

# Seventh supplementary list of British Isles minerals (Irish)

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It is an unbelievable fact that there are no reference works on mineral occurrences in Ireland more recent than the *Manual of the Mineralogy of Great Britain and Ireland* of Greg and Lettsom (1858). The position in Great Britain is only slightly better, owing to the existence of regional works such as Collins' (*Mineralogy of Cornwall and Devon* (1871, 1892), and Heddle's *Mineralogy of Scotland* (1901). Consequently, the research worker, museum curator and collector, alike, is forced to search numerous journals and other sources for up-to-date information on individual minerals, the mineralogy of specific areas, or the position and geological setting of mineral localities.

L. J. Spencer was the first to recognize this deficiency and he published the occasional Supplementary Lists of British Minerals, as supplements to the species listed in Greg and Lettsom (1858). The first two lists (Spencer, 1898 and 1931) give the author's name and date of publication for each mineral, but not the complete reference. This omission has been rectified painstakingly in the recent past (Macpherson, 1983). The Third and Fourth Supplementary Lists in this series (Spencer, 1958; Embrey, 1977, 1978) contain full citations of original sources and include some unpublished data. In the absence of modern reference texts, these lists are an important and quick source of information, and give an opportunity to record occurrences that might otherwise remain unpublished, but they are infrequent and in recent years the task of compiling them from the growing literature has become onerous. Livingstone and Macpherson (1983) recognised the advantages of regional lists and published the Fifth Supplementary List of British Minerals

(Scottish), which includes minerals occurring in Scotland and not previously recorded in the British Isles. The pattern of Livingstone and Macpherson's Scottish list has been followed by Bevins (1988) in the Sixth Supplementary List of British Isles Minerals (Welsh) and in this Seventh Supplementary List.

Of the 770 or so mineral species known from the British Isles, about 360 occur in Ireland. Forty of these Irish minerals are listed here since they are not mentioned by Greg and Lettsom (1858) or in earlier Supplementary Lists. In addition, cristobalite, ferroaugite, offretite, phosphosiderite, pseudobrookite and tyrolite, which appeared in the Fifth Supplementary List (Scottish), have been included as extra information has become available; polybasite appears also in the Sixth Supplementary List (Welsh), and hidalgite in the Fourth Supplementary List. Twelve chemically distinct varieties, new to the British Isles, also seemed to be of sufficient interest to warrant inclusion. Where appropriate, non-Irish occurrences are briefly mentioned for comparison. Macpherson (1983) refers to Irish localities for beraunite, melilite, morenosite and chloropal [nontronite], whose previous inclusion in the First and Second Supplementary Lists was based on incorrect or uncertain identifications in Cornwall and Scotland; these minerals are omitted from the present list.

Two classes of minerals, the zeolites and the sulphosalts, feature prominently in the present list, in both cases largely because of the recent growth in mining and quarrying. The Antrim basalts have long been quarried and a notable source of zeolites. This list adds eight rare zeolites

to the 20 or so species already recorded from this area. The addition of twelve rare sulphosalts is the result of two decades of vigorous exploration of metalliferous deposits in the Republic of Ireland. Indeed, about half the entries in the list below can be attributed to this activity. The list includes two new species, gobbinsite and gortdrumite.

A glossary of Irish minerals is being prepared by the authors, who would be glad to receive any additional information relating to Irish minerals.

