denmark, Lyngby, Denmark, in recognition of his contributions to the mineralogy of the Ilímaussaq complex; the suffix denotes the dominance of Ca at the *D* site. Found in naujaite pegmatite, Mellemelv stream valley, Kangerluarsuk area, Ilímaussaq alkaline complex, South Greenland.

Pekov, I.V. et al. (2002): *Neues Jahrb. Mineral., Monatsh.*, 433. Chukanov, N.V. et al. (2002): *Eur. J. Mineral.* **14**, 165. Jambor, J.L. (2003): *Am. Mineral.* **88**, 932.

### **Keilite**

$(\text{Fe,Mg})\text{S}$ , cubic, *Fm3m*

The Fe-dominant analogue of niningerite, (Mg,Fe)S

Named after Klaus Keil (b. 1934), Hawaii Institute of Geophysics and Planetology, University of Hawaii, Honolulu, Hawaii, USA, in recognition of his investigations of the mineralogy and petrography of chondritic meteorites. Found in the Abee enstatite chondrite meteorite found near Abee, Alberta, Canada, and also present in the following meteorites: Adhi-Kot, Saint-Sauveur, LEW 88180, RKP A80259, LEW 87119, LEW 88714, Y-791790, Y-791811, Y-86760 and Y8404.

Shimizu, M. et al. (2002): *Can. Mineral.* **40**, 1687.

### **Kochite**

$\text{Na}_2(\text{Na,Ca})_4\text{Ca}_4(\text{Mn,Ca})_2\text{Zr}_2\text{Ti}_2(\text{Si}_2\text{O}_7)_4(\text{O,F})_4\text{F}_4$ , triclinic, *P1*

The Mn- and Ti-dominant analogue of *rosenbuschite*

Named after Lauge Koch (1892–1964), a Danish geologist who specialized in the geology of Greenland, and who first mapped the Werner Bjerge complex. Found in nepheline syenite, Hvide Ryg Mountain, Werner Bjerge alkaline complex, East Greenland.

Christiansen, C.C. et al. (2003): *Eur. J. Mineral.* **15**, 551.

### **Kristiansenite**

$\text{Ca}_2\text{ScSn}(\text{Si}_2\text{O}_7)(\text{Si}_2\text{O}_6\text{OH})$ , triclinic, *C1*

Named after Roy Kristiansen (b. 1943), of the Fredrikstad area, Norway, amateur mineralogist who discovered the mineral, amateur mycologist honored by the species *Entoloma kristiansenii Noodeloos* (1987) and *Lamprospora kristiansenii Benkert* (1990), and quality-control manager in the detergent-surfactant industry. Found in vugs in a granitic pegmatite containing amazonitic K-feldspar at Heftetjern, Tørdal, Telemark, Norway.

Raade, G. et al. (2002): *Mineral. Petrol.* **75**, 89. Ferraris, G. et al. (2001): *Z. Kristallogr.* **216**, 442. Jambor, J.L. (2003): *Am. Mineral.* **88**, 251.

### **Kupčikite**

$\text{Cu}_{3.4}\text{Fe}_{0.6}\text{Bi}_5\text{S}_{10}$ , monoclinic, *C2/m*

A member of the *Cuprobismutite* homologous series ( $N = 1$ )

Named after Vladimir Kupšik (1934–1990), Professor of Mineralogy at the University of Bratislava, Slovakia, and the University of Göttingen, Germany, in recognition of his contributions to the crystal chemistry of sulfosalts, and in particular the Cu–Bi sulfosalts. Found in the K7 and K8 orebodies of the Felbertal scheelite deposit, Tauern Window, in the Austrian Alps.

Topa, D. *et al.* (2003): *Can. Mineral.* **41**, (in press).

### **Kurgantaite**

$\text{CaSr}[\text{B}_5\text{O}_9]\text{Cl}\cdot\text{H}_2\text{O}$ , triclinic, *P1*

A cation-ordered Ca,Sr-dominant member of the *hilgardite* family, revalidated (formerly “strontiohilgardite”)

Named after its type locality. Found on the surface of the Inder salt dome, in the Kurgan-Tau Hills, situated on the Inder Upland, near Inder Lake, 20 km east of Inderborskiy, on the lower reaches of the Ural River, in western Kazakhstan. Neotype specimens are defined from the Inder and Chelkar boron deposits in western Kazakhstan and the Nepskoe potassium deposit, Siberia, Russia.

Pekov, I.V. *et al.* (2001): *Zap. Vser. Mineral. Obshchest.* **130**(3), 71. Grew, E.S. (2002): *Am. Mineral.* **87**, 1510. Ferro, O. *et al.* (2000): *Crystallogr. Rep.* **45**, 410. Yarzhemsky, Ya.Ya. (1952): *Mineral. Lvov. Geol. Obshchest.*, No. 6, 169.

### **Kuzmenkoite-Zn**

$\text{K}_4\text{Zn}_2\text{Ti}_8(\text{Si}_4\text{O}_{12})_4(\text{OH})_8\cdot n\text{H}_2\text{O}$ ,  $12 < n < 14$ , monoclinic, *Cm*

A member of the *Kuzmenkoite* subgroup of the *Labuntsovite* group

The name reflects the relationship with **kuzmenkoite-Mn**. Found in alkaline pegmatites at Mount Kedykverpakhk, Mount Lepkhe-Nelm, and Mount Karnasurt, Lovozero alkaline complex, Kola Peninsula, Russia.

Chukanov, N.V. *et al.* (2002): *Zap. Vser. Mineral. Obshchest.* **131**(2), 45. Chukanov, N.V. *et al.* (2002): *Eur. J. Mineral.* **14**, 165. Jambor, J.L. (2003): *Am. Mineral.* **88**, 932.

### **Labuntsovite-Fe**

$\text{Na}_4\text{K}_4(\text{Ba},\text{K})_2(\text{Fe},\text{Mg},\text{Mn})_{1+x}\text{Ti}_8(\text{Si}_4\text{O}_{12})_4(\text{O},\text{OH})_8\cdot 10\text{H}_2\text{O}$ , monoclinic, *C2/m*

A member of the *Labuntsovite* group. Forms a solid-solution series with **labuntsovite-Mg**

See **Labuntsovite-Mn**. A member of the *Labuntsovite* subgroup of the *Labuntsovite* group. **Labuntsovite-Fe** was found in hydrothermally altered urtite on Mt. Kukisvumchorr, Khibina alkaline complex, Kola Peninsula, Russia. Found by Labuntsov in 1925 in cavities in nepheline syenite at Yum'egor Pass, Khibina alkaline complex, and later at Mount Kuftn'yun, in the adjacent Lovozero alkaline complex.

