

Thirty-first list of new mineral names

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THIS list of 205 names includes 149 names of valid or probably valid species, most of which have been approved by the IMA Commission on New Minerals and Mineral Names, 8 species of doubtful validity, and 1 polytypic species; there are also 17 names for artificial products, 10 unnecessary names for varieties, a correction to 1 name originally misspelt, 2 spelling variants of minor importance, 1 named mixture, and 1 rock; 15 erroneous spellings, mostly due to double transliteration, into and from Cyrillic, are included because the mineral intended is not always readily recognizable.

As in the last four lists, certain contractions for the names of frequently cited periodicals are used: A.M., *Am. Mineral.*; M.A., *Mineral. Abstr.*; M.M., *Mineral. Mag.*; Zap., *Zap. vses. mineral. obshch.*; Bull., *Bull. Mineral.*

Admontite. K. Walenta, 1979. *Tschermaks Mineral.*

Petrogr. Mitt. **26**, 69. Poorly developed monoclinic crystals from a gypsum deposit at Schildmauer, near Admont, Styria, have a 12.68, b 10.07, c 11.32 Å, β 109.68°. D 1.82. Composition $2[\text{Mg}_2\text{B}_2\text{O}_5 \cdot 15\text{H}_2\text{O}]$, α 1.442, γ 1.504 || [010], $2V_\alpha$ $c.30^\circ$, α : [001] $c.45^\circ$. [A.M. **65**, 205.]

Aleksite. A. G. Lipovetskii, Yu. S. Borodaev, and E. N. Zav'yalov, 1978. *Zap.* **107**, 315. (Алексит). Platy grains up to 1 mm in quartz-sulphide veins of the Alekseev deposit, Sutemskii region, Stanovoi range, USSR, are trigonal, a 4.238, c 79.76 Å, with an X-ray powder pattern near that of josëite-A. Composition near $6[\text{PbBi}_2\text{Te}_2\text{S}_2]$. Weakly anisotropic, R 53.4% at λ 580 nm. [M.A. 79-4111; A.M. **64**, 652; *Zap.* **109**, 65.]

Altmarkite. T. Kaemmel, E. P. Muller, L. Krossner, J. Nebel, and H. Ungethum, 1977. *Z. angew. Geol.* **23**, 535 and **24**, 90 (1978). Metallic deposits on natural gas plant at Altmark, E. Germany, are tetragonal, a 2.52, c 4.53 Å. Composition $\frac{4}{3}[\text{HgPb}_2]$. Solid plumbian mercury was also observed (Pb up to 23%). [It is not clear whether the material is of natural origin or an artefact.—M. F., A.M. **64**, 652; *Zap.* **109**, 63.]

Aluminium. B. V. Oleinikov, A. V. Okrugin, and N. V. Leskova, 1978. *Dokl. Akad. Nauk. SSSR*, **243**, 191 (Алюминий). Native Al is stated to occur in trap intrusives of the Siberian platform,

together with moissanite and various alloys. [This seems extremely improbable from thermodynamic considerations.—M. F., A.M. **65**, 205.]

Alumino-deerite. K. Langer and W. Schreyer, 1970. *Coll. Abstr. IMA-IAGOD meetings, Kyoto*, p. 231. A synthetic phase near $\text{Fe}_{12}^{2+}\text{Al}_6^{3+}\text{Si}_{12}\text{O}_{40}(\text{OH})_{10}$ is the Al analogue of deerite a 10.708, b 18.830, c 9.601 Å, β 106.72°. Pleochroic brownish-green prisms up to 15 μm . n 1.765, low birefringence.

Alumohalkosyderite, error for Alumochalcosiderite. *Zap.* 1979, **108**, no. 6.

Amicite. A. Alberti, G. Hentschel, and G. Vezzalini, 1979. *Neues Jahrb. Mineral., Monatsh.* 481. A new zeolite from Höwenegg, Hegau, Germany, has space group $I2$, a 10.226, b 10.422, c 9.884 Å, β 88° 19'. Composition near $4[\text{KNaAl}_2\text{Si}_2\text{O}_8 \cdot 2\frac{1}{2}\text{H}_2\text{O}]$. Named for G. B. Amici. [M.A. 80-2237.]

Ancyllite, error for Ancyllite. *Bull.* **96**, 245.

Anduoite. Chromium and Electron-probe Group, Inst. of Utilization, and Platinum Group and Electron-probe Group, Inst. Geol. Miner. Resour., Chinese Acad. Geol. Sci., and X-ray Laboratories, Wuhan Geol. Coll. and Inst. Geol. Acad. Sinica, 1980. *Kexue Tongbao*, **15**, 704. Grains up to 0.1 mm from the Anduo chromite deposit, Tibet, are orthorhombic, $Pnmm$ or $Pnn2$, a 5.410, b 6.206, c 3.01 Å. Composition $2[\text{RuAs}_2]$ with some Os and Ir.

Apachite. F. P. Cesbron and S. A. Williams, 1980. *M.M.* **43**, 639. A blue, non-pleochroic, fibrous mineral from the Christmas mine, Gila Co., Arizona. Strongest X-ray powder lines 12.90(10), 3.168(7), 7.663(5) Å; the powder pattern indexes well with a 12.89, b 6.055, c 19.11 Å, β 90.42°. D_{obs} 2.80. A formula $(\text{Cu,Mg,Ca})_9\text{Si}_{10}\text{O}_{29} \cdot 11\text{H}_2\text{O}$ is suggested. [The empirical cell contents with the above physical data, are $(\text{Cu,Mg,Ca,Fe})_{15.5}\text{Si}_{16.7}\text{O}_{49.0} \cdot 19\text{H}_2\text{O}$. *M.H.H.*] Named for the Apache Indians, who inhabit the area.

Applelite. D. W. Ash, 1975. *Bull. National Speleological Soc.* **37**, 35. Unnecessary name for a habit-variety of calcite. [A.M. **63**, 796.]

Apuanite. M. Mellini, S. Merlino, and P. Orlandi,

1979. *A.M.* **64**, 1230 and 1235. Occurs in black aggregates from the Buca della Vena mine, Stazzema in the Versilia valley, Tuscany, with versilianite (this List) and schafarzikite (9th List) massive and as rare platy crystals, forms {001}, {110}, {112}, and {114}; cleavage {110}. Space group $P4_2/mbc$, a 8.367, c 17.959 Å. D 5.33. Composition $4[\text{Fe}^{2+}\text{Fe}^{3+}\text{Sb}_4^{3+}\text{O}_{12}\text{S}]$. R^{589} $18\frac{1}{2}-21\frac{1}{2}\%$. Named for the Apuan Alps.
- Argentopentlandite.** N. S. Rudashevskii, G. A. Mitkenov, A. M. Karpenkov, and N. N. Shishkin, 1977. *Zap.* **106**, 688. (Аргентопентландит). A member of the pentlandite group, occurring in the Oktyabr and Talnakh deposits, has composition $\text{Ag}(\text{Fe},\text{Ni})_8\text{S}_8$, with the Ag in octahedral lattice positions. Space group $Fm\bar{3}m$, a 10.521 Å. [M.A. 79-762; *Zap.* **109**, 64.]
- Arsenohauchecornite.** R. I. Gait and D. C. Harris, 1980. *Mineral. Mag.* **43**, 877. The $\text{Ni}_9\text{BiAsS}_8$ end-member of the tetragonal hauchecornite group, $(\text{Ni},\text{Co},\text{Fe})_9\text{ABS}_8$, where A and B are As, Sb, Bi, and Te.
- Ashanite.** R. Zhang, H. Tian, Z. Peng, F. Han, and Z. Jing, 1980. [*Kexue Tongbao*, **25**, 510], abstr. M.A. 80-4905. An 'Nb-rich end-member of the ixiolite series' from a pegmatite in the Altai Mts., NW China, is orthorhombic, a 5.869, b 4.873, c 5.216 Å. Composition $4[(\text{Nb},\text{Ta},\text{Fe},\text{Mn},\text{U})\text{O}_2]$. α 2.31 || [010] light brownish red, β 2.35 || [100], γ 2.40 || [001], dark brownish red; $2V_\gamma$ 70-5°. Space group $Pcan$. Named from Altai and shan, mountain. [As its behaviour on heating is not recorded, it is uncertain whether this is a uranian analogue of ixiolite or a uranian pseudo-ixiolite.—M. H. H.]
- Aubertite.** F. Cesbron, D. Ginderow, M.-C. Sichére, and H. Vachey, 1979. *Bull.* **102**, 348. Blue crusts with various iron sulphates at Quetana, Antofagasta province, Chile are anorthic, a 6.288, b 13.239, c 6.284 Å, α 91° 52', β 94° 40', γ 82° 27'. Composition $[\text{CuAl}(\text{SO}_4)_2\text{Cl}\cdot 14\text{H}_2\text{O}]$. α 1.462, β 1.482, γ 1.495, $2V_\alpha$ 71°. D 1.83. Cleavage (010). Named for J. Aubert. [A.M. **65**, 205.]
- Bannermanite.** W. Thompson, 1967. *Rocks and Minerals*, **42**, 420. Pink fibrous crusts on a fumarole of the Izalco volcano, El Salvador, are possibly V_2O_5 . No further details.
- Bartonite.** G. K. Czamanske, M. A. Lamphere, R. C. Erd, and M. C. Blake Jr, 1978. *Earth Planet. Sci. Lett.* **40**, 107. Blackish-brown masses with pyrrhotine in a mafic diatreme at Coyote Peak, N. California, have composition near $\text{K}_3\text{Fe}_{10}\text{S}_{14}$. [M.A. 79-763; A.M. **64**, 241.]
- Beta-zussmanite.** R. Muir-Wood, 1979. *M.M.* **43**, 259. An unnecessary name for a variety of zussmanite.
- Bilibinskite.** E. M. Speridonov, M. S. Bezsmertnaya, T. N. Chvileva, and V. V. Bezsmertny, 1978. *Zap.* **107**, 310 and 510 (Билибинскит). A mineral resembling rickardite (3rd List) in gold telluride deposits of Kazakhstan and far-eastern USSR is strongly anisotropic in canary yellow and fire-red. A pseudocubic subcell has a 4.10 Å, but the structure may be similar to that of moschellandsbergite (15th List). Composition $\text{PbCu}_2\text{Au}_3\text{Te}_2$. Named for Ya. A. Bilibin. Not to be confused with bilibinite (22nd List), also named for Ya. A. Bilibin. [M.A. 79-4112; A.M. **64**, 652.]
- Bismutohauchecornite.** J. Just, 1980. *Mineral. Mag.* **43**, 873. The $\text{Ni}_9\text{Bi}_2\text{S}_8$ end-member of the hauchecornite group, $(\text{Ni},\text{Co},\text{Fe})_9\text{ABS}_8$, where A and B are As, Sb, Bi, and Te. Tetragonal.
- Boyleite.** K. Walenta, 1978. *Chem. Erde*, **37**, 73. $4[(\text{Zn},\text{Mg})\text{SO}_4\cdot 4\text{H}_2\text{O}]$ occurs as an alteration product of sphalerite (blende) at Kropbach, Munstertal, Germany. Space group $P2_1/n$, a 5.95, b 13.60, c 7.96 Å, β 90° 18', α 1.522, γ 1.536, $2V_\alpha$ c. 70°. Named for R. W. Boyle. [M.A. 79-1647; A.M. **64**, 241 and 464.]
- Brabantite.** D. Rose, 1980. *Neues Jahrb. Mineral., Monatsh.* 247. Reddish-brown masses in the Brabant pegmatite, Karibib, SW Africa, have space group $P2_1/n$, a 6.726, b 6.933, c 6.447 Å, β 103° 53'. D 4.72. Composition $2[\text{CaTh}(\text{PO}_4)_2]$, monazite group. β 1.73, γ - α 0.05.
- Brenkite.** G. Hertschel, U. Leufer, and E. Tillmans, 1978. *Neues Jahrb. Mineral., Monatsh.* 325. Radial aggregates of laths in voids and fissures of selbergite at Schellkopf, Brenk, Eifel, Germany, have a 7.650, b 7.550, c 6.548 Å. Composition $4[\text{Ca}_2\text{CO}_3\text{F}_2]$. α || [001] (elongation) 1.525, β || [100] 1.590, γ || [010] 1.593, $2V_\alpha$ 26-8°. D 3.10. [M.A. 79-764; A.M. **64**, 241.]
- Burckhardtite.** R. V. Gaines, P. B. Leavens, and J. A. Nelen, 1979. *A.M.* **64**, 355. Minute (0.2 mm) rosettes and rare pseudo-hexagonal crystals from the Moctezuma gold mine, Sonora, Mexico, give X-ray powder data indexed on a C-centred monoclinic cell with a 5.21, b 9.04, c 12.85 Å, β 90°. Composition $2[\text{Pb}_2(\text{Fe}^{3+},\text{Mn}^{3+})\text{AlTeO}_2\text{Si}_3\text{O}_{10}(\text{OH})_2\cdot 2\text{H}_2\text{O}]$. α 1.82 || [001], pale magenta, $\beta = \gamma$ 1.85, carmine red. Named for C. Burckhardt. [M.A. 79-4113.]
- Canavesite.** G. Ferraris, M. Franchini-Angela, and P. Orlandi, 1978. *Can. Mineral.* **16**, 69. Fibrous rosettes from the Brosso pyrite mine, Piemont, Italy, are monoclinic a 23.49, b 6.164, c 21.91 Å, β 114.91°. Composition $12[\text{Mg}_2\text{CO}_3\text{HBO}_3\cdot 5\text{H}_2\text{O}]$. α 1.485, β 1.494, γ 1.505 || [010]. Named for the district, Canaves, in which the Brosso mine occurs. [M.A. 80-2238.]
- Carlhintzeite.** P. J. Dunn, D. R. Peacor, and B. D. Sturman, 1979. *Can. Mineral.* **17**, 103. Crystals