### Acknowledgements

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- Amesite*  
(Mg,Fe<sup>2+</sup>)<sub>2</sub>Al<sub>2</sub>SiO<sub>5</sub>(OH)<sub>4</sub> Triclinic  
Matrix mineral in an altered composite quartz-feldspar porphyry in a zone of Cu–Pb–Zn–Ag mineralization near Charlestown, Co. Mayo. A. Poustie, in Brown and Pyne, eds. (1982) 97–107. [Recorded from Derbyshire by W. A. S. Sarjeant (1967) *Mercian Geol.* **2**, 85–95, but not confirmed by subsequent work.]
- Argyrodite*  
Ag<sub>8</sub>GeS<sub>6</sub> Orthorhombic  
Massive anhedral intergrowths in baryte, in association with other silver minerals, from a silver-rich pod cutting massive pyrite in the B zone at Silvermines, Co. Tipperary; XRD and electron microprobe identification. C. Gasparrini (1978) unpubl. report, Minmet Scientific, Toronto, Canada; S. Taylor and C. J. Andrew (1979) *Trans. Inst. Mining Metall.*, sect. B, **88**, 125; C. J. Andrew and R. A. D. Patrick, paper in preparation. A single grain was also detected in the Navan Zn–Pb deposit, Co. Meath. C. J. Andrew and J. H. Ashton (1985) *Trans. Inst. Mining Metall.*, sect. B, **94**, 66–93. [First germanium mineral from the British Isles.]
- Biotite, chromian*  
M. D. Max *et al.* (1983). See under muscovite (var. chromian phengite).
- Brannerite*  
(U,Ca,Y,Ce)(Ti,Fe)<sub>2</sub>O<sub>6</sub> Monoclinic  
Reported from Grenan, Thomastown, Co. Kilkenny, associated with the hematized cores of pale-green reduction spots in purple to red Devonian sandstones. R. Steiger and T. N. McKillen (1978) *Irish Base Metals/Tara Exploration Report* (IGS Open File). [The electron microprobe data given (U 17.4, Ti 14, Fe 5.6%) do not fit brannerite.] In dolomitized greywackes at Gortdrum mine, near Tipperary, Co. Tipperary; a grain (90 μm) was analysed by electron microprobe. M. J. Duane (1981) unpubl. Ph.D. thesis, University of Dublin; M. J. Duane, H. J. Welke and H. L. Allsopp (1986) *Geology* **14**, 477–80.
- Brushite*  
CaHPO<sub>4</sub>.2H<sub>2</sub>O Monoclinic  
Thin crusts of minute colourless platy crystals from the interior of a human skull found in a cave near Kilkenny, Co. Kilkenny. BM(NH) specimen BM 1966, 512.
- Coxenite*  
Fe<sub>3</sub><sup>+</sup>(PO<sub>4</sub>)<sub>3</sub>(OH)<sub>3</sub>.12H<sub>2</sub>O (approx.) Hexagonal  
Yellow fibrous radiating aggregates (≤2 mm) and golden-brown translucent spherules, with pyrolusite and wavellite in a quartzose gossan, from stream bank opposite the old fort of Lismeenagh, Ballycormick, near Shanagolden, Co.

Limerick. Several specimens in BM(NH), collected by A. Russell in 1943. [Cacoxenite was later found at Castle-an-Dinas mine and Wheal Phoenix, Cornwall, and at Burdell Gill, Caldbeck Fells, Cumbria; BM(NH) specimens.]

#### Chabazite, magnesian

This zeolite group with  $Mg < Ca$  and  $Mg > Ca$  occurs at Island Magee, Co. Antrim, and is under investigation; material with  $Mg > Ca$  may represent a new species. I. Adair, pers. comm., 1986.

#### Chalcomenite

$CuSeO_3 \cdot 2H_2O$  Orthorhombic

Blue crystals ( $\leq 0.4$  mm) on joint surfaces of black shale from coastal cliffs near Doon East, north of Ballybunnion, Co. Kerry. J. G. Francis, and G. Ryback (1987) *Mineral. Mag.* **51**, 751.

#### Cinnabar, cadmian

A vein of massive cadmian cinnabar (ca. 1.5% Cd), with inclusions of cadmian metacinnabarite (11.1% Cd) and mercurian sphalerite (12.9% Hg), occurred in the topmost part of the ore deposit at Gortdrum mine, near Tipperary, Co. Tipperary. G. M. Steed in Andrew *et al.*, eds. (1986) 481–99.