Khomyakov, A.P. *et al.* (2001): *Zap. Vser. Mineral. Obshchest.* **130**(4), 36. Rastsvetaeva, R.K. *et al.* (1997): *Dokl. Ross. Akad. Nauk* **357**(1), 64. Chukanov, N.V. *et al.* (1999): *Can. Mineral.* **37**, 901. Chukanov, N.V. *et al.* (2002): *Eur. J. Mineral.* **14**, 165. Jambor, J.L. (2002): *Am. Mineral.* **87**, 1733.

### **Labuntsovite-Mg**

$\text{Na}_4\text{K}_4\text{Mg}_2\text{Ti}_8(\text{Si}_4\text{O}_{12})_4(\text{O},\text{OH})_8\cdot n\text{H}_2\text{O}$  ( $10 < n < 12$ ), monoclinic, *C2/m*

Forms a solid-solution series with **labuntsovite-Fe**. A member of the *Labuntsovite* subgroup of the *Labuntsovite* group

See **Labuntsovite-Mn**. Found in cavities in dolomitic carbonatite in the Kovdor ultrabasic-alkaline complex, Kola Peninsula, Russia.

Khomyakov, A.P. *et al.* (2001): *Zap. Vser. Mineral. Obshchest.* **130**(4), 36. Chukanov, N.V. *et al.* (2002): *Eur. J. Mineral.* **14**, 165. Jambor, J.L. (2002): *Am. Mineral.* **87**, 1733.

### **Laflammeite**

$\text{Pd}_3\text{Pb}_2\text{S}_2$ , monoclinic,  $C2/m$

Named after Joseph Hector Gilles Laflamme (b. 1947), of the Mining and Mineral Sciences Laboratories, Canada Centre for Mineral and Energy Technology, Ottawa, Canada, specialist in the micro-analysis of platinum-group minerals. Found in altered pyroxenite in the Kirakkajuppura PGE deposit in the Penikat layered complex, Finland.

Barkov, A.Y. *et al.* (2002): *Can. Mineral.* **40**, 671.

### **Lanmuchangite**

$\text{TlAl}(\text{SO}_4)_2 \cdot 12\text{H}_2\text{O}$ , cubic,  $Pa\bar{3}$

The Tl-dominant equivalent of **Potassium alum**

Named after the discovery locality. Found at the Lanmuchang thallium (mercury) deposit, Xinren County, Guizhou Province, People's Republic of China.

Chen Daiyan *et al.* (2001): *Acta Mineralogica Sinica* **21**, 271. Jambor, J.L. (2002): *Am. Mineral.* **87**, 996.

### **Lemmleinite-Ba**

$\text{Na}_4\text{K}_4\text{Ba}_{2+x}\text{Ti}_8(\text{Si}_4\text{O}_{12})_4(\text{O},\text{OH})_8 \cdot 8\text{H}_2\text{O}$ , monoclinic,  $C2/m$

A member of the *Lemmleinite* subgroup of the *Labuntsovite* group

The name reflects its composition, as the barium-dominant analogue of **lemmleinite-K**. Found in alkaline pegmatites at Kukisvumchorr Mountain, Khibina Complex, and at Karnasurt and Ounkaruic mountains, Lovozero Complex, Kola Peninsula, Russia.

Chukanov, N.V. *et al.* (2001): *Zap. Vser. Mineral. Obshchest.* **130**(3), 36. Rastsvetaeva, R.K. *et al.* (1997): *Dokl. Ross. Akad. Nauk* **357**, 64. Chukanov, N.V. *et al.* (2002): *Eur. J. Mineral.* **14**, 165. Jambor, J.L. (2002): *Am. Mineral.* **87**, 1733.

### **Lukrahnite**

$\text{CaCuFe}^{3+}(\text{AsO}_4)_2[(\text{H}_2\text{O})(\text{OH})]$ , triclinic,  $P\bar{1}$

The Ca-dominant analogue of **gartrellite**. A member of the *Tsumcorite* group

Named after Ludger Krahn, who submitted the discovery specimen for study. Found in the zone of secondary oxidation, Tsumeb mine, Namibia.

Krause, W. *et al.* (2001): *Neues Jahrb. Mineral., Monatsh.*, 481.

### **Magnesiostaurolite**

$\text{A}\square_4\text{B}\text{Mg}_4\text{C}\text{Al}_{16}\text{D}(\text{Al}_2\square_2)\text{T}\text{Si}_8\text{O}_{40}\text{X}[(\text{OH})_2\text{O}_6]$ , monoclinic,  $C2/m$

A member of the *Staurolite* group; shows solid-solution toward **staurolite**

The name reflects its composition: it is the magnesium-dominant analogue of **staurolite**. Found as inclusions in pyrope megablasts in the high-pressure Dora-Maira massif, Vallone di Galba, Val Varaita, Western Alps, Italy.

Chopin, C. *et al.* (2003): *Eur. J. Mineral.* **15**, 167. Hawthorne, F.C. *et al.* (1993): *Can. Mineral.* **31**, 551.

### **Magnesiotantalite**

$(\text{Mg},\text{Fe})(\text{Ta},\text{Nb})_2\text{O}_6$ , orthorhombic,  $Pbcn$

A member of the **columbite–tantalite** group;

forms a solid solution with **ferrotantalite**, **manganotantalite**, and **magnesiocolumbite**

The name alludes to its chemical composition as the magnesium-dominant analogue of **ferrotantalite**. Found in a desilicated granitic pegmatite, Lipovka pegmatite field, Rezh District, central Urals, Russia.

Pekov, I.V. et al. (2003): *Zap. Vser. Mineral. Obshchest.* **132**(2), 49.