- up to 2 mm long from the Hagendorf pegmatite, Bavaria, are anorthic with a 9.48, b 6.98, c 9.30 Å, α 91.14°, β 104.85°, γ 90.0°. D 2.86. Composition $4[\text{Ca}_2\text{AlF}_7\text{H}_2\text{O}]$. α 1.411 || [010], β 1.416, γ 1.422, γ : [001] 10°, $2V_\gamma$ 77°. Forms {100}, {001}, {110}; twinned about [101]. Named for Carl Hintze.
- Ceruranopyrochlore.** T. Lin, 1973. [Geochimica (China), J., 38], cited in Zap. 106, 75. This is a cerian uranian pyrochlore.
- Chabournéite.** P. Picot and Z. Johan, 1977. *Mem. Bur. Rech. Géol. Min.* 90, 115. Anorthic (Tl,Pb)₅(Sb,As)₂₁S₃₄, occurring near the Chabournéou glacier, Jas Roux, France. [A.M. 64, 242.]
- Chavite,** error for Hakite. Zap. 1979, 108, 590.
- Chlor-Manasseite.** R. Allman and H.-H. Lohse, 1966. *Neues Jahrb. Mineral., Monatsh.* 161. A natural alteration product of koeneneite forms fine hexagonal platelets, a 3.07, c 15.5 Å, whose X-ray powder diagram closely matches that of sjögrenite. Composition $\text{Mg}_x\text{Al}(\text{OH})_{2x+2}\text{Cl}(x-0.8)\text{H}_2\text{O}$, with x about 1.75.
- Chrome phlogopite.** Pao-kwei Chang and Kuo-cheng Lin, 1974. *Geochimica [China]*, 74. Unnecessary name for a chromian phlogopite from Honan, China.
- Chrom-pyroaurite.** Rubo Zhang, Jiyin Liu, Benjin Yang, Yunxia Liu, and Dehua Liu, 1978. *Geochimica [China]*, 290. Unnecessary name for a chromian pyroaurite from SW China.
- Clinochalcomenite.** K. Lo, J. Wei, J. Zhang, and Q. Gu, 1980. *Kexue Tongbao*, 25, 427. A monoclinic polymorph of chalcomenite occurs in Gansu Province, China. Space group $P2_1/n$, a 8.177, b 8.611, c 6.290 Å, β 97° 16'. Crystals are well developed, with {100}, {110}, {210}, {010}, {101}, {011}, and {001}. α 1.675, β 1.723 || [010], γ 1.765, $2V_\alpha$ 78°, $r < v$; γ : [001] 10°, α : [100] 3°. Composition $4[\text{CuSeO}_3 \cdot 2\text{H}_2\text{O}]$.
- Clinotyrolite.** Ma Zhesheng, Qian Rongyao, and Peng Zhizhong, 1980. *Acta Geol. Sinica*, 54, 134. Green crystals from the Dongchuan copper mine, Yunnan Province, China, are a monoclinic polymorph of tyrolite. Space group Pa or $P2/a$, a 10.513, b 5.56, c 27.61 Å, β 94.0°. Prisms elongated on [100], tabular to {001}, other forms {100}, {310}, and {010}; cleavage {001}, perfect. Composition $2[\text{Cu}_9\text{Ca}_2(\text{As,S})\text{O}_4(\text{OH},\text{O})_{10} \cdot 10\text{H}_2\text{O}]$. α 1.6665, β 1.6862 || [010], γ 1.6945, γ : [100] 7 to 8°, α : [001] 3 to 4°, $2V_\alpha$ 65 to 66°.
- Cobalt-frohbergite.** E. M. Spiridonov, N. F. Sokolova, A. K. Gapeev, and T. L. Chvilova, 1978. *Novye Dannye Mineral. CCCP (Akad. Nauk)*, 26, 140. (Кобалт-Фробергит). Syn. of cobaltoan frohbergite. [A.M. 64, 242.]
- Cobalt-zippeite.** C. Frondel, J. Ito, R. M. Honea, and A. M. Weeks, 1976. *Can. Mineral.* 14, 429. A natural member of the zippeite family. $\text{Co}_2(\text{UO}_2)_6(\text{SO}_4)_3(\text{OH})_{10}16\text{H}_2\text{O}$, Happy Jack mine, Utah.
- Cochromite.** S. A. de Waal, 1978. *Bull. B.R.G.M., sér. 2, Sect. II (Géol. Gites Minér)*, 225. A black spinel with a 8.292 Å from Barberton, S. Africa, has dominant Co and Cr, and is named accordingly. [M.A. 79-2875.]
- Comblainite.** P. Piret and M. Deliens, 1980. *Bull.* 103, 113. A turquoise-blue mineral associated with heterogenite and uranium minerals at Shinkolobwe, Shaba, Zaïre, belongs to the pyroaurite family. Rhombohedral, a 7.796 Å, α 22.47°. Composition $\text{Ni}_x^{2+}\text{Co}_{1-x}^{3+}(\text{OH})_2(\text{CO}_3)_{(1-x)/2} \cdot n\text{H}_2\text{O}$, with x c.2/3. α' 1.684, γ' 1.690. Named for G. Comblain.
- Cuproartinite.** S. G. Oswald and W. W. Crook III, 1979. A.M. 64, 886. Crusts of light-blue needles from a brucite pit at the Basic Refractories mine, Gabbs, Nye Co., Nevada, have space group $C2$, a 16.899, b 3.272, c 6.362 Å, β 100° 40' D_{obs} 2.186. Composition $2[(\text{Cu},\text{Mg})_2\text{CO}_3(\text{OH})_2 \cdot 3\text{H}_2\text{O}]$. α 1.544 colourless, β 1.596 || [010] colourless to pale blue, γ 1.627 pale blue, γ : [001] 31°. Named for its relation to artinite. [M.A. 80-2239.]
- Cuprohydromagnesite.** S. G. Oswald and W. W. Crook III, 1979. A.M. 64, 886. Rare blue bladed crystals from a brucite pit at the Basic Refractories mine, Gabbs, Nye Co., Nevada, have space group $P2_1/c$, a 10.653, b 9.141, c 8.570 Å, β 115° 23'. D_{obs} 2.548. Composition $2[(\text{Cu},\text{Mg})_5(\text{CO}_3)_4(\text{OH})_2 \cdot 4\text{H}_2\text{O}]$. α 1.562, β 1.567, γ 1.614 || [010], α : [001] 48°, $2V_\gamma$ 36-8°. Named for its relation to hydromagnesite. [M.A. 80-2239.]
- Cupropavonite.** S. Karup-Møller and E. Makovicky, 1979. *Bull.* 102, 351. Crystals of pavonite from the Alaska mine, Colorado, contain an exsolved mineral with space group $C2/m$ or Cn , a 13.45, b 4.02, c 33.06 Å (c is double that of pavonite). Composition near $\text{Cu}_2\text{PbAgBi}_5\text{S}_{10}$. Named for its relation to pavonite. [A.M. 65, 206.]
- Curetonite.** S. A. Williams, 1979. *Mineral. Rec.* 10, 219. Bright yellow-green crystals from a baryte mine near Goleonda, Nevada, have space group. $P2_1m$, a 6.957, b 12.55, c 5.22 Å, β 102°. Composition $[\text{Ba}_4\text{Al}_3\text{Ti}(\text{PO}_4)_4(\text{O},\text{OH})_6]$ with O:OH nearly 1:1. D 4.42. Forms {100}, {010}, {001}, {011}, and {201}. α 1.676 || [010], β 1.680, γ 1.693, γ : [001] + 30°. Named for F. and M. Cureton. [A.M. 65, 206; M.A. 80-4910.]
- Defernite.** H. Sarp, M. F. Taner, J. Deferne, H. Bizouard, and B. W. Liebich, 1980. *Bull.* 103, 185. Crystals up to 0.2 mm from a granite-limestone contact in the eastern Pontides, Turkey, have space group $Pna2_1$ or $Pnam$.