#### Clinoptilolite

$(Na, K, Ca)_3Al_3Si_{15}O_{36} \cdot 12H_2O$  Monoclinic

Transparent flat prism up to 5 mm long in cavities in tholeiitic basalt at Port Noffer, Giant's Causeway, Co. Antrim; XRD and electron microprobe identification. I. Adair, pers. comm., 1986. [First record of undoubted clinoptilolite from the British Isles. Microscopic authigenic crystals of zeolites with composition and properties intermediate between those of clinoptilolite and heulandite occur in sediments in SE England. G. Brown *et al.* (1969) *Mineral. Mag.* **37**, 480–8.]

#### $\alpha$ -Cristobalite

$SiO_2$  Tetragonal

Minute white pellets, in streaked-out vesicles and on the walls of a fissure, in quartz-trachyte at Glynn Hill, near Larne, Co. Antrim. E. M. Patterson (1951) *Proc. R. Irish Acad.* **53B**, 265–87. Also in a porcellanite xenolith thermally metamorphosed by the dolerite plug at Tievebulliagh, near Cushendall, Co. Antrim. S. O. Agrell and J. M. Langley (1958) *Proc. R. Irish Acad.* **59B**, 93–127. [Also from Rockall, see Fifth Supplementary List (Scottish), and from localities in England. The variety *lussatite* appeared in the First Supplementary List (see Macpherson, 1983).]

#### Cylindrite

$Pb_3Sn_4FeSb_2S_{14}$  Triclinic

Intergrown with colloform galena in the Navan Zn–Pb deposit, Co. Meath; several grains with typical concentric texture identified optically and confirmed by XRD. C. J. Andrew and J. H. Ashton (1985) *Trans. Inst. Mining Metall.*, sect. B, **94**, 66–93; C. J. Andrew, pers. comm., 1986.

#### Enargite

$Cu_3AsS_4$  Orthorhombic

At Tynagh mine, near Killimor, Co. Galway, as symplectic intergrowths with tennantite, or with bournonite which apparently replaces tennantite; as fine to medium grained anhedral aggregates with tennantite; and as inclusions in galena. R. W. Schultz (1968) Unpub. Ph.D. thesis, University of Dublin; C. J. Morrissey (1970) Unpub. Ph.D. thesis, University of London; C. Gibson (1979) Unpub. Ph.D. thesis, University of Wales. Listed without details by R. W. Schultz (1966) *Econ. Geol.* **61**, 1443–59, and by C. J. Morrissey *et al.* (1971) *Trans. Inst. Mining Metall.*, sect. B, **80**, 174–85. [Also from southern Scotland, R. C. Leake and M. J. Brown (1979) *Trans. Inst. Mining Metall.*, sect. B, **88**, 177–81.]

#### Famatinite

$Cu_3(Sb, As)S_4$  Tetragonal

With tennantite in the Tynagh orebody, near Killimor, Co. Galway; optical identification. R. W. Schultz (1968) Unpub. Ph.D. thesis, University of Dublin. [D. J. Vaughan and R. A. Ixer (1980) *Trans. Inst. Mining Metall.*, sect. B, **89**, 99–109, give an occurrence of famatinite ('stibiolumonite') in Yorkshire, based on an electron microprobe analysis.]

#### Ferroaugite

$(Ca, Fe^{2+}, Mg)(Si, Al)_2O_6$  Monoclinic

In basic hybrid rocks at Barnavave, Carlingsford, Co. Louth. S. R. Nockolds (1935) *Geol. Mag.* **72**, 289–315. [Approximate analysis and optical data for 'hypersthene-augite', p. 309, indicate a ferroaugite.] Also in an orthophyre vein in dolerite at Portrush, Co. Antrim. R. J. Murray (1954) *Geol. Mag.* **91**, 17–31 (analysis, p. 22). [Also recorded from Scotland, see Fifth Supplementary List (Scottish); I. S. E. Carmichael (1960) *Mineral. Mag.* **32**, 587–608; and M. J. O'Hara (1961) *Ibid.* 848–65.]