### **Manganlotharmeyerite**

$\text{Ca}[\text{Mn}^{3+}, \square, \text{Mg}]_2\{\text{AsO}_4, [\text{AsO}_2(\text{OH})_2]\}_2(\text{OH}, \text{H}_2\text{O})_2$ , monoclinic,  $C2/m$

A member of the *Tsumcorite* group

Named as the manganese-dominant analogue of **lotharmeyerite**. Found in braunite veins at the Starlera Mn deposit, Eastern Alps, Switzerland.

Brugger, J. et al. (2003): *Can. Mineral.* **40**, 1597.

### **Manganvesuvianite**

$\text{Ca}_{19}\text{Mn}^{3+}(\text{Al}, \text{Mn}^{3+}, \text{Fe}^{3+})_{10}(\text{Mg}, \text{Mn}^{2+})_2\text{Si}_8\text{O}_{69}(\text{OH})_9$ , tetragonal,  $P4/n$

The name reflects its composition ( $\text{Mn}^{3+}$  occupying the <sup>V</sup>Y' site) and relationship to **vesuvianite**. Found in veins and vugs in the Wessels and N'Chwaning II mine, Kalahari manganese fields, Republic of South Africa.

Armbruster, T. et al. (2002): *Mineral. Mag.* **66**, 137-150.

### **Marecottite**

$\text{Mg}_3(\text{H}_2\text{O})_{18}[(\text{UO}_2)_4\text{O}_3(\text{OH})(\text{SO}_4)_2]_2(\text{H}_2\text{O})_{10}$ , triclinic,  $P\bar{1}$

Named after its type locality, the La Creusaz uranium prospect near Les Marécottes, Canton Valais, Western Alps, Switzerland. Found in hydrothermal breccia veins at the contact between the pre-Variscan gneissic basement of the Aiguilles Rouges massif and the Carboniferous Vallorcine granite.

Brugger, J. et al. (2003): *Am. Mineral.* **88**, 676.

### **Matsubaraite**

$\text{Sr}_4\text{Ti}_5(\text{Si}_2\text{O}_7)_2\text{O}_8$ , monoclinic,  $P2_1/a$  (pseudo  $C2/m$ )

The Sr–Ti analogue of **perrierite**

Named after Satoshi Matsubara, of the National Science Museum, Tokyo, Japan, in recognition of his contributions to the description of Sr-dominant minerals from Japan. Found in jadeitite in the Itoigawa–Ohmi District, Renge metamorphic belt, Honshu, Japan.

Miyajima, H. et al. (2002): *Eur. J. Mineral.* **14**, 1119.

### **Megakalsilite**

$\text{KAlSiO}_4$ , hexagonal,  $P6_3$

Polymorphic relationship with **kalsilite**, **trikalsilite**, **panunzite** and **kaliophilite**

From Gk. *mega*, large, and **kalsilite**, alluding to its large unit-cell, twelve times larger than that of **kalsilite**. Found in a hyperagpaitic pegmatite in ijolite–urtite near their contact with apatite–nepheline rocks, Mount Koashva, Khibina alkaline complex, Kola Peninsula, Russia.

Khomyakov, A.P. et al. (2002): *Can. Mineral.* **40**, 961.

### **Menshikovite**

$\text{Pd}_3\text{Ni}_2\text{As}_3$ , hexagonal,  $P6_3m$  (?)

Named after Yurii Pavlovich Men'shikov (b. 1934), Geological Institute of the Kola Science Center, Russian Academy of Sciences, Apatity, Russia, in recognition of his important contributions to the

mineralogy of alkaline felsic and ultrabasic suites of the Kola Peninsula. Found in an altered gabbro-norite in the Vostok deposit, Lukkulaivaara layered complex, northern Karelia, Russia, and in metasomatized sandstone, Chiney layered lopolith in the Kodar–Udokan horst, western Aldan Shield, Chita region, Siberia.

Barkov, A.Y. *et al.* (2002): *Can. Mineral.* **40**, 679.

### **Miassite**

$Rh_{17}S_{15}$ , cubic,  $Pm\bar{3}m$

Miassite supersedes “prassoite”, a name already approved by the IMA

Named after the discovery locality. Found as inclusions in isoferroplatinum in a heavy-mineral concentrate from a small placer located at the upper part of the Miass River, southern Urals, Russia.

Britvin, S.N. *et al.* (2001): *Zap. Vser. Mineral. Obshchest.* **130**(2), 41. Jambor, J.L. (2002): *Am. Mineral.* **87**, 1511.

### **Micheelsenite**

$(Ca,Y)_3Al(PO_3OH,CO_3)(CO_3)(OH)_6 \cdot 12H_2O$ , hexagonal,  $P6_3$

A member of the *Ettringite* group

Named after Harry Ingvar Micheelsen (b. 1931), Professor Emeritus of Mineralogy, University of Copenhagen, Denmark, specialist in mineral optics and the structure of flint, who discovered the Nanna pegmatite in 1963. Found in pegmatite and hornfels in the Poudrette quarry, Mont Saint-Hilaire, Rouville County, Quebec, Canada and the Nanna sodalite syenite pegmatite, Narsaarsuup Qaava, South Greenland.

McDonald, A.M. *et al.* (2001): *Neues Jahrb. Mineral., Monatsh.*, 337.

### **Moëloite**

$Pb_6Sb_6S_{14}(S_3)$ , orthorhombic,  $P2_122_1$

Named after Yves Moëlo (b. 1949), of the Université de Nantes, France, specialist in the study of lead-bearing sulfosalts, who first synthesized this phase. Found in cavities in marble at the Ceragiola marble quarry, near Seravezza, Versilia, along the southern rim of the Apuan Alps, northern Tuscany, Italy.

Orlandi, P. *et al.* (2002): *Eur. J. Mineral.* **14**, 599.

### **Monazite-(Sm)**

$(Sm,Gd,Ce)PO_4$ , monoclinic,  $P2_1/n$

A member of the *Monazite* group

See **monazite-(Ce)**. Found in the Annie Claim #3 granitic pegmatite, on the southwestern margin of the Greer Lake granite, 1.2 km northwest of Greer Lake, southeastern Manitoba.

Masau, M. *et al.* (2002): *Can. Mineral.* **40**, 1649.