- a 17.860, b 22.775, c 3.658 Å. D 2.5. Composition $8[\text{Ca}_3\text{CO}_3(\text{OH},\text{Cl})_4 \cdot \text{H}_2\text{O}]$, with $\text{OH} \gg \text{Cl}$. α 1.546 || [001], β 1.572 || [010], γ 1.576 || [100]; cleavage {010} perfect {100} distinct. Named for J. Deferne.
- Desautelsite.** P. J. Dunn, D. R. Peacor, and T. D. Palmer, 1979. *A.M.* **64**, 127. The Mn^{3+} analogue of pyroaurite occurs at Cedar Hill quarry, Lancaster Co., Pennsylvania (also at two localities in San Benito Co., California), space group $R\bar{3}m$ or $R\bar{3}m$, a_h 3.114, c_h 23.39. The hexagonal cell contains $\frac{3}{8}[\text{Mg}_6\text{Mn}_2^+ \text{CO}_3(\text{OH})_{16} \cdot 4\text{H}_2\text{O}]$. ε 1.547, deep orange, ω 1.569, light orange. D 2.13. Named for P. E. Desautels. [*M.A.* 79-4115.]
- Donnayite.** G. Y. Chao, P. R. Mainwaring, and J. Baker, 1978. *Can. Mineral.* **16**, 335. Pale-yellow crystals from Mont St. Hilaire, Quebec, are anorthic, isomorphous with weloganite (26th List) and mckelvyite (24th List). a 9.000, b 8.999, c 6.793 Å, α 102.77° β 116.28°, γ 59.99°. Composition near $[\text{NaCaBa}_2(\text{Y},\text{Ln})(\text{CO}_3)_6 \cdot 3\text{H}_2\text{O}]$. Name for J. D. H. and G. Donnay. [*M.A.* 79-4116; *A.M.* **64**, 653.]
- Dorfmanite.** Yu. L. Kapustin, Z. V. Pudovkina, and T. E. Vykova, 1980. *Zap.* **109**, 206. (Дорфманит). Thin powdery coatings on fresh surfaces in cavities of pegmatites from Kukisvumchorr and Yukspor, Khibina massif, Kola peninsula; orthorhombic, a 10.34, b 16.82, c 6.601 Å. Composition $8[\text{Na}_2\text{HPO}_4 \cdot 2\text{H}_2\text{O}]$. α 1.454, β 1.461, γ 1.471, $2V_\gamma$ 65°, $r > v$. Named for M. D. Dorfman.
- Drugmanite.** R. Van Tassel, A.-M. Fransolet, and K. Abraham, 1979. *M.M.* **43**, 463. Rare platy crystals in vugs of limestone from Richelle, Belgium, have space group $P2_1/a$, a 11.110, b 7.976, c 4.644 Å, β 90° 18'. Composition $2[\text{Pb}_2(\text{Fe}^{3+},\text{Al})(\text{PO}_4)_2\text{OH} \cdot \text{H}_2\text{O}]$. Mean n 1.88, β || [010], α approx. \perp (001), γ - β 0.020, $2V_\alpha$ 33°. Named for J. Drugman [*M.A.* 80-2240.]
- Dugganite.** S. A. Williams, 1978. *A.M.* **63**, 1016. $\text{Pb}_3\text{Zn}_3(\text{TeO}_6)_x(\text{AsO}_4)_{2-x}(\text{OH})_{6-3x}$, with x 0.94 to 1.33, occurs at the Old Guard and Emerald mines, Tombstone, Arizona. Space group probably $P6/mmm$, a 8.472, c 5.208 Å. D 6.33. Green. ε 1.967, ω 1.977. Named for Miss M. Duggan. [*M.A.* 79-1651.]
- Ellisite.** F. W. Dickson, A. S. Radtke, and J. A. Peterson, 1979. *A.M.* **64**, 701. Dispersed dark-grey grains with metallic lustre in the Carlin gold deposit, Eureka Co., Nevada, are trigonal, a_h 12.324, c_h 9.647 Å. D_{obs} 7.10. Composition $7[\text{Ti}_3\text{AsS}_3]$ in the hexagonal cell. R_{589} 28.9%. Named for A. J. Ellis. [*M.A.* 80-2241.]
- Eskolaite**, error for Eskolaite. *Zap.* 1980, **109**, no. 2.
- Fairbankite.** S. A. Williams, 1979. *M.M.* **43**, 453. Clear crystals with adamantine lustre in a single specimen from the Grand Central mine, Tombstone, Arizona, are anorthic, a 7.81, b 7.11, c 6.96 Å, α 117° 12', β 93° 47', γ 93° 24'. Composition $4[\text{PbTeO}_3]$. α 2.29, β 2.31, γ 2.33, $2V_\gamma$ 86° (obs). Named for N. K. Fairbank. Not to be confused with fairbanksite (F. Morgan, 1965; 24th List). [*M.A.* 80-2243.]
- Ferridravite.** K. Walenta and P. J. Dunn, 1979. *A.M.* **64**, 945. Black euhedral crystals from the San Francisco mine, Villa Tunari, Alto Chapare, Cochabamba, Bolivia belong to the tourmaline group; the end-member $3[\text{NaMg}_3\text{Fe}_3^+ \text{B}_3\text{Si}_6(\text{O},\text{OH})_{30}(\text{OH},\text{F})]$ is dominant and is named for its relation to dravite. [*M.A.* 80-2242.]
- Ferrohagendorfite.** P. B. Moore and J. Ito, 1978. *M.M.* **43**, 227. The members of the alluaudite-hagendorfite family having Fe^{2+} dominant in the M(2) lattice positions are hagendorfites if Mn^{2+} is dominant in M(1), ferrohagendorfites if Fe^{2+} is dominant in M(1). No ferrohagendorfite has yet been found, though its existence is probable. See also maghagendorfite. [*M.A.* 79-2876.]
- Ferrowyllieite.** P. B. Moore and J. Ito, 1979. *M.M.* **43**, 227. The original wyllieite (28th List), from the Victory mine, Custer, S. Dakota, had Fe^{2+} dominant in both the M(1) and M(2) lattice positions. Material from the Smith mine, Newport, New Hampshire, has Mn^{2+} dominant in M(1), and the species name wyllieite is restricted to such members of the family, the original (Fe^{2+} dominant in M(1)) being distinguished as ferrowyllieite. See also rosemaryite (this List). [*M.A.* 79-2876.]
- Fluckite.** H. Bari, F. Lesbron, F. Permingeat, and F. Pillard, 1980. *Bull.* **103**, 122. Pale-to deep-pink spherules, crusts, and crystals from the Gabe Gottes/St. Jacques vein at St. Marie-aux-Mines, Haut-Rhin, are anorthic, a 8.440, b 7.608, c 6.958 Å, α 82.32°, β 98.30°, γ 95.53°. D 3.05. Composition $2[\text{CaMnH}_2(\text{AsO}_4)_2 \cdot 2\text{H}_2\text{O}]$, with some Mg and Co, the deeper coloured specimens having more Co. Cleavages (010), (100) easy, ($\bar{1}01$) difficult. On (010) extinction γ' 11° to the trace of (100) in the obtuse angle between the traces of (100) and ($\bar{1}01$); γ' 1.628, α' 1.620. On (100) extinction γ' 37° to the trace of (010); γ' 1.642, α' 1.618. Named for P. Fluck. Structure and relation to krautite (this List), *Bull.* **103**, 129.
- Fukalite.** C. Henmi, I. Kusachi, A. Kawahara, and K. Henmi, 1977. *Mineral. J. [Japan]*, **8**, 374. Flaky crystals in skarns at Fuka and Mihara, Okayama Prefecture, Japan, have space group $Bm2_1b$, $Bmmb$, or $B2mb$, a 5.48, b 3.78, c 23.42 Å. Composition $2[\text{Ca}_4\text{Si}_2\text{O}_6\text{CO}_3(\text{OH},\text{F})_2]$. D 2.770. α 1.59, β 1.60, γ 1.62. [*A.M.* **63**, 793; *Bull.* **102**, 424; *Zap.* **109**, 77; *M.A.* 80-4911.]
- Gaitite.** B. D. Sturman and P. J. Dunn, 1980. *Can.*

- Mineral*, **18**, 197. Small crystals with prosperite (this List) from Tsumeb, SW Africa, are isostructural with talmessite. a 5.90, b 7.61, c 5.57 Å, α 111° 40', β 70° 50', γ 119° 25'. D 3.81. Composition $[\text{H}_2\text{Ca}_2\text{Zn}(\text{ASO}_4)_2(\text{OH})_2]$. α 1.713, β 1.730, γ 1.748. Named for R. I. Gait.
- Garavellite**. F. Gregorio, P. Lattanzi, G. Tanelli, and F. Vurro, 1979. *M.M.* **43**, 99. Small aggregates, up to 0.2 mm, of anhedral grains with tetrahedrite, bismuthinite, etc. from the Valle del Frigido, Apuane Alps, Tuscany, give X-ray data indexed on an orthorhombic cell with a 11.439, b 14.093, c 3.754 Å. Composition $4[\text{FeSbBiS}_4]$. Named for Professor C. L. Garavelli. [*M.A.* 79-2877; *A.M.* **64**, 1329.]
- Georgeite**. P. J. Bridge, J. Just, and M. H. Hey, 1979. *M.M.* **43**, 97. An amorphous light-blue mineral occurring on dumps of the Carr Boyd nickel mine, Kalgoorlie, Western Australia, with chalconatronite (21st List) is near $\text{Cu}_3(\text{CO}_3)_3(\text{OH})_4 \cdot 6\text{H}_2\text{O}$. n_D 1.593, isotropic. Named for George H. Payne. [*M.A.* 79-2878; *A.M.* **64**, 1330.]
- Gerfisherite, error for Djerfisherite. *Zap.* 1979, **108**, no. 6.
- Gilalite**. F. P. Cesbron and S. A. Williams, 1980. *M.M.* **43**, 639. Spherules of bladed weakly pleochroic fibres ($\gamma > \alpha = \beta$) with kinoite (27th List) from the Christmas mine, Gila Co., Arizona, are optically monoclinic, a 1.560, β and γ 1.635, $2V_x$ very small. Strongest X-ray powder lines 13.49(10), 10.97(5), 7.786 Å (5); the powder pattern indexes with a 13.38, b 19.16, c 9.026 Å, β 90°. D_{obs} 2.82. A formula $\text{Cu}_5\text{Si}_6\text{O}_{17} \cdot 7\text{H}_2\text{O}$ is suggested. [The empirical unit cell contents, with the above physical data, are (Cu,Mg,Ca,Mn) $_{23.0}\text{Si}_{27.0}\text{O}_{77} \cdot 32\text{H}_2\text{O}$ —M. H. H.]
- Giniite**. P. Keller, 1980. *Neues Jahrb. Mineral., Monatsh.* 49. Dark brownish- or greenish-black crystals from the pegmatite at Sandamab, Usakos, Namibia, have space group *Cmm2*, *C222* or *Cmmm*, a 10.365, b 26.582, c 5.162 Å. D 3.41. Composition $4[\text{Fe}^{2+}\text{Fe}_3^{3+}(\text{PO}_4)_4(\text{OH})_2 \cdot 2\text{H}_2\text{O}]$. α 1.775 || [001] light brown, β 1.803 || [010] red-brown, γ 1.812 || [100] deep bluish green. Named for Mrs Gini Keller.
- Girdite**. S. A. Williams, 1979. *M.M.* **43**, 453. White spherules and, rarely, tapered twinned crystals from the Grand Central mine, Tombstone, Arizona, have probable symmetry *m*; a 6.241, b 5.686, c 8.719 Å, β 91° 41'. Composition $[\text{H}_2\text{Pb}_3\text{TeO}_3\text{TeO}_6]$. α 2.44, β 2.48, γ || [010], β : [001] 34° in acute $\beta \cdot 2V_x$ 70°, $r > v$. Named for R. Gird. [*M.A.* 80-2243.]
- Gittinsite**. H. G. Ansell, A. C. Roberts, A. G. Plant, and B. D. Sturman, 1980 *Can. Mineral.* **18**, 201. Pods and lenses in pegmatite from the Kipawa River, Villedieu Township, Quebec, have probable space group *C2/m*, a 6.878, b 8.674, c 4.697 Å, β 101.74°. Composition $2[\text{CaZrSi}_2\text{O}_7]$. α 1.720, β 1.736, γ 1.738, $2V_x$ 30°, α : [001] 5 to 10°. Named for J. Gittins.
- Goudeyite**. W. S. Wise, 1978. *A.M.* **63**, 704. The Al analogue of agardite occurs as yellow-green fibres at the Majuba Hill mine, Pershing Co., Nevada. Composition $2[\text{Cu}_6\text{Al}(\text{AsO}_4)_3(\text{OH})_6 \cdot 3\text{H}_2\text{O}]$. Space group *P6₃* or *P6₃/m*, a 13.472, c 5.902 Å. ω 1.704 pale yellow-green. ϵ 1.765 green. D 3.50. Named for H. Goudey. [*M.A.* 79-653; *Bull.* **102**, 425.]
- Hauckite**. P. J. Dunn, D. R. Peacor, and B. D. Sturman, 1980. *A.M.* **65**, 192. Clusters of orange to yellow hexagonal plates, {0001} with {0110}, from the Sterling Hill mine, Ogdensburg, Sussex Co., New Jersey, have a 9.17, c 30.21 Å. D 3.02. Composition $[\text{Fe}^{3+}(\text{Mg,Mn})_{24}\text{Zn}_{18}(\text{SO}_4)_4(\text{CO}_3)_2(\text{OH})_{81}]$. ϵ 1.638, pale yellow, ω 1.630, golden brown. Named for R. Hauck.
- Helmutwinklerite**. P. Süsse and G. Schnorrer, 1980. *Neues Jahrb. Mineral., Monatsh.* 118. Colourless to light-blue crystals from the tennantite ore of Tsumeb, SW Africa are anorthic, a 5.63, b 7.760, c 5.60 Å, α 94.7°, β 110.7°, γ 112.7°. Composition $[\text{PbZn}_2(\text{AsO}_4)_2 \cdot 2\text{H}_2\text{O}]$. Forms {001}, {010}, {110}, and {111}. α 1.72, β 1.80, γ 1.98, $2V_y$ 70°. α : [001] 50°, β : [100] 53°, γ : [010] 30°. Named for Helmut G. F. Winkler. [*M.A.* 80-4913.]
- $\text{H}_2\text{Si}_2\text{O}_5$ -I, -II, and -III. $\text{H}_2\text{Si}_3\text{O}_7$ -I and -II. Artificial silica hydrates obtained by the action of acids on various silicates. C. Frondel, 1979. *A.M.* **64**, 799.
- Hukkite, error for Hakite. *Zap.* 1979, **108**, no. 5.
- Hydroxy-petschekite**. A. Mücke and H. Strunz, 1978. *A.M.* **63**, 941. $\text{U}^{4+}\text{Fe}_{1/3}^{3+}(\text{Nb,Ta})_2\text{O}_7(\text{O,OH})$, an oxidation-hydration product of petschekite, *q.v.*, occurs intergrown with the latter at Antsakoa, Berere, Madagascar. [*M.A.* 79-1654.]
- Hypercinnabar**. R. W. Potter and H. L. Barnes, 1978. *A.M.* **63**, 1143. A high-temperature, slightly metal-deficient polymorph of HgS occurs with metacinnabar at the Mount Diablo mine, California. Black. The hexagonal cell, a 7.01, c 14.13 Å contains 12[HgS]. [*M.A.* 79-2879.]
- Iler-I, -II, -III. Artificial silica hydrates obtained by the action of acids on Na polysilicate. C. Frondel, 1979. *A.M.* **64**, 799.
- Iron chevkinite. Rubai Zhang and Liangning Fan, 1976. *Geochimica [China]*, 250. Unnecessary name for a ferroan chevkinite from Hubei (= Hopei) Province, China.
- Iwakiite**. S. Matsubara, A. Kato, and M. Nagashima, 1979. *Mineral. J. [Japan]*, **9**, 383. A black magnetic mineral in the manganese ores of