#### Ferrohortonolite

(Fo 10–30) Orthorhombic

Small rounded grains (Fo 25) surrounded by serpentine in an orthophyre vein in dolerite at

Portrush, Co. Antrim. R. J. Murray (1954) *Geol. Mag.* **91**, 17–31. [First report of natural ferrohortonolite in the British Isles. J. Phemister (1942) *Trans. Geol. Soc. Glasgow* **20**, 238–47, gives an occurrence in spent fused shale from a retort in Scotland.]

#### *Franckeite*

$Pb_3Sn_3Sb_2S_{14}$  Triclinic

As a fine exsolution(?) intergrowth in coarse grained galena, Navan Zn–Pb deposit, Co. Meath; a single specimen, identified optically. C. J. Andrew and J. H. Ashton (1985) *Trans. Inst. Mining Metall.*, sect. B, **94**, 66–93; C. J. Andrew, pers. comm., 1987.

#### *Gobbsinite*

$Na_5Al_5Si_{11}O_{32} \cdot 12H_2O$  Orthorhombic

A new species, occurring as compact radiating masses filling cavities in amygdaloidal basalt near Hills Port, south of The Gobbins, Island Magee, Co. Antrim. Also at Two-Mouth Cave, Portmuck, Island Magee, and as aggregates of minute crystals at Dunseverick, near Giant's Causeway, Co. Antrim. The composition of the material from the last two localities deviates considerably from the ideal formula. R. Nawaz and J. F. Malone (1982) *Mineral. Mag.* **46**, 365–9; R. Nawaz (1982) *Irish Naturalists J.* **20**, 480–3; *idem* (1983) *Mineral. Mag.* **47**, 567–8; L. B. McCusker, C. Baerlocher and R. Nawaz (1985) *Z. Kristallogr.* **171**, 281–9; R. Nawaz, unpublished data.

#### *Gortdrumite*

$(Cu,Fe)_6Hg_2S_5$  Orthorhombic

A new species from Gortdrum mine, near Tipperary, Co. Tipperary; grains up to 0.2 mm long, with chalcopyrite, bornite, chalcocite and cinnabar, in a small vein of ferroan dolomite and baryte. G. M. Steed (1983) *Mineral. Mag.* **47**, 35–6.

#### *Gratonite*

$Pb_9As_4S_{15}$  Trigonal

Inclusions in galena, Tynagh mine, near Killimor, Co. Galway. C. Gibson (1979), quoted by J. A. Clifford *et al.*, in Andrew *et al.*, eds. (1986) 419–39.

#### *Gütermanite*

$Pb_{10}As_6S_{19}(?)$

Listed without details from Silvermines, Co. Tipperary, by C. J. Morrissey *et al.* (1971) *Trans. Inst. Mining Metall.*, sect. B, **80**, 174–85, and with the formula  $Pb_3As_2S_6$ , by C. J. Andrew, in Andrew *et al.*, eds. (1986) 377–417. [The true nature of gütermanite is obscure. M. H. Hey (1962) *An Index of Mineral Species and Varieties*, 2nd edn. London, BM(NH).]

#### *Hawleyite*

$\beta$ -CdS

Cubic

Both hawleyite and greenockite ( $\alpha$ -CdS) occur in the secondary orebody at Tynagh, near Killimor, Co. Galway, forming powdery impregnations and deposits. C. J. Morrissey (1970) Unpub. Ph.D. thesis, University of London. [Also from Ashover, Derbyshire. M. E. Smith (1982) *J. Russell Soc.* **1**, No. 1, 26–32.]

#### Hercynite, zincian

At Narin (Naran), Co. Donegal, as a breakdown product of zincian staurolite within the aureole of the Ardara pluton; 7.02% ZnO. B. P. Atkin (1978) *Mineral. Mag.* **42**, 237–9.

#### *Herschelite*

$(Na,K)AlSi_2O_6 \cdot 3H_2O$

Trigonal

Platy and rhombohedral crystals in cavities in basalt, from Island Magee, and from Benanouran Head and other areas of the Giant's Causeway, Co. Antrim; XRD and electron microprobe identification. Some samples have  $K > Na$ . I. Adair, pers. comm., 1986.