### **Mottanaite-(Ce)**

$^XCa_4^Y(CeCa)^ZAl^TBe_2(Si_4B_4O_{22})^WO_2$ , monoclinic,  $P2/a$

A member of the *hellandite* group

Named after Annibale Mottana (b. 1940), Professor of Mineralogy at the Università di Roma Tre, Rome, Italy, in recognition of his work on the mineralogy of Latium. Found in feldspathoid-bearing alkali syenite ejectum, Sabatini volcanic complex, Monte Cavalluccio, Sacrofano, north of Rome, Italy.

Della Ventura, G. *et al.* (2002): *Am. Mineral.* **87**, 739. Oberti, R. *et al.* (2002): *Am. Mineral.* **87**, 745.

## Nabesite

$\text{Na}_2\text{BeSi}_4\text{O}_{10} \cdot 4\text{H}_2\text{O}$ , orthorhombic,  $P2_12_12_1$

The name reflects its composition: sodium (Lat. *natrium*), beryllium and silicate. Found in cavities in tugtupite-bearing albitites on the Kvanefjeld Plateau, northwesternmost part of the Ilimaussaq alkaline complex, South Greenland.

Petersen, O.V. *et al.* (2002): *Can. Mineral.* **40**, 173.

## Natrolemoynite

$\text{Na}_4\text{Zr}_2\text{Si}_{10}\text{O}_{26} \cdot 9\text{H}_2\text{O}$ , monoclinic,  $C2/m$

The name reflects its relationship to **lemoynite** as an Na-dominant polymorph of that species. Found in nepheline syenite pegmatites at the Poudrette quarry, Mont Saint-Hilaire, Rouville County, Quebec, Canada.

McDonald, A.M. & Chao, G.Y. (2001): *Can. Mineral.* **39**, 1295.

## Nickellotharmeyerite

$\text{Ca}(\text{Ni},\text{Fe}^{3+})_2(\text{AsO}_4)_2(\text{H}_2\text{O},\text{OH})_2$ , monoclinic,  $C2/m$

A member of the *Tsumcorite* group

The name reflects its composition as the Ni-dominant analogue of **lotharmeyerite**. Found in dump material from an oxidation zone in the "Am Roten Berg" mining area, 4.8 km southwest of Schneeberg, Germany.

Krause, W. *et al.* (2001): *Neues Jahrb. Mineral., Monatsh.*, 558. Jambor, J.L. (2002): *Am. Mineral.* **87**, 997.

## Nickelschneebergite

$\text{BiNi}_2(\text{AsO}_4)_2[(\text{H}_2\text{O})(\text{OH})]$ , monoclinic,  $C2/m$

A member of the *Tsumcorite* group. Shows solid solution

toward **schneebergite**, **cobaltlotharmeyerite** and **nickellotharmeyerite**

The name reflects its composition as the nickel-dominant analogue of **schneebergite**. Found on dumps in the Am Roten Berg mining area, Schneeberg, Saxony, Germany.

Krause, W. *et al.* (2002): *Eur. J. Mineral.* **14**, 115. Jambor, J.L. (2003): *Am. Mineral.* **88**, 253.

## Nikischerite

$\text{NaFe}^{2+}_6\text{Al}_3(\text{SO}_4)_2(\text{OH})_{18}(\text{H}_2\text{O})_{12}$ , rhombohedral,  $R\bar{3}$

The iron-dominant analogue of **shigaite**

Named after Anthony John Nikischer (b. 1949), of P, New York, mineral dealer (Excalibur Mineral Company), who discovered the mineral, and who has supplied the academic mineralogical community with rare minerals for scientific study. Found in the Huanuni tin mine, Dalence Province, Oruro Department, Bolivia.

Huminicki, D.M.C. *et al.* (2003): *Mineral. Rec.* **34**, 155. Huminicki, D.M.C. & Hawthorne, F.C. (2003): *Can. Mineral.* **41**, 79.

## Novgorodovait

$\text{Ca}_2(\text{C}_2\text{O}_4)\text{Cl}_2 \cdot 2\text{H}_2\text{O}$ , monoclinic,  $I2/m$

Named after Margarita Ivanovna Novgorodova (b. 1938), well-known mineralogist and director of the Fersman Mineralogical Museum, Russian Academy of Sciences, Moscow, Russia. Found in an evaporitic sequence, Chelkar salt dome, western Kazakhstan.

Chukanov, N.V. *et al.* (2001): *Zap. Vser. Mineral. Obshchest.* **130**(4), 32. Rastsvetaeva, R.K. *et al.* (2001): *Dokl. Akad. Nauk* **381**(3), 353. Jambor, J.L. (2002): *Am. Mineral.* **87**, 1511.

### Ominelite

$(\text{Fe}^{2+}, \text{Mg})\text{Al}_3\text{BSiO}_9$ , orthorhombic, *Pbnm*

The ferrous-iron-dominant analogue of **grandidierite**

Named after the discovery locality. Found in an andalusite – sekaninaite – biotite porphyritic granite from the Misen pluton, Omine Mountains, and exposed along the Misen River, Tenkawa, Yoshino, Nara Prefecture, Japan.

Hiroi, Y. *et al.* (2002): *Am. Mineral.* **87**, 160.

### Organovaite-Mn

$\text{K}_8\text{Mn}_4(\text{Nb}, \text{Ti})_{16}[\text{Si}_4\text{O}_{12}]_8\text{O}_{16} \cdot n\text{H}_2\text{O}$  ( $20 < n < 28$ ), monoclinic, *C2/m*

A member of the *Organovaite* subgroup of the *Labuntsovite* group

Named after Natalia Ivanovna Organova (b. 1929), structural crystallographer, Institute of Geology of Ore Deposits, Petrology, Mineralogy and Geochemistry, Russian Academy of Sciences (IGEM RAS), Moscow, specialist in the study of modulated structures and exsolution in minerals. Found at Mount Karnasurt, Lovozero alkaline complex, Kola Peninsula, Russia.

Chukanov, N.V. *et al.* (2001): *Zap. Vser. Mineral. Obshchest.* **130**(2), 46. Chukanov, N.V. *et al.* (2002): *Eur. J. Mineral.* **14**, 165. Jambor, J.L. (2002): *Am. Mineral.* **87**, 1734.