- Gozaisho mine, Iwaki, Fukushima Prefecture, Japan, has space group $P4_2/nnm$, a 8.52, c 8.54 Å. D 4.85. Composition $Mn^{2+}(Fe^{3+}, Mn^{3+})_2O_4$. [A.M. 65, 406.]
- Jixianite.** J. Liu, 1979. *Acta Geol. Sinica*, 53, 45. A pyrochlore type mineral occurring in the P'an-shan quartz monzonite in Jixian, China. Cubic, a 10.359 Å, $Fd\bar{3}m$, near $Pb(W, Fe^{3+})_2(O, OH)_7$. [M.A. 79-2880; A.M. 64, 1330.]
- Johnsomervilleite.** A. Livingstone, 1980. *Mineral. Mag.* 43, 833. Dark brown clusters of crystals in metamorphic segregation pods in Moine gneiss at Loch Quoich, Scotland, are rhombohedral $Na_{10}Ca_6Mg_{18}(Fe, Mn)_{25}(PO_4)_{36}$ with a 15.00 and c 42.75 Å. Named for J. M. Somerville.
- Jökokuite.** M. Nambu, K. Tanida, and T. Kitamura, 1978. *Mineral. J.* [Japan], 9, 28. Pink stalactites of anorthic $2[MnSO_4 \cdot 5H_2O]$, a 6.37, b 10.77, c 6.13 Å, α 98° 46', β 109° 58', γ 77° 50', occur at the Jökoku mine, Hokkaido, Japan. D 2.03. α 1.498, β 1.510, γ 1.517, $2V_\alpha$ 70–80°. [(Mn, Mg)SO₄ · 5H₂O was probably one constituent of the fauserite of Breithaupt (1865), see M.M. 22, 510—M. H. H.] [Bull. 102, 426; A.M. 64, 655.]
- Joséite, variant of joséite (M.A. 79-4111).
- Kanavesite, error for Canavesite. Zap. 109, 68.
- Kanonaite.** S. Vrána, M. Rieder, and J. Podlaha, 1978. *Contrib. Mineral. Petrol.* 66, 325. $4[(Mn^{3+}, Al)AlSiO_5]$, as greenish-black porphyroblasts from Kanona, Zambia. a 9.953, b 8.038, c 5.619 Å; space group $Pnmm$, α 1.702 || [100], yellowish green, β 1.730 || [010], bluish green, γ 1.823 || [001], deep golden yellow; $2V_\gamma$ 53°. [M.A. 78-4927; A.M. 64, 655.]
- Kapillarite.** T. O. Reimer and T. Utter, 1979. *Neues Jahrb. Mineral., Monatsh.* 93. Name proposed for tubular growth-forms of halite from the Groendoorn salt-pan, near the S Africa-Namibia border.
- Keckite.** A. Mücke, 1979. *Neues Jahrb. Mineral., Abh.* 134, 183. A brown weathering product of rockbridgeite and phosphophyllite in the Hagen-dorf pegmatite has space group $P2_1/a$, a 15.02, b 7.19, c 19.74 Å, β 110° 30'. Composition near $2[(Ca, Mg)(Mn, Zn)_2Fe_3^{3+}(PO_4)_4(OH)_3 \cdot 2H_2O]$. α reddish brown, β 1.692 yellow, γ 1.699 || [010] light yellow, γ : [001] 15–22°. Named for E. Kecke. [M.A. 79-4119; 64, 1330.]
- Keithconnite.** L. J. Cabri, J. F. Rowland, J. H. G. Laflamme, and J. M. Stewart, 1979. *Can. Mineral.* 17, 589. Four grains in the heavy-mineral concentrates from the Stillwater complex, Montana, have space group $R\bar{3}$, a_h 11.45, c_h 11.40. Composition variable, possibly $21[Pd_{3-x}Te]$ with x up to 0.5. R_{589} 48.2%. Named for H. Keith Conn. [M.A. 80-4918.]
- Khinite.** S. A. Williams, 1978. A.M. 63, 1016. $Cu_3PbTeO_4(OH)_6$, from the Old Guard mine, Tombstone, Arizona. Space group $Fddd$, a 5.740, b 9.983, c 23.960 Å. Dark green; α 2.110, β 2.112, γ 2.165, $2V_\gamma$ 20°. Dimorphous with parakhinite, q.v. Named for Basaw Khin. [M.A. 79-1651.]
- Kingsmountite.** P. J. Dunn, D. R. Peacor, J. S. White, and R. A. Ramik, 1979. *Can. Mineral.* 17, 583. White- to pale-brown spherules of thin plates from the Foote Mineral Co. spodumene mine, Kings Mountain, Cleveland Co., N. Carolina, have probable space group $C2$, with a 10.029, b 24.46, c 6.258 Å, β 91.16°. D 2.51. Composition $[Ca_4(Fe^{2+}, Mn)Al_4(PO_4)_6(OH)_4 \cdot 12H_2O]$, the iron analogue of montgomeryite (15th List). α 1.575, β 1.581, γ 1.583, $2V_\alpha$ 62°. Named for the locality. [M.A. 80-4919.]
- Kleberite.** H.-J. Bautsch, G. Rohde, P. Sedlcek, and A. Zedler, 1978. *Z. geol. Wiss* 6, 661 and 673. A dark-brown to black mineral in the Tertiary sediment of the Weissel basin, East Germany, is considered to be hexagonal, space group $P6_3mcm$, a 2.8542, c 4.5857 Å. D 3.26–3.28. Uniaxial negative, $n \gg 1.80$. The composition is variously given as near $FeTi_6O_{13} \cdot 4H_2O$ and as $(Fe+Ti)O$ approx. 1:3 and the cell-volume is given as 64.72, which is the volume of an 'orthohexagonal' cell with a 2.8542, b 4.9448, c 4.5857 Å. Named for W. Kleber. [The analyses approximate to $FeTi_6O_{13} \cdot 3H_2O$, for which $TiO_2 = 79.2\%$, FeO 11.9%, H_2O 8.9%, but the hexagonal cell, with D 3.28, would only contain 1.7 oxygen—M. H. H.] [A thoroughly unsatisfactory description—M. F., A.M. 64, 655.]
- Kleemanite.** E. S. Pilkington, E. R. Segnit, J. Watts, and G. Francis, 1977. M.M. 43, 93. Fine matted needles from the iron ore deposit at Iron Knob, South Australia, gave X-ray data indexed with a 7.290, b 7.194, c 9.762 Å, β 110.20° space group $P2_1$, $P2_1$, $P2_1/m$, or $P2_1/m$. Composition $2[ZnAl_2(PO_4)_2(OH)_2 \cdot 3H_2O]$. α 1.598, γ 1.614, extinction up to 40° to the elongation. Named for Dr A. W. Kleeman of Adelaide. [M.A. 79-2881; A.M. 64, 1331.]
- Kolicite.** P. J. Dunn, D. R. Peacor, and B. D. Sturman, 1979. A.M. 64, 708. A bright-orange mineral from the Sterling Hill mine, Ogdensburg, Sussex Co., New Jersey, has space group $Cmca$, a 18.59, b 8.789, c 12.04 Å. Composition $4[Mn_7Zn_4(AsO_4)_2(SiO_4)_2(OH)_8]$. α 1.779, colourless or pale yellow, β 1.786 || [001], yellowish orange, γ 1.790 || [100], light yellow, $2V_\alpha$ 78°. D_{obs} 4.17. Named for J. Kolic. [M.A. 80-2244.]
- Kolwezite.** M. Deliens and P. Plerong, 1980. Bull. 103, 179. Pale-brown spherules with dolomite from Kolwezi, Musonoi, and Kamoto, Shaba, Zaïre, are anorthic, a 9.50, b 12.15, c 3.189 Å, α 93.32°,

- β 90.74°, γ 91.47°. D 3.97. Composition $(\text{Cu}, \text{Co})_2\text{CO}_3(\text{OH})_2$ with Cu:Co c.2. α' 1.688, $\gamma' > 1.90$.
- Kolymite.** E. A. Markova, N. M. Chernitsova, Yu. S. Borodaev, L. S. Dubakina, and O. E. Yushko-zakharova, 1980. *Zap.* **109**, 206 (Колымит). In the heavy fraction from quartz porphyries of Krokhalin, Magadan, Kolym river basin, grains and platy aggregates occur with minute inclusions of native Cu; space group $I\bar{m}3m$, $I432$, or $I43\bar{m}$, a 9.418 Å. Composition $4[\text{Cu}_7\text{Hg}_6]$.
- Koritnigite.** P. Keller, H. Hess, P. Süsse, G. Schnorrer, and P. J. Dunn, 1979. *Tschermaks Mineral. Petrogr. Mitt.* **26**, 51. Colourless massive material in cavities in tennantite on the 31st level at Tsumeb, SW Africa, are anorthic, a 7.948, b 15.829, c 6.668 Å, α 90.86°, β 96.56°, γ 90.05°. D 3.54. Composition $8[\text{ZnHASO}_4 \cdot \text{H}_2\text{O}]$. Cleavage $\{010\}$, perfect, α 1.632 || $[010]$, β 1.652, γ 1.693; on (010) , β : $[100]$ 28°, γ : $[001]$ 22°; $2V_\gamma$ 70°. Named for S. Koritnig. [A.M. **65**, 206.]
- Kovdorskite.** Yu. L. Kapustin, A. V. Bykova, and Z. V. Pudovkina, 1980. *Zap.* **109**, 341 (Ковдорскит). The Kovdorsk massif, Kolsk region, contains a new phosphate-carbonate, space group $P2_1/c$, a 4.74, b 12.90, c 10.35 Å, β 102° σ' . Composition $2[\text{Mg}_5(\text{PO}_4)_2\text{CO}_3(\text{OH})_2 \cdot 4\frac{1}{2}\text{H}_2\text{O}]$. α 1.528, β 1.542, γ 1.549, $2V_\alpha$ c.80°, γ : $[001]$ 1 to 3°.
- Kraisslite.** P. B. Moore and J. Ito, 1978. A.M. **63**, 938. Deep coppery brown $4[\text{Mn}_2^+ \text{ZnAsO}_4 (\text{SiO}_4)_2(\text{OH})_3]$, space group $P6_322$, a 8.22, c 43.88 Å, D 3.876, occurs in the Sterling Hill mine, New Jersey. Uniaxial +, ω 1.805, birefringence weak. Related to hematolite and mcgovernite. Named for F. and A. Kraissl. [M.A. 79-1652.]
- Kuramite.** V. A. Kovalenker, T. L. Evstigneeva, N. V. Troneva, and L. N. Vyalsov, 1979. *Zap.* **108**, 564. (Курамит). Occurs in the gold-sulphide ores of the Kuram Mts., Uzbekistan; space group $I\bar{4}2m$, a 5.445, c 10.75 Å. Composition $2[\text{Cu}_5\text{Sn}_4]$. [M.A. 80-4920.]
- Lawsonbauerite.** P. J. Dunn, D. R. Peacor, and B. D. Sturman, 1979. A.M. **64**, 949. Small ($< \frac{1}{2}$ mm) crystals from the Sterling Hill mine, Ogdensburg, Sussex Co., New Jersey, have space group $P2_1/c$, a 10.54, b 9.62, c 16.46 Å, β 95.2°. D_{obs} 2.87. Composition $4[(\text{Mn}, \text{Mg})_5\text{Zn}_2\text{SO}_4 (\text{OH})_{12} \cdot 4\text{H}_2\text{O}]$. α 1.590, β 1.608 || $[010]$, γ 1.611, γ : $[001]$ 7°, $2V_\alpha$ 42°. It is the Mn analogue of torreyite, the X-ray powder data for which are corrected. Named for Lawson H. Bauer. [M.A. 80-2245.]
- Liandratite.** A. Mücke and H. Strunz, 1978. A.M. **63**, 941. Yellow to brown metamict crusts with petschekite (this List) at Antsakoa, Berere, Madagascar, recrystallize on heating to space group $P\bar{3}1m$, a 6.36, c 4.01 Å. $[\text{U}^{6+}(\text{Nb}, \text{Ta})_2\text{O}_8]$. n 1.83 for the metamict mineral. Named for G. Liandrat. [M.A. 79-1654.]
- Luethite, error for Luethite. M.A. 77-2186; M.M. **42**, 526.
- Macasanite. M. O'Donoghue, 1979. *Gemmological Newsletter*, **9**, no. 2. A name for Macusani glass (an obsidian).
- MacFallite.** P. B. Moore, J. Ito, and I. M. Steele, 1979. M.M. **43**, 325. Reddish brown to maroon aggregates with orientite (9th List) and other Mn minerals in Keweenaw basalt near Manganese Lake, Copper Harbor, Keweenaw Co., Michigan, have space group $P2_1$ or $P2_1/m$, a 8.929, b 6.045, c 10.905 Å, β 119.10°. Composition $2[\text{Ca}_2(\text{Mn}^{3+}, \text{Al})\text{SiO}_4\text{Si}_2\text{O}_7(\text{OH})_3]$. α 1.773 yellow, β 1.795 light brown, γ 1.815 || $[010]$ dark brown, cleavage $\{001\}$, twinning on $\{100\}$. Named for R. P. MacFall. [A.M. **65**, 606.]
- McGillite.** G. Donnay, M. Bétournay, and G. Hamill, 1980. *Can. Mineral.* **18**, 31. A pink mineral from the Sullivan mine, Kimberley, British Columbia, belongs to the pyrosmalite family. Space group $R\bar{3}m$, a_h 13.459, c_h 85.97 Å. Composition $24[(\text{Mn}, \text{Fe})_8\text{Si}_6\text{O}_{15}(\text{OH})_8\text{Cl}_2]$. D 2.98. Cleavage $\{0001\}$, ω 1.6685, ε 1.6415 (Na D). Named for McGill University, Montreal.
- Maghagendorfite.** P. B. Moore and J. Ito, 1978. M.M. **43**, 227. The members of the alluaudite-hagendorfite family having Fe^{2+} dominant in the M(2) lattice positions are hagendorfites if Mn^{2+} is dominant in M(1), maghagendorfites if Mg^{2+} is dominant in M(1). A specimen from the Dyke Lode, Custer, S. Dakota, falls just within the maghagendorfite field. See also ferrohagendorfite. [M.A. 79-2876.]
- Magnesium-zippeite.** C. Frondel, J. Ito, R. M. Honea, and A. M. Weeks, 1976. *Can. Mineral.* **14**, 429. A natural member of the zippeite family. $\text{Mg}_2(\text{UO}_2)_6(\text{SO}_4)_3(\text{OH})_{10} \cdot n\text{H}_2\text{O}$. Lucky Strike no. 2 mine, Emery Co., Utah.
- Mandarinoite.** P. J. Dunn, D. R. Peacor, and B. D. Sturman, 1978. *Can. Mineral.* **16**, 605. Light-green crystals from the Pacajake mine, Bolivia, with $\{100\}$, $\{110\}$, $\{011\}$, and $\{1\bar{0}1\}$, twinned on $\{100\}$, have space group $P2_1c$, a 16.78, b 7.86, c 9.96 Å, β 98.3°. D 2.93. Composition $4[\text{Fe}^{3+}\text{Se}_3\text{O}_9 \cdot 4\text{H}_2\text{O}]$, α 1.715 || $[010]$, β 1.80, γ 1.87, γ : $[001]$ 2°, $2V_\alpha$ 85°. A tellurian variety occurs at the El Plomo mine, Tegucigalpa, Honduras. Named for J. A. Mandarino. [A.M. **65**, 206.]
- Manganocarpholite.** A. Mottana and W. Schreyer,