#### Heulandite, magnesian

A heulandite-like mineral with, in some cases,  $Mg > (Ca + Na + K)$ , from Island Magee, Co. Antrim, is under investigation; possibly a new species. R. Nawaz and I. Adair, unpublished data.

#### *Hidalgoite(?)*

$PbAl_3(SO_4)(AsO_4)(OH)_6$

Trigonal

May occur with beudantite as a secondary mineral at Tynagh mine, near Killimor, Co. Galway, forming a pale green powder; tentative identification based on XRD pattern and mean refractive index similar to those of hidalgoite. C. J. Morrissey (1970) Unpub. Ph.D. thesis, University of London. [An incompletely characterised mineral close to hidalgoite was recorded in 1964 from Cornwall, see Fourth Supplementary List.]

#### *Hyalosiderite*

$(Fo\ 50-70)$

Orthorhombic

Grains in the central olivine-poor dolerite of a dyke on NE shore of Lower Lough Erne, Co. Fermanagh. J. Preston (1967) *Sci. Proc. R. Dublin Soc.* **3A**, 1–16. (Fo 60–70, optical determination.)

In Lias xenoliths in the Portrush dolerite sill, Castle Island, Portrush, Co. Antrim. J. R. Hawkes and H. E. Wilson (1975) *Bull. Geol. Survey G.B.* No. 51, 1–19. (Fo 55, XRD determination, p. 6.)

As groundmass component of dolerites and gabbros in the central Slieve Gullion Complex, Co. Armagh. J. A. Gamble (1982) *Mineral. Mag.* **46**, 103–10. (Fo 56–77, electron microprobe analyses.)

#### Ilmenite, manganooan

Ilmenite grains in a diorite and an adamellite from the Leinster Granite contain up to 12.77% MnO. R. Elsdon (1975) *Mineral. Mag.* **40**, 419–21.

#### Jalpaite

Ag<sub>3</sub>CuS<sub>2</sub> Tetragonal

In a complex intergrowth of silver sulphosalts in the Zn–Cd deposit at Keel, Ardagh, Co. Longford; identified optically and by electron microprobe analysis. J. M. Patterson (1970) Unpub. Ph.D. thesis, University of London. Listed by M. J. Morrissey *et al.* (1971) *Trans. Inst. Mining Metall.*, sect. B., **80**, 174–85.

#### Lazulite

(Mg,Fe<sup>2+</sup>)Al<sub>2</sub>(PO<sub>4</sub>)<sub>2</sub>(OH)<sub>2</sub> Monoclinic

Aggregates of blue anhedral grains (<0.5 mm) forming rare small patches in white Dalradian quartzite, Achill Island, Co. Mayo; qualitative EDS analysis shows P, Al, Mg and Fe. P. O'Connor and E. Farley, unpublished data. (Specimen in possession of G. Peche of Sandford, Co. Dublin.) [Lazulite was recorded from the Haddo House complex, NE Scotland, by C. D. Gribble (1968) *Contrib. Mineral. Petrol.* **17**, 315–30, but this may have been grandidierite, see R. K. Herd *et al.* (1984) *Mineral. Mag.* **48**, 401–6.]

#### Lithiophilite

LiMnPO<sub>4</sub> Orthorhombic

An accessory mineral in spodumene-rich portions of lithium pegmatites associated with the Leinster Granite at Aclare, near Myshall, Co. Carlow. R. Steiger and O. von Knorring (1974) *J. Earth Sci. (Leeds)* **8**, 433–43.

#### Manganaxinite

Ca<sub>2</sub>Mn<sup>2+</sup>Al<sub>2</sub>BSi<sub>4</sub>O<sub>15</sub>(OH) Triclinic

Veinlets up to 2 cm across of yellowish-brown fan-shaped masses in quartz, from an Fe–Mn deposit at Calliagh, 8 km SW of Monaghan, Co. Monaghan. E. Farley and D. Doff, paper in preparation. [Erroneously reported as idocrase by J. P. O'Reilly (1891) *Proc. R. Irish Acad.*, ser. 3, **1**, 446–50. A BM(NH) specimen labelled idocrase from this locality, collected by A. Russell in 1943, has also been shown to be an axinite group mineral by XRD (A. M. Clark, pers. comm., 1986).]