### Organovaite-Zn

$\text{K}_8\text{Zn}_4(\text{Nb}, \text{Ti})_{16}(\text{Si}_4\text{O}_{12})_8\text{O}_{16} \cdot n\text{H}_2\text{O}$  ( $20 < n < 28$ ), monoclinic, *C2/m*

A member of the *Organovaite* subgroup of the *Labuntsovite* group

The name reflects its composition as the Zn-dominant analogue of **organovaite-Mn**. Found in an alkaline pegmatite on Mount Karnasurt, Lovozero alkaline complex, Kola Peninsula, Russia.

Pekov, I.V. *et al.* (2002): *Zap. Vser. Mineral. Obshchest.* **131**(1), 29. Chukanov, N.V. *et al.* (2002): *Eur. J. Mineral.* **14**, 165. Jambor, J.L. (2003): *Am. Mineral.* **88**, 932.

### Orthominasragrite

$\text{V}^{4+}\text{O}(\text{SO}_4)(\text{H}_2\text{O})_5$ , orthorhombic, *Pmn2<sub>1</sub>*

Named as the orthorhombic dimorph of **minasragrite**. Found in a silicified tree at the North Mesa mine group, Temple Mountain, Emery County, Utah.

Hawthorne, F.C. *et al.* (2001): *Can. Mineral.* **39**, 1325.

### Oswaldpeetersite

$(\text{UO}_2)_2\text{CO}_3(\text{OH})_2 \cdot 4\text{H}_2\text{O}$ , monoclinic, *P2<sub>1</sub>/c*

Named after Oswald Maurice Peeters (b. 1945), University of Leuven, Belgium, structural crystallographer specializing in the study of uranium minerals. Found in the Jomac uranium mine, in conglomerate of the Shinarump Member of the Triassic Chinle Formation, at Brown's Rim, San Juan County, Utah, U.S.A.

Vochten, R. *et al.* (2001): *Can. Mineral.* **39**, 1685.

### Paceite

$\text{C}_8\text{H}_{24}\text{O}_{14}\text{CaCu}$  or  $\text{CaCu}(\text{CH}_3\text{COO})_4 \cdot 6\text{H}_2\text{O}$ , tetragonal, *I4/m*



Named after Frank Lewis Pace (b. 1948), of Broken Hill, New South Wales, Australia, a miner and well-known collector of Broken Hill minerals. Found in ferruginous gossan near a mass of decomposing leaves, Potosi Ag–Pb–Zn deposit, 2 km northeast of Broken Hill, New South Wales, Australia.

Hibbs, D.E. *et al.* (2002): *Mineral. Mag.* **66**, 459.

### **Parakuzmenkoite-Fe**

$(\text{K,Ba})_8\text{Fe}_4(\text{Ti,Nb})_{16}[\text{Si}_4\text{O}_{12}]_8(\text{O,OH})_{16} \cdot n\text{H}_2\text{O}$ ,  $20 < n < 28$ , monoclinic,  $C2/m$

A member of the *Organovaitite* subgroup of the *Labuntsovite* group

From Gk. *para*, near, and **kuzmenkoite**; named as an analogue of **kuzmenkoite-Mn** having Fe > Mn and a doubled c parameter. Found in an alkaline pegmatite at Mount Kedykverpakhk, Lovozaro alkaline complex, Kola Peninsula, Russia.

Chukanov, N.V. *et al.* (2001): *Zap. Vser. Mineral. Obshchest.* **130**(6), 63. Chukanov, N.V. *et al.* (2002): *Eur. J. Mineral.* **14**, 165. Jambor, J.L. (2002): *Am. Mineral.* **87**, 1735.

### **Paralabuntsovite-Mg**

$\text{Na}_8\text{K}_8\text{Mg}_4\text{Ti}_{16}(\text{Si}_4\text{O}_{12})_8(\text{O,OH})_{16} \cdot n\text{H}_2\text{O}$  ( $20 < n < 24$ ), monoclinic,  $I2/m$

A member of the *Paralabuntsovite* subgroup of the *Labuntsovite* group

From Gk. *para*, near, and **labuntsovite-Mg**; named as an analogue of the latter having a doubled c parameter, possibly owing to ordering. Found at the Trona mine, Sweetwater County, Wyoming, U.S.A.

Milton, C. *et al.* (1958): *Geol. Soc. Am., Bull.* **69**, 1614. Chukanov, N.V. *et al.* (2002): *Eur. J. Mineral.* **14**, 165.

### **Pararsenolamprite**

As, orthorhombic,  $Pmn2_1$  (?)

Trimorphic relationship with **arsenolamprite** and **arsenic**

From Gk. *para*, near, and **arsenolamprite**, to which it is similar. Found in quartz veins in altered andesite at the Mukuno Sb–As–Ag–Au mine, Yamaga-cho, Oita Prefecture, Japan.

Matsubara, S. *et al.* (2001): *Mineral. Mag.* **65**, 807.

### **Paravinogradovite**

$(\text{Na},\square)_2[(\text{Ti}^{4+},\text{Fe}^{3+})_4\text{Si}_2\text{O}_6]_2\{\text{Si}_3\text{AlO}_{10}\}(\text{OH})_4\text{H}_2\text{O}$ , triclinic,  $P1$

From Gk. *para*, near, and **vinogradovite**, which it resembles compositionally and structurally.

Found in a pegmatite in contact with a corundum-bearing hornfels and foyaitite, in miarolitic cavities, central part of the Khibina alkaline complex, Russia.

Khomyakov, A.P. *et al.* (2003): *Can. Mineral.* **41**, 989.

### **Percleveite-(Ce)**

$(\text{Ce,L a,Nd})_2\text{Si}_2\text{O}_7$ , tetragonal,  $P4_1$

Named after Per Theodor Cleve (1840–1905), Professor of Organic and Inorganic Chemistry at Uppsala University, Sweden, and discoverer of the elements holmium and thulium. Found in the Bastnäs Fe–Cu–REE deposit in the Skinnkatteberg District, Västmanland, Sweden.

Holtstam, D. *et al.* (2003): *Eur. J. Mineral.* **15**, 725.