1977. *Neues Jahrb. Mineral., Abh.* **129**, 113. Syn. of carpholite.
- Manganochromite.** J. Graham, 1978. *A.M.* **63**, 1166. A vanadian manganochronite with a 8.47 Å, composition $8[(\text{Mn},\text{Fe})(\text{Cr},\text{V})_2\text{O}_4]$ with V_2O_5 up to 28%, occurs at Shepard's Hill quarry, Nairne, South Australia. [M.A. 79-2882.]
- Manganseveringite**, error for Manganseverginite. *A.M.* **64**, 636 (1979).
- Mapimite.** F. Cesbron, D. Ginderow, M. Romero, and S. A. Williams, 1980. *IMA 12th General Meeting, Coll. Abstr.* 229. Tabular monoclinic crystals from the mine La Ojuela, Mapimi, Durango, Mexico, have a 11.425, b 11.296, c 8.667 Å, β $107^\circ 44'$. Composition $2[\text{Zn}_2\text{Fe}_3^{2+}(\text{AsO}_4)_3(\text{OH})_4 \cdot 10\text{H}_2\text{O}]$.
- Marsturite.** D. R. Peacor, P. J. Dunn, and B. D. Starman, 1978. *A.M.* **63**, 1187. White prismatic crystals from Franklin, New Jersey, are anorthic, a 7.70, b 12.03, c 6.78 Å, α 85.3° , β 94.1° , γ 111.0° . Composition $2[\text{NaCaMn}_3\text{HSi}_5\text{O}_{15}]$, isostructural with nambulite (28th List), α 1.686, β 1.69, γ 1.708, $2V_\gamma$ 60° . D 3.46. Named for Marion Stuart. [M.A. 79-2883.]
- Maslovite.** V. A. Kovalenker, V. D. Begizov, T. L. Evstigneeva, N. V. Troneva, and V. A. Ryabikin. 1979. *Geol. Rudn. Mestorozhd.* **21**, 94 (Масловит). Grains in lead-antimony ores from the Oktyabr deposit, Norilsk, USSR, are cubic with pyrite-type structure, a 6.689-6.671 Å. Composition PtBiTe , R 55.9% for λ 580 nm. Named for G. A. Maslov. [A.M. **65**, 606.]
- Matulaite.** D. L. Oswald, 1978. [*Rocks and Minerals*, **53**, 115], abstr. M.A. 79-765. Thin coatings and spherulitic aggregates on chert at the Backman iron mine, Hellerton, Pennsylvania, and elsewhere are monoclinic, cleavage $\{100\}$ perfect, composition $\text{CaAl}_{18}(\text{PO}_4)_{12}(\text{OH})_{20} \cdot 28\text{H}_2\text{O}$. Named for Mrs M. Matula of Allentown.
- Montdorite.** J.-L. Robert and R. C. Maury. 1979. *Contrib. Mineral. Petrol.* **68**, 117. Tiny grains (5-25 μm) in a comendite near La Bourboule, France, have space group $C2/m$, a 5.310, b 9.20, c 10.175 Å. β 99.9° . D 3.15. Composition $\text{K}_2(\text{Fe}^{2+}, \text{Mn}, \text{Mg})_5\text{Si}_8\text{O}_{20}(\text{OH}, \text{F})_4$. α 1.580, β and γ 1.605, $2V_\alpha$ very small, Mica family. Named for the stratovolcano Mont Dore, to which the rock belongs. [A.M. **64**, 1331.]
- Monteregianite.** G. Y. Chao, 1978. *Can. Mineral.* **16**, 561. The mineral from Mt. St. Hilaire, Quebec, described as UK-6, is now fully described and named from the Monteregian Hills. It has space group $Bmab$ or $B2ab$, a 14.014, b 23.910, c 13.096 Å. D 2.42. Composition $4[(\text{Na}, \text{K})_6\text{Y}_2\text{Si}_{16}\text{O}_{38} \cdot 10\text{H}_2\text{O}]$. α 1.510 \parallel $[001]$, β 1.513 \parallel $[100]$, γ 1.517 \parallel $[010]$, $2V_\gamma$ 87° . Cleavage $\{010\}$ perfect, $\{001\}$ and $\{100\}$ good. [A.M. **65**, 207.]
- Morelandite.** P. J. Dunn and R. C. Rouse, 1978. *Can. Mineral.* **16**, 601. Light yellow to grey masses in calcite from Jakobsberg, Sweden, have space group $P6_3$ or $P6_3/m$, a 10.169, c 7.315 Å. D 5.33. Composition $2[\text{Ba}_5(\text{AsO}_4)_3\text{Cl}]$, apatite group. ω 1.880, ε 1.884. Named for G. C. Moreland.
- Nacaphite.** A. P. Khomyakov, M. E. Kazakova, and D. Yu. Pucharovskii, 1980. *Zap.* **109**, 50 (Накафит). Occurs in pegmatites at Mt. Rasvumchorr, Khibinsk massif, Kolsk peninsula; space group $C2ma$, a 10.644, b 24.423, c 7.089 Å. D 2.85. Composition $16[\text{Na}_2\text{CaPO}_4\text{F}]$. α 1.508, β 1.515, γ 1.520, $2V$ 80° . Named for Na, Ca phosphate.
- Nichromite.** S. A. de Waal, 1978. *Bull. B.R.G.M., sér. 2, Sect. II (Géol. Gîtes Minér.)* 225. A spinel from Barberton, South Africa, has Ni and Cr dominant and is named accordingly. [M.A. 79-2875.]
- Nickelbischofite.** W. W. Crook III and J. L. Jambor, 1979. *Can. Mineral.* **17**, 107. Emerald-green aggregates from the Oxford serpentine quarry, Llano Co., Texas, and elsewhere have space group $C2/m$, a 10.318, b 7.077, c 6.623 Å, β 122.37° . D 1.929. Composition $2[\text{NiCl}_2 \cdot 6\text{H}_2\text{O}]$. α 1.589 pale green, β 1.617 \parallel $[010]$, pale green to green, γ 1.644, green, α : $[001] + 8^\circ$, $2V_\gamma$ 87° . Named as 'the nickel analog of bischofite, $\text{MgCl}_2 \cdot 6\text{H}_2\text{O}$, but the two are not isostructural'. [A.M. **65**, 208.]
- Nickel-zippeite.** C. Frondel, J. Ito, R. M. Honea, and A. M. Weeks, 1976. *Can. Mineral.* **14**, 429. A natural member of the zippeite family. $\text{Ni}_2(\text{UO}_2)_6(\text{SO}_4)_3(\text{OH})_{10} \cdot 16\text{H}_2\text{O}$. Joachimsthal, Bohemia.
- Nukundamite.** C. M. Rice, D. Atkin, J. F. W. Bowles, and A. J. Criddle, 1979. *M.M.* **43**, 193. A copper-coloured mineral from the Undu mine, Nukundama, Fiji, is hexagonal, a 3.782, c 11.187 Å. Strongly pleochroic; R_ω 18.8(589), reddish orange, R_e 23.2(589), pale green-grey. Composition $4[(\text{Cu}, \text{Fe})\text{S}]$ with Cu:Fe approx. 5:1. The Undu mine mineral was originally identified with idaite (22nd List), which remains inadequately defined. [M.A. 79-2885]. 'Tarris township', locality for 'idaite', should be Jarvis township, Algoma district, Ontario (Rice, 1980, *M.M.* **43**, 824). [A.M. **65**, 407.]
- Nyererite.** D. McKie and E. J. Frankis, 1977. *Z. Kristallogr.* **145**, 73. Variant of Nyerereite (24th List). [M.A. 78-3479; *Zap.* **109**, 68.]
- Oboyerite.** S. A. Williams, 1979. *M.M.* **43**, 453. Tiny milk-white spherules on opal in two specimens from the Grand Central mine, Tombstone, Arizona, are probably anorthic. Strongest X-ray