#### Manganotantalite

MnTa<sub>2</sub>O<sub>6</sub> Orthorhombic

Irregular to platy crystals, dark-red, brown, or black, as an accessory mineral in lithium pegmatites associated with the Leinster Granite at Stranakelly, near Shillelagh, Co. Wicklow; no compositional data given. R. Steiger and O. von Knorring (1974) *J. Earth Sci. (Leeds)* **8**, 433–43. [O. von Knorring and E. Condliffe (1984) *Mineral. Mag.* **48**, 443–8, report electron microprobe analyses of manganotantalite from Meldon, Devon.]

#### Matildite(?)

AgBiS<sub>2</sub> Hexagonal

Tentatively identified in mineralized microgranite and vein quartz at Ballinglen, between Tinahely and Aughrim, Co. Wicklow. R. Steiger and A. Bowden, *in* Brown and Pyne, eds. (1982) 108–14. [A mineral close to matildite in composition is reported from Perthshire. R. A. D. Patrick (1984) *Mineral. Mag.* **48**, 85–91.]

Merlinoite-like mineral Orthorhombic

Single-crystal XRD photographs of gobbinsite from the type locality (see above) indicate the presence of an oriented second phase with cell dimensions and Miller indices similar to those of merlinoite. R. Nawaz and J. F. Malone (1982) *Mineral. Mag.* **46**, 365–9.

#### Metacinnabarite, cadmian

G. M. Steed (1986). See under cinnabar, cadmian.

#### Miargyrite

AgSbS<sub>2</sub> Monoclinic

With tennantite at Tynagh mine, near Killimor, Co. Galway. R. W. Schultz (1968) Unpub. Ph.D. thesis, University of Dublin. Arsenian miargyrite, as exsolutions in and intergrowths with unspecified Bi–As–Sb sulphosalts, is recorded from a silver-rich pod cutting massive pyrite in the B zone at Silvermines, Co. Tipperary. C. Gasparrini (1978) unpubl. report, Minmet Scientific, Toronto, Canada; C. J. Andrew, pers. comm., 1987.

#### Microlite

(Ca,Na)<sub>2</sub>Ta<sub>2</sub>O<sub>6</sub>(O,OH,F) Cubic

An accessory mineral in lithium pegmatites associated with the Leinster Granite at Stranakelly, near Shillelagh, Co. Wicklow, forming grey, yellowish or brown irregular grains or, occasionally, small octahedral crystal; the microlite is uraniferous. R. Steiger and O. von Knorring (1974) *J. Earth Sci. (Leeds)* **8**, 433–43. [Also from

Meldon, Devon. O. von Knorring and E. Condliffe (1984) *Mineral. Mag.* **48**, 443–8.]

#### Minnesotaite

$(\text{Fe}^{2+}, \text{Mg})_3\text{Si}_4\text{O}_{10}(\text{OH})_2$  Monoclinic

Minor constituent of Lower Carboniferous cherty ironstones at Tynagh, near Killimor, Co. Galway, as aggregates of fibres up to 0.15 mm long, associated with stilpnomelane and hematite. R. W. Schultz (1966) *Econ. Geol.* **61**, 311–42. [Also from the Lizard, Cornwall. A. H. Clarke (1970) *Am. Mineral.* **55**, 283–4.]

#### Minrecordite

$\text{CaZn}(\text{CO}_3)_2$  Trigonal

As minute (1  $\mu\text{m}$ ) intergrowths in calcite occurring in close association with sphalerite in dolomitized limestone adjacent to the Zn–Pb orebody at Navan, Co. Meath; revealed by its electron diffraction pattern. H. Kucha and A. Wiczorek (1984) *Mineral. Depos.* **19**, 208–16.