### **Potassic-chloropargasite**

$(\text{K},\text{Na})\text{Ca}_2(\text{Fe}^{2+},\text{Mg})_4\text{Al}(\text{Si}_6\text{Al}_2\text{O}_{22})(\text{Cl},\text{OH})_2$ , monoclinic,  $C2/m$   
A member of the *Amphibole* group

The name reflects its bulk composition, a K- and Cl-dominant analogue of **pargasite**. Found in granulite-facies rocks at Mount Elgoras, Sal'nye Tundry, Kola Peninsula, Russia.

Chukanov, N.V. *et al.* (2002): *Zap. Vser. Mineral. Obshchest.* **131**(2), 58. Jambor, J.L. (2003): *Am. Mineral.* **88**, 933.

### **Potassicleakeite**

$\text{KNa}_2\text{Mg}_2\text{Fe}^{3+}_2\text{LiSi}_8\text{O}_{22}(\text{OH})_2$ , monoclinic,  $C2/m$   
A member of the *Amphibole* group

The name reflects its bulk composition; it is the K-dominant analogue of **leakeite**. Found in pegmatite-like veinlets in a manganese deposit, Tanohata mine, Iwate Prefecture, Japan.

Matsubara, S. *et al.* (2002): *J. Mineral. Petrol. Sci.* **97**, 177. Grew, E.S. (2003): *Am. Mineral.* **88**, 1177.

### **Radovanite**

$\text{Cu}_2\text{Fe}^{3+}(\text{AsO}_4)(\text{As}^{3+}\text{O}_2\text{OH})_2 \cdot \text{H}_2\text{O}$ , orthorhombic,  $Pnma$

Named after Radovan Černý (b. 1957), crystallographer at the University of Geneva, Geneva, Switzerland. Found in a gangue assemblage in the Roua copper deposits, upper Var valley (the Daluis gorge), at the western margin of the Barrot Dome, Alpes-Maritimes, France.

Sarp, H. & Guenee, L. (2002): *Arch. Sci. Genève* **55**(1), 47. Grew, E.S. (2003): *Am. Mineral.* **88**, 1177.

### **Reidite**

$(\text{Zr},\text{Hf})\text{SiO}_4$ , tetragonal,  $I4_1/a$   
Dimorphic relationship with **zircon**

Named after Allen Forrest Reid (b. 1931), solid-state chemist born in New Zealand, Director of the CSIRO Institute of Minerals, Energy and Construction (1988–1997), who first produced this phase in laboratory experiments. Found in shock-metamorphosed grains of zircon in a layer of impact ejecta in marine sediments on the upper continental slope off New Jersey and on Barbados.

Glass, B.P. *et al.* (2002): *Am. Mineral.* **87**, 562.

### **Rinmanite**

$\text{Zn}_2\text{Sb}^{5+}_2\text{Mg}_2\text{Fe}^{3+}_4\text{O}_{14}(\text{OH})_2$ , hexagonal,  $P6_3mc$   
Isostructural with **nolanite**

Named after Sven Rinman (1720–1792), of Stockholm, Sweden, mining scientist, metallurgist and chemist, member of the Bergskollegium (the Board of Mines), considered the father of the Swedish mineral industry. Found in a skarn assemblage within dolomite marble, Garpenberg Norra mine, Hedemora, Dalarna, Sweden.

Holtstam, D. *et al.* (2001): *Can. Mineral.* **39**, 1675.

### **Ronneburgite**

$\text{K}_2\text{MnV}_4\text{O}_{12}$ , monoclinic,  $P2_1/n$

Named after the discovery locality. Found on the mine dump of the Lichtenberg open-cast pit, Ronneburg uranium deposit, near Gera, Thuringia, Germany.

Witzke, T. *et al.* (2001): *Am. Mineral.* **86**, 1081.

## Rouaite

$\text{Cu}_2(\text{NO}_3)(\text{OH})_3$ , monoclinic,  $P2_1$

It has a dimorphic relationship with **gerhardtite**

Named after the discovery locality. Found in cavities in cuprite at the old copper mines at Roua, Alpes Maritimes, France.

Sarp, H. *et al.* (2001): *Riviéra Scientifique* **85**, 3. Jambor, J.L. (2002): *Am. Mineral.* **87**, 998.

## Sailaufite

$(\text{Ca}, \text{Na}, \square)_2\text{Mn}_3\text{O}_2(\text{AsO}_4)_2(\text{CO}_3) \cdot 3\text{H}_2\text{O}$ , monoclinic,  $Cm$

Named after the discovery locality. Found in veins in manganese ore in rhyolite, Hartkoppe Hill, north of Ober-Sailauf, Spessart Mountains, Bavaria, Germany.

Wildner, M. *et al.* (2003): *Eur. J. Mineral.* **15**, 555.

## Sewardite

$\text{CaFe}^{3+}_2(\text{AsO}_4)_2(\text{OH})_2$ , orthorhombic,  $Cccm$

The Ca-dominant analogue of **carminite**

Named after Terry Maxwell Seward (b. 1940), Professor of Geochemistry, Eidgenössische Technische Hochschule (ETH), Zürich, Switzerland, a specialist in the speciation of ore-forming constituents in solution. A dual citizen of Canada and New Zealand, he collected the mineral specimen and recognized its potential as a new species. Found in a cavity in gangue at the 31<sup>st</sup> level of the Tsumeb mine, Tsumeb, Namibia.

Roberts, A.C. *et al.* (2002): *Can. Mineral.* **40**, 1191.

## Shirokshinite

$\text{K}(\text{NaMg}_2)\text{Si}_4\text{O}_{10}\text{F}_2$ , monoclinic,  $C2/m$

A member of the *Mica* group; this is the 1M polytype

Named after Nikolay Vasilievich Shirokshin (1809–?), Captain in the Russian Mining Corps, who was the first investigator of the Khibina alkaline complex, with observations of geology, petrology and geomorphology published in 1835. Found as a late hydrothermal mineral in a small peralkaline pegmatite cutting rischorrite in the Kirovskii apatite mine, Kukisvumchorr Mountain, southern part of the Khibina alkaline complex, Kola Peninsula, Russia.

Pekov, I.V. *et al.* (2003): *Eur. J. Mineral.* **15**, 447.