- powder lines 3.040(10), 3.180(7), 2.976(5), 2.927(5), 2.862(5). α 2.24, γ 2.26, extinction inclined. Composition near $\text{H}_6\text{Pb}_6(\text{TeO}_3)_3(\text{TeO}_6)_2 \cdot 2\text{H}_2\text{O}$. Named for O. Boyer. [M.A. 80-2243.]
- Ojuelaite.** F. Cesbron, D. Ginderow, M. Romero, and S. A. Williams, 1980. *IMA 12th General Meeting, Coll. Abstr.* 229. Yellow fibres with adamite and, rarely, legrandite from the mine La Ojuela, Mapimi, Durango, Mexico have space group $P2_1/c$, a 10.247, b 9.665, c 5.569 Å, β 94° 22'. Composition $2[\text{ZnFe}^{3+}(\text{AsO}_4)_2(\text{OH})_2 \cdot 4\text{H}_2\text{O}]$.
- Olgite.** A. P. Khomyakov, E. I. Semenov, S. G. Shymyatskaya, I. M. Timoshenkov, I. P. Laputina, and N. N. Smolyaninova, 1980. *Zap.* **109**, 347. (Ольгит). Crystals up to 2 mm from Karnasurt Mtn., Lovozero massif, Kolsk, are trigonal, space-group $P\bar{3}m1$, $P3m1$, or $P321$, a 5.558, c 7.037 Å. D 3.94. Composition $2[\text{Na}(\text{Sr}, \text{Ba})\text{PO}_4]$. ω 1.623, ε 1.619. Named for Ol'ge A. Vorob'ev.
- Omeiite.** Y. Ren, Q. Hu, and J. Xu, 1978. *Acta Geol. Sinica*, **52**, 163. OsAs₂ occurs in a Cu-Ni sulphide deposit in Sichuan (Szechwan) province, China, and is named for the locality O-mei Shan. a 5.409, b 6.167, c 3.021 Å, space group $Pnmm$ or $Pnn2$. R_{589} 42.1%. [M.A. 78-4928; A.M. **64**, 464.]
- Orthobrannerite.** Peking Inst. Uranium Geol. and Wuhan Geol. Coll., 1978. *Acta Geol. Sinica*, **52**, 241. Metamict orthorhombic crystals from Yunnan and Szechwan Provinces, China, are near $\text{U}^{4+}\text{U}^{6+}\text{Ti}_4\text{O}_{12}(\text{OH})_2$. After heating to 620 °C a 7.37, b 11.67, c 6.33 Å. Differs from brannerite morphologically and in the X-ray powder pattern after heating. n 2.33; D 5.46. [M.A. 79-766; A.M. **64**, 656.]
- Oxy-petschekite.** A. Mücke and H. Strunz, 1978. A.M. **63**, 941. $\text{U}^{4+}\text{Fe}_{2/3}^{3+}(\text{Nb}, \text{Ta})_2\text{O}_8$, an oxidation product of petschekite, q.v., occurs intergrown with the latter at Antsakoa, Berere, Madagascar. [M.A. 79-1654.]
- Oxyhowieite.** S. O. Agrell in R. Muir Wood, 1979. M.M. **43**, 363. An oxidized form of howieite (24th List).
- Palladium diantimonide.** J. Graham, 1978. A.M. **63**, 1166. Electron-probe analyses indicate the occurrence of isotropic PdSb₂ at Shepard's Hill quarry, Nairne, South Australia. [M.A. 79-2882.]
- Parakeldyshite.** A. P. Khomyakov, 1977. *Dokl. Akad. Nauk SSSR*, **237**, 7D3. (Паракелдышит). Keldyshite (22nd List) from the Lovozero and Khibina massifs is a mixture; the predominant phase is $\text{Na}_3\text{Zr}_2\text{Si}_4\text{O}_{13}\text{OH} \cdot n\text{H}_2\text{O}$, for which the name keldyshite is retained, with parakeldyshite, anhydrous $\text{Na}_2\text{ZrSi}_2\text{O}_7$ (the composition originally assigned to keldyshite). Anorthic, a 6.66, b 8.83, c 5.42 Å, α 92° 45', β 94° 15', γ 72° 20'.
- Composition $2[\text{Na}_2\text{ZrSi}_2\text{O}_7]$. α 1.670, β 1.697, γ 1.718, $2V_\alpha$ 83°. Also described from Norway, see M.A. 79-2779. [M.A. 79-2886; A.M. **64**, 656.]
- Parakhinite.** S. A. Williams, 1978. A.M. **63**, 1016. $\text{Cu}_3\text{PbTeO}_4(\text{OH})_6$, from the Emerald mine, Tombstone, Arizona, is dimorphous with khinite, q.v. Space group $P6_222$, a 5.753, c 17.958 Å. Dark green; ε 2.120, ω 2.155. Crystals with $\{0001\}$, $\{11\bar{2}0\}$, and $\{11\bar{2}4\}$, up to $\frac{1}{2}$ mm. [M.A. 79-1651.]
- Paranatrolite.** G. Y. Chao, 1980. *Can. Mineral.* **18**, 85. A higher hydrate of natrolite occurs at Mont St. Hilaire, Quebec, readily dehydrating to natrolite. Pseudo-orthorhombic, a 19.07, b 19.13, c 6.580 Å, X-ray powder data near those of gonnardite. Composition $8[\text{Na}_2\text{Al}_2\text{Si}_3\text{O}_{10} \cdot 3\text{H}_2\text{O}]$. D 2.21. Not the paranatrolite of Maier *et al.*, 1964, which was re-hydrated natrolite.
- Parnauite.** W. S. Wise, 1978. A.M. **63**, 704. Pale-blue rosettes and green crusts from the Majuba Hill mine, Pershing Co., Nevada, have probable space group $P2_12_2$, a 14.98, b 14.223, c 6.018 Å. Composition $2[\text{Cu}_2(\text{AsO}_4)_2\text{SO}_4(\text{OH})_{10} \cdot 7\text{H}_2\text{O}]$. α 1.650 || $[010]$ pale green, β 1.704 || $[100]$ yellow-green, γ 1.712 || $[001]$ blue green; $2V_\alpha$ 60°. D 3.09. Named for J. L. Parnau. [M.A. 79-1653; Bull. **102**, 433.]
- Parthéite.** H. Sarp, J. Deferne, H. Bizouard, and B. W. Liebich, 1979. *Schweiz. Mineral. Petrogr. Mitt.* **59**, 5. Radial fibrous aggregates with prehnite and thomsonite in an ophiolite from the Taurus Mtns., Turkey, have space group $C2/c$, a 21.59, b 8.78, c 9.31 Å, β 91.47°. D 2.39. Composition $8[\text{CaAl}_2\text{Si}_2\text{O}_8 \cdot 2\text{H}_2\text{O}]$. α 1.547, β 1.549, γ 1.559, α at 23 to 30° to elongation. Named for E. Parthé. [M.A. 80-4924.]
- Paulmooreite.** P. J. Dunn, D. R. Peacor, and B. D. Sturman, 1979. A.M. **64**, 352. Small tabular crystals from Långban, Sweden, nos. 305 and 49 in Flink's list of unidentified minerals, have space group $P2_1$, a 8.558, b 5.654, c 13.606 Å, β 108.88°. D 6.95. Cleavage $\{001\}$. Forms developed: $\{100\}$, $\{001\}$, $\{011\}$, $\{102\}$, $\{110\}$, and $\{111\}$. $[\text{Pb}_2\text{As}_2\text{O}_5]$. $\alpha > 1.9$, β || $[010]$, γ : $[001]$ 10°, $2V_\gamma$ 65°. Named for Paul B. Moore. [M.A. 79-4120.]
- Pekoite.** W. G. Mumme and J. A. Watts, 1976. A.M. **61**, 15, and *Can. Mineral.* **14**, 322. A new member of the aikinite-bismuthinite series occurs at the Juno mine, Tennant Creek, Northern Territory, Australia. Space group $P2_1am$, a 11.472, b 3×11.248 , c 4.016 Å. Ideal composition $\text{CuPbBi}_1(\text{S}, \text{Se})_{1.8}$. Named for the Peko mine, one of the first in the Tennant Creek gold field. [M.A. 76-2825; *Zap.* **107**, 339.]
- Petschekite.** A. Mücke and H. Strunz, 1978. A.M. **63**, 941. Black metamict crystals from Antsakoa,

- Berere, Madagascar recrystallize on heating to space group $P\bar{3}1m$, a 6.42, c 4.02 Å. $2[\text{Fe}^{2+}\text{U}^{4+}(\text{Nb,Ta})_2\text{O}_8]$. Intergrown with oxypetschekite and hydroxypetschekite, qq.v. Named for E. Petsch. [M.A. 79-1654.]
- Phuralumite.** M. Deliens and P. Piret, 1979. Bull. **102**, 333. Lemon-yellow prismatic crystals from Kobokobo, Kivu, Zaire, have space group $P2_1/a$, a 13.87, b 20.79, c 9.38 Å, β 112°. Composition $4[\text{Al}_2(\text{UO}_2)_3(\text{PO}_4)_2(\text{OH})_6 \cdot 10\text{H}_2\text{O}]$. D 3.5. α 1.559, bright yellow, β 1.616, pale yellow, γ 1.624 pale yellow, $2V_x$ 40°. Named for Phosphorous, Uranium, Aluminium. [A.M. **65**, 208.]
- Polhemusite.** B. F. Leonard, G. A. Desborough, and C. W. Mead, 1978. A.M. **63**, 1153. Tetragonal prisms and bipyramids from the B and B deposit, Big Creek district, Valley Co., Idaho, have a 8.71, c 14.74 Å (from X-ray powder data). Composition variable, (Zn,Hg)S with Hg 18 to 35%. Named for C. Polhemus Ross. [M.A. 79-2887.]
- Prosperite.** R. I. Gait, B. D. Sturman, and P. J. Dunn, 1979. *Can. Mineral.* **17**, 87. Well-developed prismatic crystals in vugs in altered ore at Tsumeb, SW Africa, have space group $C2/c$ or Cc , a 19.252, b 7.737, c 9.765 Å, β 104° 32'. D 4.31. Composition $8[\text{HCaZn}_2(\text{AsO}_4)_2\text{OH} \cdot \text{H}_2\text{O}]$. α 1.746, β 1.748 || [010], γ 1.768, γ : [001] 27°, $2V_\gamma$ 34°, $r \gg v$. Named for Prosper J. Williams. [A.M. **65**, 208.]
- Protoimogolite.** V. C. Farmer, A. R. Fraser, J. M. Tait, F. Palmieri, P. Violante, M. Nakai, and N. Yoshinaga, 1978. *Clay Minerals*, **13**, 271. Clays from Vulture, Potenza, S. Italy, contain an 'amorphous allophanic component which resembles imogolite in composition and infrared spectrum'.
- Putoranite.** A. A. Filimonova, T. L. Evstigneeva, and I. P. Laputina, 1980. Zap. **109**, 335 (Путоранит). A further sulphur-deficient phase near CuFeS_2 occurs in the Oktyabr ore deposits, Norilsk, Siberia. Cubic, a 5.30 Å, composition near $\text{Cu}_9\text{Fe}_9\text{S}_{16}$. A nickeloan variety (Ni c.1½%) is also mentioned.
- Queitite.** P. Keller, P. J. Dunn, and H. Hess, 1979. *Neues Jahrb. Mineral., Monatsh.* 203. Tabular crystals in oxidized lead ore at Tsumeb, SW Africa, have space group $P2_1$, a 11.362, b 5.266, c 12.652 Å, β 108.16°. Composition $2[\text{Pb}_4\text{Zn}_2\text{SO}_4\text{SiO}_4\text{Si}_2\text{O}_7]$. α 1.899 || [010], β 1.901, γ 1.903, $2V$ c.90°, $r \ll v$; γ : [100] 40° for λ 405 nm, -3° for λ 671 nm. Named for C. S. Queit. [M.A. 79-4121; A.M. **64**, 1331, and **65**, 407.]
- Racklidgite, error for Rucklidgite. Zap. **106**, 62.
- Raewolfeite, error for Wroewolfeite. Zap. **106**, 78.
- Rajite.** S. A. Williams, 1979. M.M. **43**, 91. Small green crystals with mackayite (17th List) at Lone Pine, Catron Co., New Mexico, have space group $P2_1/c$ a 6.866, b 9.314, c 7.598 Å, β 109.1°. Composition $4[\text{Cu}_2\text{Te}_2\text{O}_5]$. Pleochroic in greens, $\gamma > \beta > \alpha$; α 2.115, β 2.135 || [010], γ 2.26, $2V_\gamma$ 40°, α : [001] 22° in obtuse β . Named for R. A. Jenkins. [M.A. 79-2889; A.M. **64**, 1331.]
- Ranunculite.** M. Deliens and P. Piret, 1979. M.M. **43**, 321. Buttercup-yellow nodules of pseudo-orthorhombic lamellae || (010) from Kobokobo, Kivu, Zaire have a 11.10, b 17.7, c 18.0 Å, β c.90°. Composition $14[\text{AlHUO}_2\text{PO}_4(\text{OH})_3 \cdot 4\text{H}_2\text{O}]$. α 1.643, pale greenish yellow, β 1.664 (pale yellow), γ 1.670 || [010], yellow; extinction on (010) c.20° to [001]. D_{obs} 3.4. Named from *ranunculus*, a buttercup. [A.M. **65**, 407.]
- Rhenium.** M. B. Rafal'son and N. D. Sorokin, 1976. [*Voprosy Geokhim. Tipomorfizm. Mineral.* **1**, 62], cited in A.M. **63**, 1283. Inclusions (15-50 μm) in wolframite from Transbaikal consist of metallic Re. Metallic Re has also been found in Ca-Al rich inclusions in the Allende meteorite (A. El Goresy, K. Nagel, B. Dominik, and P. Ramdohr, *Meteoritics*, 1977, **12**, 215).
- Rokühnite.** R. von Hodenberg and G. von Struensee, 1980. *Neues Jahrb. Mineral., Monatsh.* 125. Thin plates and rare crystals in the lower Grauer Salztön, Zechstein basin, Hanover, Germany, have space group $C2/m$, a 7.396, b 8.458, c 3.638 Å, β 97.68°. Composition $2[\text{FeCl}_2 \cdot 2\text{H}_2\text{O}]$. α 1.605 || [010], β 1.633, γ 1.703. γ : [001]-49°, $2V_\gamma$ 64°. Readily hydrated and oxidized. Named for Robert Kühn. [M.A. 80-4925.]
- Rosemaryite.** P. B. Moore and J. Ito, 1979. M.M. **43**, 227. The wyllieite family is divided according to the dominant cations in lattice positions M(1) and M(2a). Material with Mn^{2+} dominant in M(1) and Fe^{3+} dominant in M(2a), typified by that from the Rock Ridge pegmatite, Custer, S. Dakota, is named for Mrs F. Rosemary Wyllie. [M.A. 79-2876.]
- Rostite.** F. Čech, 1979. *Neues Jahrb. Mineral., Monatsh.* 193. The mineral from Libušín, Kladno, Bohemia, identified by Rost [M.A. 7-11] as lapparentite (= tamarugite) is named. Khademite (29th List) is identical with rostitite. [M.A. 79-4122; A.M. **64**, 1331.]
- Rynersonite.** E. E. Foord and M. E. Mrose, 1978. A.M. **63**, 709. An alteration product of stibio-tantalite in the Himalaya pegmatites, Mesa Grande district, San Diego Co., California, is the Ta analogue of vigezzite (this List). D 6.40. Space group $Pmnb$, a 7.505, b 11.063, c 5.370 Å, composition $4[\text{Ca}(\text{Ta,Nb})_2\text{O}_6]$. $\alpha > 2.05$ || [001], β || [010] straw yellow, biaxial+. Named for E. B., B. F., and F. J. Rynerson. [M.A. 79-1655.]
- Sabatierite.** Z. Johan, M. Kvacsek, and P. Picot, 1978. Bull. **101**, 557. A strongly anisotropic