#### Muscovite (var. chromian phengite)

Green (0.59–1.24%  $\text{Cr}_2\text{O}_3$ ) muscovites showing varying degrees of fuchsite, paragonitic and particularly phengitic substitution occur in a peculiar schist within a complex shear zone at Scotchport Bay, NW of Belmullet, Co. Mayo; some are chromian phengites approaching mariposite in composition. Associated minerals are chromian biotite (up to 0.94%  $\text{Cr}_2\text{O}_3$ ), chromian rutile (ca. 1%  $\text{Cr}_2\text{O}_3$ ), and quartz. M. D. Max, P. J. Treloar, J. A. Winchester and M. J. Oppenheim (1983) *Mineral. Mag.* **47**, 359–64.

#### Offretite

$(\text{K}_2, \text{Ca}, \text{MgNa}_2)_6\text{Al}_{12}\text{Si}_{24}\text{O}_{72} \cdot 72\text{H}_2\text{O}$  Hexagonal

Offretite with unusually high refractive indices, and therefore low Si:Al ratio, was identified optically in a specimen of basalt from Coulters quarry, Ballyclare, Co. Antrim, as an intergrowth with levynite. R. Nawaz (1978) *Irish Naturalists J.* **19**, 249. [Also from Skye, see Fifth Supplementary List (Scottish).]

#### Paranatrolite

$\text{Na}_2\text{Al}_2\text{Si}_3\text{O}_{10} \cdot 3\text{H}_2\text{O}$  Orthorhombic

Detected in powder XRD photographs of tetranatrolite (q.v.) from Island Magee, Co. Antrim, and also optically in the fibrous aggregates by its higher refringence. R. Nawaz, unpublished data on UM specimen.

#### Paulingite

$\text{Na}_{14}\text{K}_{36}\text{Ca}_{61}\text{Al}_{172}\text{Si}_{500}\text{O}_{1344} \cdot 705\text{H}_2\text{O}$  Cubic

Colourless, transparent or translucent, rhombic dodecahedral crystals ca. 1 cm across in cavities

in tholeiitic basalt from two localities at the Giant's Causeway, Co. Antrim; XRD and electron microprobe identification. I. Adair, pers. comm., 1986.

#### Pearceite

See under polybasite.

#### Phosphosiderite

$\text{FePO}_4 \cdot 2\text{H}_2\text{O}$  Monoclinic

Blue metastrengite [phosphosiderite] is recorded as a secondary mineral in albite–microcline–quartz pegmatites containing disseminated spodumene, at Sheskinnamadra, near Tomduff, Co. Carlow. R. Steiger and O. von Knorring (1974) *J. Earth Sci. (Leeds)* **8**, 433–43. [Also recorded from Scotland, see Fifth Supplementary List (Scottish).]

#### Platinum, iridian

Electron microprobe analysis of a grain of alluvial platinum from auriferous sand, Croghan Kinshela Mtn., Co. Wicklow, showed 10.86% Ir. P. S. Doughty, A. M. Clark and G. C. Jones (1982) *Irish Naturalists J.* **20**, 490–1.

#### Polybasite–pearceite

$\text{Ag}_{16}\text{Sb}_2\text{S}_{11}\text{–Ag}_{16}\text{As}_2\text{S}_{11}$  Monoclinic

Minerals of this series occur as accessory ore minerals at Tynagh mine, near Killimor, Co. Galway. R. W. Schultz (1966) *Econ. Geol.* **61**, 1443–59; *idem* (1968). Unpub. Ph.D. thesis, University of Dublin. [Also from the Dolgelly gold belt, Gwynedd, see Sixth Supplementary List (Welsh). Polybasite was recorded in 1853 from Cornwall but the occurrence is unconfirmed (Macpherson, 1983). Pearceite has not been recorded from the British Isles.]