## Sicherite

$\text{TlAg}_2(\text{As}, \text{Sb})_3\text{S}_6$ , orthorhombic,  $Pmnb$

Named after Valentin Sicher (b. 1925), of Gurtellen, Canton Uri, Switzerland, specialist of major construction projects in the Alps, active member of the Lengenbach syndicates, set up to ensure the recovery of minerals at Lengenbach for research and collectors, and avid collector of Swiss minerals. Found in Triassic dolomite in the Lengenbach quarry in Binntal, Valais Canton, Switzerland.

Graeser, S. *et al.* (2001): *Am. Mineral.* **86**, 1087.

## Sphaerbertrandite

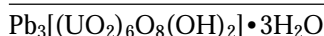
$\text{Be}_3\text{SiO}_4(\text{OH})_2$ , monoclinic,  $P2_1/c$

The name recalls the spherulitic morphology of its aggregates, and its overall similarity to bertrandite in terms of its main constituents. Found in alkaline pegmatites at Mannepakhk Mountain and

Sengischorr Mountain, Lovozero alkaline complex, Kola Peninsula, Russia, and in the Tuften quarry, Tvedalen, southern Norway.

Pekov, I.V. *et al.* (2003): *Eur. J. Mineral.* **15**, 157.

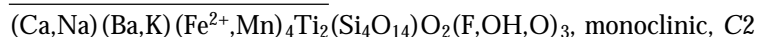
### Spriggite



Named after Reg C. Sprigg (1919–1994), formerly Government geologist in South Australia, coauthor of *Uranium Deposits of South Australia* (1954), and founder of the popular Arkaroola Resort. Found at the No. 2 workings, exploiting a lens of hematite rich in U, REE and Nb minerals, Mount Painter uranium field, norther part of the Flinders Ranges, South Australia, Australia.

Brugger, J. *et al.* (2003): *Aust. J. Mineral.* **9**, 15.

### Surkhobite



Named after the Surkhob River, which drains the area of the discovery locality. Found in a rare-metal-enriched syenite pegmatite, Dara-Pioz alkaline complex, Alai Range, Tajikistan.

Eksova, E.M. *et al.* (2003): *Zap. Vser. Mineral. Obshchest.* **132**(2), 60.

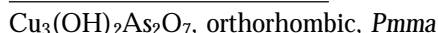
### Tedhadleyite



Named after Ted Alan Hadley (b. 1961), of Sunnyvale, California, software engineer in the field of cryptography, avid collector who helped collect the mineral, and dedicated amateur who has written software to support mineral collecting and optical mineralogy. Found in a vug in quartz–magnesite rock, Clear Creek Claim, San Benito County, California.

Roberts, A.C. *et al.* (2002): *Can. Mineral.* **40**, 909.

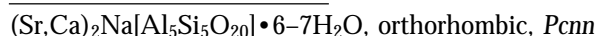
### Theoparacelsite



Named after Philippus Aureolus Bombastus von Hohenheim (1493–1541), called Paracelse, which is a Greco-Roman translation of Hohenheim meaning “close to the sky”. Paracelse was an important physician, chemist, alchemist and doctor who also worked in mineralogy (*De Mineralibus, De Elemento Aquae & Fructibus eius*). He is known in toxicology for having said “All is poison, nothing is poison, it is the dosage which makes the poison”. Found in the old copper mines of Roua (North and South group) in the upper part of the Var valley (the Daluis gorge) at the western margin of the Barrot dome, Alpes-Maritimes area, about 50 km from Nice, France.

Sarp, H. & Černý, R. (2001): *Arch. Sci. Genève* **54**(1), 7. Jambor, J.L. (2002): *Am. Mineral.* **87**, 356.

### Thomsonite-Sr



A member of the *Zeolite* group. Forms a solid-solution series with **thomsonite-Ca**

The strontium-dominant analogue of **thomsonite-Ca**. Found in hydrothermally altered rocks at Rasvumchorr Mountain (veinlets cutting the natrolite core of rischorrite pegmatite) and at Mt. Yukspor (zones in crystals of thomsonite-Ca in veinlets cutting urtite), Khibina alkaline complex, Kola Peninsula, Russia.

Pekov, I.V. *et al.* (2001): *Zap. Vser. Mineral. Obshchest.* **130**(4), 36. Jambor, J.L. (2002): *Am. Mineral.* **87**, 1511.

## Tischendorfite

$\text{Pd}_8\text{Hg}_3\text{Se}_9$ , orthorhombic, *Pmmn* (?)

Named after Gerhard Tischendorf (b. 1927), formerly at GeoForschungsZentrum, Potsdam, Germany, for his many contributions to the mineralogy, geochemistry, and genesis of selenide deposits of the Harz Mountains, Germany. Found in the selenide deposit at Eskaborner Stollen (Eskeborn adit), Eskaborner Berg (Eskeborn Hill), Tilkerode, Harz Mountains, Germany.

Stanley, C.J. *et al.* (2002): *Can. Mineral.* **40**, 739.

## Tsepinite-K

$(\text{K}, \text{Ba}, \text{Na})_2(\text{Ti}, \text{Nb})_2(\text{Si}_4\text{O}_{12})(\text{OH}, \text{O})_2 \cdot 3\text{H}_2\text{O}$ , monoclinic, *Cm*

The Ti-dominant equivalent of **vuoriyarvite-K**. A member of the *Vuoriyarvite* subgroup of the *Labuntsovite* group

The name reflects the composition: it is the K-dominant analogue of **tsepinite-Na**. Found in alkaline pegmatites of Mount Karnasurt, Lovozero Complex, and Mount Eveslogchorr and Mount Kukisvumchorr, Khibina Complex, Kola Peninsula, Russia.

Chukanov, N.V. *et al.* (2003): *Zap. Vser. Mineral. Obshchest.* **132**(1), 38. Chukanov, N.V. *et al.* (2002): *Eur. J. Mineral.* **14**, 165.

## Tsepinite-Na

$(\text{Na}, \text{H}_3\text{O}, \text{K}, \text{Sr}, \text{Ba})_{12-x}\text{Ti}_8(\text{Si}_4\text{O}_{12})_4(\text{OH}, \text{O})_8 \cdot n\text{H}_2\text{O}$  ( $0 < x < 6$ ,  $12 < n < 16$ ), monoclinic, *Cm*

The Na-Ti-dominant equivalent of **vuoriyarvite-K**.