- mineral, occurring rarely with crookesite in the Bukov ore deposit, Rožná, Bohemia, gave X-ray data indexed on an orthorhombic cell with a 3.986, b 5.624, c 9.778 Å. Composition $[\text{Cu}_6\text{TiSe}_4]$. R_{max} 27.2 (λ 600 nm), R_{min} 25.3. Named for Germain Sabatier. [M.A. 79-2890; A.M. 64, 1331.]
- Sabinaite.** J. L. Jambor, B. D. Sturman, and G. C. Weatherley, 1980. *Can. Mineral.* 18, 25. Fine-grained coatings in vugs of a silicocarbonatite sill at Montreal Island, Quebec, are monoclinic, a 6.605, b 10.186, c 37.94 Å, β $c.90^\circ$. D 3.36. Composition $8[\text{Na}_9\text{Zr}_{4+x}\text{Ti}_2\text{O}_9(\text{CO}_3)_8]$, with $x = \frac{1}{4}$. α 1.74 nearly normal (001), β 1.80, γ 1.85. Named for A. P. Sabina.
- Satterlyite.** J. A. Mandarino, B. D. Sturman, and M. I. Corlett, 1978. *Can. Mineral* 16, 411. Nodules of yellow to brown grains in shales along the Big Fish River, Yukon Territory, Canada, are a polymorph of wolfeite, space group $P\bar{3}1m$, $P31m$, or $P312$, a 11.361, c 5.041 Å. $6[(\text{Fe},\text{Mg})_2\text{PO}_4\text{OH}]$. D 3.68. ω 1.721 pale yellow, ε 1.719 brownish yellow. Named for J. Satterly. [M.A. 79-4123; A.M. 64, 657.]
- Schieffelinite.** S. A. Williams, 1980. M.M. 43, 771. Plates and scales up to 1 mm, and rare crystals with gold, girdite (this List), and bromargyrite at the Joe mine, Tombstone, Arizona (also at the Grand Central mine) have space group $Cmcm$, a 9.67, b 19.56, c 10.47 Å. D 4.98. Composition $16[\text{Pb}(\text{Te},\text{S})\text{O}_4 \cdot \text{H}_2\text{O}]$ or $2[\text{Pb}_8(\text{TeO}_4)_5(\text{SO}_4)_3 \cdot 8\text{H}_2\text{O}]$. α 1.897 || [010], β 1.940 || [001], γ 1.942 || [100], $2V_\alpha$ 24° . Named for E. Schieffelin.
- Schlossmacherite.** K. Schmetzer, J. Ottemann, and H. Bank, 1980. *Neues Jahrb. Mineral., Monatsh.* 215. A green mineral with cerulite from the Emma Luisa mine, Gunaco (= Huanaco), Taltal, Chile, is a member of the alunite family, with space group $R\bar{3}m$, a_h 6.998, c_h 16.67 Å. Composition near $\text{H}_3\text{OcaAl}_6(\text{SO}_4)_3\text{AsO}_4(\text{OH})_{12}$. Named for K. Schlossmacher. [M.A. 80-4927.]
- Schmiederite**, correct spelling, replacing Schmeiderite. R. S. Mitchell, M.M. 43, 824 (1980).
- Sergeevite.** L. K. Yakhontova, I. I. Plyusnina, T. I. Stolyarova, Yu. K. Egorov-Tismenko, and L. V. Kuleshevich, 1980. *Zap.* 109, 217 (Сергеевит). A weathering product in skarns of the W-Mo deposit, Tyrynauz, USSR; masses up to $\frac{1}{2}$ cm. Possibly trigonal, a_h 18.95, c_h 7.86 Å. Composition $3[\text{Ca}_2\text{Mg}_{11}(\text{CO}_3)_{13} \cdot 10\text{H}_2\text{O}]$.
- Severingite**, error for Severginite. A.M. 64, 636 (1979).
- Shachialite.** Peking Inst. Uranium Geol., 1978. *Sci. Sinica*, 21, 371. An incompletely described silicate of Sr, Ln, and Ti from Shachia massif, Sai-ma, NE China, resembles chevkinite. $\text{Sr} \geq 22\%$, ZrO_2 9.26%. [M.A. 79-1659.]
- Sidorenkite.** A. P. Khomyakov, E. I. Semenov, M. E. Kazakova, and N. G. Shumyatskaya, 1979. *Zap.* 108, 56. (Сидоренкит). The unnamed Na-Mn carbonate from the Mt. Alluaiv region, Lovozero massif, Kola Peninsula, USSR, is named for A. V. Sidorenko. Space group $P2_1/m$ or $P2_1$, a 8.979, b 6.729, c 5.150, β $90^\circ 6'$. D 2.90. Composition $2[\text{Na}_3\text{MnPO}_4\text{CO}_3]$, the Mn analogue of bradleyite (16th List). α 1.521, β 1.563, γ 1.585, $2V_\alpha$ 68° . [A.M. 64, 1332.]
- Silica-GL, -X, -SH_A, -SH_B, -G, -AP, -SN. Artificial, hydrates obtained by action of acids on various minerals. C. Frondel, 1979. A.M. 64, 799.
- Silicalite.** E. M. Flanigen, J. M. Bennett, R. W. Grose, J. P. Cohen, R. L. Patton, R. M. Kirchner, and J. V. Smith, 1978. *Nature*, 271, 512. A new synthetic polymorph of SiO_2 , D 1.76, n 1.39.
- Sodium-zippeite.** C. Frondel, J. Ito, R. M. Honea, and A. M. Weeks, 1976. *Can. Mineral.* 14, 429. The commonest member of the zippeite family; $\text{Na}_4(\text{UO}_2)_6(\text{SO}_4)_3(\text{OH})_{10} \cdot 4\text{H}_2\text{O}$. Orthorhombic, a 8.80, b 68.48, c 14.55 Å.
- Součekite.** F. Čech and I. Vavřín, 1979. *Neues Jahrb. Mineral., Monatsh.* 289. Anhydrous grains up to 10 μm give an X-ray powder pattern similar to those of bournonite and seligmannite, indexed as orthorhombic with a 8.153, b 8.498, c 8.080 Å. Composition $4[\text{CuPbBi}(\text{S},\text{Se})_3]$. Occurs in veins at Oldrichor, Western Bohemia. Named for F. Souček. [A.M. 65, 209.]
- Stavrolite, error for Stauroilite, due to mistransliteration from Ставролит. *Zap.* 1978, 107, no. 2.
- Stellarite.** M. O'Donoghue, 1979. *Gemmological Newsletter*, 8, no. 23. Trade name for a turquoise-like mixture of quartz and chrysocolla (not to be confused with the stellarite of How, 1869).
- Stibiobetafite.** P. Černý, F. C. Hawthorne, J. H. G. Laflamme, and J. R. Hinthorne, 1979. *Can. Mineral.* 17, 583. Granular aggregates and rare octahedra from veins in a pegmatite near Věžná, W. Moravia, have space group $Fd\bar{3}m$, a 10.356 Å, and belong to the pyrochlore group. D_{obs} 5.30. Isotropic, $n > 1.78$. Named in accordance with the recommendations of the IMA commission.
- Stoiberite.** W. Thompson, 1967. *Rocks and Minerals*, 42, 420. Black crusts at one of the fumaroles of the Izalco volcano, El Salvador, are possibly a vanadate of Pb and Cu, and are named for R. E. Stoiber. R. W. Birnie, and J. M. Hughes, A.M. 64, 941 (1979) show that they have space group $P2_1/n$, a 15.654, b 6.054, c 8.385 Å, β $102^\circ 29'$. Composition $4[\text{Cu}_5\text{V}_2\text{O}_{10}]$. [M.A. 80-2246.]
- Streichelite.** R. Muir-Wood, 1979. M.M. 43, 259. An unacceptable name for a variety of zussmanite.

- Surite.** K. Hayase, J. A. Dristas, S. Tsutsumi, R. Otsuka, S. Tanabe, T. Sudo, and T. Nishiyama, 1978. *A.M.* **63**, 1175. A non-expanding clay mineral occurring as compact aggregates in the Cruz del Sur mine, Argentina, has probable space group $P2_1$, a 5.22, b 8.17, c 16.3 Å, β 96.1°. Composition $2[\text{Pb}(\text{Pb}, \text{Ca})(\text{CO}_3)_2(\text{Al}, \text{Fe}, \text{Mg})_2(\text{Si}, \text{Al})_4\text{O}_{10}(\text{OH})_2]$. α 1.693, γ 1.738, extinction straight, elongation +. D_{obs} 4.0. [M.A. 79-2893.]
- Taimyrite.** V. D. Begisov and S. F. Sluzhenikin, 1976. [*Trudy TSNIGRI*, 1967, **122**, 107], abstract in *Zap.* **107**, 326. Grains up to $\frac{1}{2}$ mm in the ores of the Taimyr Peninsula, Talnakh ore deposits, USSR, are orthorhombic, a 5.616, b 4.796, c 13.56 Å. Composition $8[\text{Pd}, \text{Cu}, \text{Pt}]_2\text{Sn}$.
- Tancoite.** R. A. Ramik, B. D. Sturman, P. J. Dunn, and A. S. Povarennykh, 1980. *Can. Mineral.* **18**, 185. Crystals up to 1 mm in length from the Tanco mine, Bernic Lake, Manitoba, have space group $Cmma$, $Cmmb$, $Cm2a$, or $C2mb$, a 7.041, b 14.130, c 6.975 Å. D 2.752. Composition $4[\text{HLiNa}_2\text{Al}(\text{PO}_4)_2\text{OH}]$. Cleavages $\{010\}$ and $\{001\}$. α 1.541 || $[100]$, β 1.563 || $[010]$, γ 1.564 || $\{001\}$.
- Taprobanite.** E. Gübelin, 1979. *Z. Deutsch. Gemm. Ges.* **28**, 194. A red, dichroic gemstone, ϵ 1.717, ω 1.721, D 3.607, from Sri Lanka, is thought to be related to taaffeite (19th List). [M.A. 80-4440.]
- Tellurohauchecornite.** R. I. Gait and D. C. Harris, 1980. *Mineral. Mag.* **43**, 877. The $\text{Ni}_9\text{BiTeS}_8$ end-member of the hauchecornite group, $(\text{Ni}, \text{Co}, \text{Fe})_9\text{ABS}_8$, where A and B are As, Sb, Bi, and Te. Tetragonal.
- Telluropalladinite.** L. J. Cabri, J. F. Rowland, J. H. G. Laflamme, and J. M. Stewart, 1979. *Can. Mineral.* **17**, 589. Eight grains in the heavy-mineral concentrates from the Stillwater complex, Montana, correspond to the synthetic phase Pd_5Te_4 , which has space group $P2_1/c$, a 7.456, b 13.936, c 8.842 Å, β 91.94°. The mineral has a 7.45, b 13.95, c 8.82 Å, β 91.9°. Composition $4[\text{Pd}_5\text{Te}_4]$. D_{obs} 10.25 for synthetic material. R_{589} 49.5%. Named for the composition.
- Tetranatrolite.** T. T. Chen and G. Y. Chao, 1980. *Can. Mineral.* **18**, 77. The tetragonal natrolite of E. K. Andersen, M. Danø, and O. V. Petersen (*Meddels. Grønland*, 1969, **181**, no. 10), from Ilimaussaq, S. Greenland, is named. It also occurs as a dehydration product of paranatrolite (q.v.) at Mont St. Hilaire, Quebec. This material, which is probably a disordered polymorph of natrolite, has space group $I4_2d$ or $I4_1md$, a 13.098, c 6.635 Å. D 2.276. Composition $4[\text{Na}_2\text{Al}_2\text{Si}_3\text{O}_{10} \cdot 2\text{H}_2\text{O}]$. ω 1.481, ϵ 1.496.
- Thadeuite.** A. Isaacs, D. R. Peacor, and W. C. Kelly, 1979. *A.M.* **64**, 359. A yellow-orange mineral from Panasqueira, Portugal, has space group $C222$, a 6.412, b 13.563, c 8.545 Å. D_{obs} 3.25. Composition $4[\text{MgCa}(\text{Mg}, \text{Fe})_2(\text{PO}_4)_2(\text{OH}, \text{F})_2]$. α || $[001]$ 1.568, β || $[010]$ 1.597, γ || $[100]$ 1.600, $2V_\alpha$ 33°. D 3.25. Named for D. Thadeu. [M.A. 79-4124.]
- Thalfenisite.** N. S. Rudashevskii, A. M. Karpenkov, G. S. Shipova, N. N. Shishkin, and V. A. Ryabikin, 1979. *Zap.* **108**, 696. (Талфенисит). The TI analogue of djferfisherite occurs in the Oktyabr deposit, Talnakh; cubic, a 10.29 Å. Composition $[\text{Ti}_6(\text{Fe}, \text{Ni}, \text{Cu})_{25}\text{S}_{26}\text{Cl}]$. Named for Thallium, Fe, Ni, S.
- Threadgoldite.** M. Deliens and P. Piret 1979. *Bull.* **102**, 338. Micaceous greenish-yellow tablets from Kobokobo, Kivu, Zaïre, have space group Cc or $C2/c$, a 20.25, b 9.85, c 19.75 Å, β 111.4°. D 3.4. Composition $8[\text{Al}(\text{UO}_2)_2(\text{PO}_4)_2\text{OH} \cdot 8\text{H}_2\text{O}]$. β 1.583, γ 1.588, $2V_\alpha$ 70°. Named for I. M. Threadgold. [A.M. **65**, 209.]
- Tisinalite.** Yu. L. Kapustin, Z. V. Pudovkina, and A. V. Bykova, 1980. *Zap.* **109**, 223 (Тисиналит). Granular aggregates surrounding koashvite at Mt. Koashva, Khibinsk massif, Kola Peninsula, USSR, belong to the lovozerite family. Rhombohedral, a_{rh} 7.30, α 88° 0'. D 2.66-2.69. Composition $[\text{Na}_3\text{H}_3(\text{Mn}, \text{Ca}, \text{Fe})\text{TiSi}_6(\text{O}, \text{OH})_{18} \cdot 2\text{H}_2\text{O}]$. ω 1.624, ϵ 1.592. Named for Ti, Si, Na.
- Tomichite.** E. H. Nickel and I. E. Grey, 1979. *M.M.* **43**, 469. Small black tabular crystals up to 0.15 mm on a specimen from Kalgoorlie, Western Australia, probably the Perseverance mine, have space group $P2_1/m$ or $P2_1$, a 7.119, b 14.176, c 4.992 Å, β 105.05°. D_{obs} 4.16. R_{589} 16.6%. Composition $2[(\text{V}, \text{Fe})_4\text{Ti}_3\text{AsO}_{13}(\text{OH})]$, related to derbylite $\text{Fe}_3^+\text{Ti}_3\text{SbO}_{13}(\text{OH})$ (1st List). Named for S. A. Tomich. [M.A. 80-2247.]
- Tsumoite.** H. Shimazaki and T. Osawa, 1978. *A.M.* **63**, 1162. Silver-white tabular crystals from the Tsumo mine, Shimane Prefecture, Japan, have space group $P\bar{3}m1$, a 4.422, c 24.05 Å, composition $6[\text{BiTe}]$, D_{obs} 8.16. [M.A. 79-2894.]
- Upalite.** M. Deliens and P. Piret, 1979. *Bull.* **102**, 333. Amber yellow acicular prisms from Kobokobo, Kivu, Zaïre, have space group $Bbcm$ or $Bba2$, a 34.68, b 16.81, c 13.72 Å. D 3.5. Composition $16[\text{Al}(\text{UO}_2)_3(\text{PO}_4)_2(\text{OH})_3]$. α 1.649, colourless, β 1.666, canary yellow, γ 1.676, canary yellow, $2V_\alpha$ 74°. Named for P , U , Al . [A.M. **65**, 208.]
- Uranozirzite,** error for Uranocircite, *Zap.* 1979, **108**, no. 2.
- Uytendogaardtite.** M. D. Barton, C. Kieft, E. A. J. Burke, and I. S. Oen, 1978. *Can. Mineral.* **16**, 651. Blebs up to 100 μm with acanthite, electrum, and quartz at Tambang Sawah, Benkoelen

- district, Sumatra, also at the Comstock lode, Storey Co., Nevada, and Smeinogorski, Altai, USSR, have space group $P4_122$ or $P4_1$, a 9.68, c 9.81 Å. Composition $8[\text{Ag}_3\text{AuS}_2]$. R_{max} 33.3, R_{min} 30.5 at λ 589 nm. Named for W. Uytendogaardt. [A.M. 65, 209.]
- Veatchite-A.** I. Kumbasar, 1979. A.M. 64, 362. A third polymorph of veatchite (15th List) occurs in the Emet colemanite deposit, Kütahya, Turkey. Anorthic, a 20.80, b 11.72, c 6.63 Å. α 90°, β 90° 48', γ 91° 57'. Composition $4[\text{Sr}_2\text{B}_{11}\text{O}_{16}(\text{OH})_5 \cdot \text{H}_2\text{O}]$, α 1.549 || [001], γ 1.621 || [010], $2V_\gamma$ 25° ± 1°, $r < v$ strong. Named as an *anorthic* polytype. [M.A. 79-4125.]
- Versiliaite.** M. Mellini, S. Merlino, and P. Orlandi, 1979. A.M. 64, 1230 and 1235. This mineral occurs with apuanite (this List) and schafarzikite (9th List) in black aggregates from the Buca della Vena mine, Stazzema in the Versilia valley, Tuscany, and has space group *Pbam*, a 8.499, b 8.326, c 11.935 Å. D 5.12. Composition $2[\text{Fe}_2^{3+}\text{Fe}_4^{3+}\text{Sb}_6^{3+}\text{O}_{16}\text{S}]$. R_{589} 17-18%.
- Vigezzite.** S. Graeser, H. Schwander, H. Hänni, and V. Mattioli, 1979. M.M. 43, 459. Orange-yellow prismatic crystals from Orcesco, Valle Vigezzo, northern Italy, have space group *Pmnb* or $P2_1nb$, a 7.559, b 11.03, c 5.36 Å. Composition $4[(\text{Ca,Ce})(\text{Nb,Ta,Ti})_2\text{O}_6]$, isostructural with rynersonite (this List) and aeschynite. α 2.14 || [001], γ 2.315 || [100], no pleochroism. [M.A. 80-2248.]
- Vitusite.** J. G. Rønso, A. P. Khomyakov, E. I. Semenov, A. A. Voronkov, and V. K. Garanin, 1980. *Neues Jahrb. Mineral., Abh.* 137, 42. Irregular grains with natrolite from the pegmatite vein Yubileynayn, Mt. Karnasurt, Lovozero, Kola Peninsula, USSR, have space group *Pcmb* or $Pc2_1b$, a 5.36, b 18.68, c 13.96 Å. D 3.60. Composition $8[\text{Na}_3(\text{Ce,L a,Nd})(\text{PO}_4)_2]$. α 1.602 || [100], β 1.650 || [001], γ 1.654 || [010], $2V_\alpha$ 30°. The mineral also occurs at Ilimaussaq, S. Greenland, with a 5.342, b 18.680, c 14.062 Å, α 1.6038, β 1.6465, γ 1.6490, $2V_\alpha$ 28½%. Named for Vitus Bering. [M.A. 80-2249.]
- Warikahnite.** P. Keller, H. Hess, and P. J. Dunn, 1979. *Neues Jahrb. Mineral., Monatsh.* 389. Pale yellow crystals from the Tsumeb mine, S.W. Africa, are anorthic, a 6.710, b 8.989, c 14.533 Å, α 105.59°, β 93.44°, γ 108.68°. $D \geq 4.24$. Composition $4[\text{Zn}_3(\text{AsO}_4)_2 \cdot 2\text{H}_2\text{O}]$. Cleavage {001} perfect, {010} and {100} good. α 1.747, β 1.753, γ 1.768, $2V_\gamma$ c.75°. Extinction on {010}; γ' : [100] 47°. One optic axis nearly \perp {001}. Named for Walter Richard Kahn. [M.A. 80-2250.]
- Wherlite, error for Wehrlite (of Huot), Zap. 1978, 107, no. 5.
- Winstanleyite.** S. A. Williams, 1979. M.M. 43, 453. Yellow cubes and cubo-octahedra from the Grand Central mine, Tombstone, Arizona, have space group *Ia3*, a 10.963 Å. Composition $8[\text{TiTe}_3\text{O}_8]$, with some replacement of Ti by Fe. D_{obs} 5.57. n 2.34. Named for B. J. Winstanley. [M.A. 80-2243.]
- Yoshikawaite.** J. Suzuki and M. Ito, 1973. *J. Japan. Assoc. Mineral. Petrol. Econ. Geol.* 68, 353. Crusts on a weathered serpentinite at Yoshikawa, Aichu Prefecture, Japan, have composition $\text{Mg}_5(\text{CO}_3)_4(\text{OH})_2 \cdot 8\text{H}_2\text{O}$, a higher hydrate of hydromagnesite, to which it decomposes at 150 °C. Principal X-ray powder spacings 5.887(100), 33.2(62), 2.933(57), 10.82(55), 4.206(38). α 1.515, β 1.521, γ 1.522. [Zap. 107, 331.]
- Yttromicrolite.** W. W. Crook III, 1979. A.M. 64, 890. Topotype hjelmite from the Kararfvet mine, Falun, Sweden, have been re-examined and shown to be the Ta analogue of ytropyrochlore (Y predominant in A of $\text{AB}_2(\text{O,OH,F})_7$, Ta predominant in B). In accordance with the recommendations of the IMA Commission on New Minerals and Mineral Names, the name yttromicrolite should replace hjelmite. [M.A. 80-2251.]
- Zinc-zippeite.** C. Frondel, J. Ito, R. M. Honea, and A. M. Weeks, 1976. *Can. Mineral.* 14, 429. A natural member of the zippeite family. $\text{Zn}_2(\text{UO}_2)_6(\text{SO}_4)_3(\text{OH})_{10} \cdot 16\text{H}_2\text{O}$. Hillside mine, Bagdad, Yavapai Co., Arizona.
- Zýkaite.** F. Čech, J. Jansa, and F. Novák, 1978. *Neues Jahrb. Mineral., Monatsh.* 134. $\text{Fe}_4^{3+}(\text{AsO}_4)_3\text{SO}_4\text{OH} \cdot 15\text{H}_2\text{O}$ occurs in the dumps at Kaňk, Kutna Hora, Czechoslovakia, as greyish-white nodules up to 3 cm. a 20.853, b 7.033, c 36.991 Å. D 2.50, β 1.632, γ 1.646 || elongation. Named for Dr V. Zýka, of Kutna Hora. [M.A. 78-4934; A.M. 63, 1284; Zap. 109, 75.]