A member of the *Vuoriyarvite* subgroup of the *Labuntsovite* group

Named after Anatoliy Ivanovich Tsepin (b. 1946), physicist of the Institute of Geology of Ore Deposits, Petrography, Mineralogy and Geochemistry of the Russian Academy of Sciences (IGEM), specialist in X-ray spectroscopy and the electron-microprobe analysis of minerals, who initiated in the 1970s an electron-microprobe investigation of labuntsovite-group minerals. Found in alkaline pegmatites at Khibinpakhchorr Mountain, Khibina Complex, and Lepkhe-Nelm Mountain, Lovozero Complex, Kola Peninsula, Russia.

Shlyukova, Z.V. *et al.* (2001): *Zap. Vser. Mineral. Obshchest.* **130**(3), 43. Chukanov, N.V. *et al.* (2002): *Eur. J. Mineral.* **14**, 165. Jambor, J.L. (2002): *Am. Mineral.* **87**, 1734.

## Turtmannite

$(\text{Mn}, \text{Mg})_{22.5}\text{Mg}_{3-3x}[(\text{V}, \text{As})\text{O}_4]_3[\text{SiO}_4]_3[\text{AsO}_3]_x\text{O}_{5-5x}(\text{OH})_{20+x}$ , trigonal,  $R\bar{3}c$

Named after the discovery locality. Found in jacobsite-rich Fe-Mn ore in paleokarst pockets in Triassic marble of the Barrhorn Unit under the suspended Pipjigletscher in the Central Alps, Turtmanntal River, Valais, Switzerland.

Brugger, J. *et al.* (2001): *Am. Mineral.* **86**, 1494.

## Tweddillite

$\text{CaSr}(\text{Mn}^{3+}, \text{Fe}^{3+})_2\text{Al}[\text{Si}_3\text{O}_{12}](\text{OH})$ , monoclinic, *P2<sub>1</sub>/m*

A member of the *Epidote* group

Named after Samuel Milbourn Tweddill, the first curator (1897–1916) of the Museum of the Geological Survey at Pretoria, Republic of South Africa. Found in hydrothermally altered primary sedimentary manganese ore, Wessels mine, Kalahari manganese field, South Africa.

Armbruster, T. *et al.* (2002): *Mineral. Mag.* **66**, 137.

## Vajdakite

$[(\text{Mo}^{6+}\text{O}_2)_2(\text{H}_2\text{O})_2\text{As}^{3+}_2\text{O}_5] \cdot \text{H}_2\text{O}$ , monoclinic,  $P2_1/c$

Named after Josef Vajdak (b. 1930), mineral dealer of Massapequa, New York, who first drew attention to the species, in recognition of his significant contributions to mineralogical research on the ore assemblages at Jáchymov. Found as a product of secondary oxidation in the Svornost mine, Jáchymov Ag–As–Co–Ni–Bi–U deposit, Jáchymov (St. Joachimstal), southern slope of the Krušné hory Mountains (Erzgebirge), 20 km north of Karlovy Vary, northwestern Bohemia, Czech Republic.

Ondruš, P. *et al.* (2002): *Am. Mineral.* **87**, 983.

## Verbeekite

$\text{PdSe}_2$ , monoclinic,  $C2/m$

Named after Théodore Verbeek (1927–1991), of Union Minière du Haut-Katanga, Jadotville, Democratic Republic of Congo, and later with Union Minière Exploration and Mining Corp., in Toronto, Canada, the first geoscientist to study the Se-bearing mineralization at Musonoi, and who early on documented the existence of palladium selenides. Found in dump material at the Musonoi Cu–Co mine, near Kolwesi, western portion of Shaba Province, Democratic Republic of Congo.

Roberts, A.C. *et al.* (2002): *Mineral. Mag.* **66**, 173.

## Walkerite

$\text{Ca}_{16}(\text{Mg}, \text{Li}, \square)_2[\text{B}_{13}\text{O}_{17}(\text{OH})_{12}]_4\text{Cl}_6 \cdot 28\text{H}_2\text{O}$ , orthorhombic,  $Pba2$

Named after Thomas Leonard Walker (1867–1942), Professor of Mineralogy and Petrography, University of Toronto, Toronto, Canada, in recognition of his contributions to mineralogy in general, and to the study of borates from the Minas Basin, Nova Scotia, in particular. He established the journal *Contributions to Canadian Mineralogy*, predecessor of *The Canadian Mineralogist*. Found in a core sample recovered from the Upper Halite Member of the Windsor Group, in the deposit exploited by the Potash Corporation of Saskatchewan (New Brunswick Division), 5 km east of Penobsquis, Sussex area, Cardwell Parish, Kings County, New Brunswick.

Grice, J.D. *et al.* (2002): *Can. Mineral.* **40**, 1675.

## Zaccagnaite

$\text{Zn}_4\text{Al}_2(\text{OH})_{12}(\text{CO}_3) \cdot 3\text{H}_2\text{O}$ , hexagonal,  $P6_3/mmc$

A member of the *Hydrotalcite* group

Named after Domenico Zaccagna (1851–1940), scholar who published the first geological map of the Apuan Alps and collected minerals from the Carrara marble. Found in cavities in calcite veins in the Calagio quarry, Colonnata Valley, Carrara region, Apuan Alps, Italy.

Merlino, S. & Orlandi, P. (2001): *Am. Mineral.* **86**, 1293.

## Zincostaurolite

${}^A\square_4{}^B\text{Zn}_4{}^C\text{Al}_{16}{}^D(\text{Al}_2\square_2){}^T\text{Si}_8\text{O}_{40}{}^X[(\text{OH})_2\text{O}_6]$ , monoclinic,  $C2/m$

A member of the *Staurolite* group; forms a solid-solution series with **staurolite**

The name reflects its composition: it is the zinc-dominant analogue of **staurolite**. Found in metabauxite in the Barrhorn series, near the Turtmannletscher, Zermatt Valley, Western Alps, Switzerland.

Chopin, C. *et al.* (2003): *Eur. J. Mineral.* **15**, 167. Hawthorne, F.C. *et al.* (1993): *Can. Mineral.* **31**, 551.