#### Pseudobrookite

$\text{Fe}_2^{3+}\text{TiO}_5$  Orthorhombic

Minute rods and thin blades in bole, and minute henna coloured granular crystals in a porcellanite xenolith, both thermally metamorphosed by the dolerite plug at Tievebulliagh, near Cushendall, Co. Antrim. S. O. Agrell and J. M. Langley (1958) *Proc. R. Irish Acad.* **59B**, 93–127. [A Scottish occurrence is given in the Fifth Supplementary List (Scottish).]

#### Rutile, chromian

M. D. Max *et al.* (1983) See under muscovite (var. chromian phengite).

#### Sekaninaite

$(\text{Fe}^{2+}, \text{Mg})_2\text{Al}_4\text{Si}_5\text{O}_{18}$  Orthorhombic

A cordierite group mineral having a composition within a few percent of the iron end-member,

associated with a more abundant variety containing perhaps 75% of the iron end-member, occurs in bauxitic lithomarge intensely altered by the dolerite plug at Brockley, Rathlin Island, Co. Antrim. H. E. Wilson and J. A. Robbie (1966) *Geology of the country around Ballycastle*, Memoir Geol. Survey N.I., 2nd edn, pp. 243–4. [First occurrence in the British Isles of minerals near the sekaninaite end of the series; a cordierite with Fe = Mg was earlier reported from Scotland, see B. E. Leake (1960) *Am. Mineral.* **45**, 282–98, analysis No. 59.]

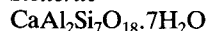
*Smithite*

Monoclinic

Fine grained intergrowths with proustite, gersdorffite and arsenian miargyrite, from a silver-rich pod cutting massive pyrite in the B zone at Silvermines, Co. Tipperary; optical and XRD identification. C. Gasparini (1978) unpubl. report, Minmet Scientific, Toronto, Canada; S. Taylor and C. J. Andrew (1979) *Trans. Inst. Mining Metall.*, sect. B, **88**, 125; C. J. Andrew, pers. comm., 1987.

*Sphalerite, mercurian*

G. M. Steed (1986). See under cinnabar, cadmian.

*Stellerite*

Orthorhombic

Colourless, transparent or translucent, platy crystals (1–10 mm) in granite, rhyolite, andesite, and tholeiitic basalt. Identified by morphology, XRD, and electron microprobe analyses from numerous localities in N. Ireland, e.g. Mourne Mountains, Co. Down; Tardree Mountain, the Belfast escarpment, Giant's Causeway, and Dunseverick near Giant's Causeway, Co. Antrim. J. Preston and I. Adair, pers. comm., 1986.

*Stromeyerite*

Orthorhombic

Grains (≤25 μm) associated with copper sulphides and native silver, in the Glen of Aherlow deposit near Galbally, Co. Limerick. D. E. Cameron and D. M. Romer (1970) *Trans. Inst. Mining Metall.*, sect. B, **79**, 171–3. Also as an accessory ore mineral at Gortdrum mine, near Tipperary, Co. Tipperary. C. J. Morrissey, G. R. Davis and G. M. Steed (1971) *Ibid.* **80**, 174–85; G. M. Steed (1983) *Mineral. Mag.* **47**, 35–6.

*Struvite*

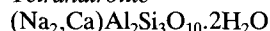
Orthorhombic

Fragmented crystals (6–20 mm), amber yellow to smoky brown, translucent to opaque, mostly

tabular, from a soil horizon dated pre-1060 AD in an archaeological excavation in High Street, Dublin (1967–72). Also from an excavation in Fishamble Street, Dublin (1978–81), associated with a layer of mussels dated ca. 980 AD. E. Farley and D. Doff, unpublished data on NMI specimens.

*Tennantite, mercurian*

A major ore mineral at Gortdrum Mine, near Tipperary, Co. Tipperary; Hg up to nearly 12% at the top of the deposit, decreasing to <1% with depth. G. M. Steed (1983) *Mineral. Mag.* **47**, 35–6; *idem*, in Andrew *et al.*, eds. (1986) 481–99.

*Tetranatrolite*

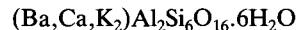
Tetragonal

Fibrous, compact, intimately associated with thomsonite and gonnardite and accompanied by paranatrolite, in white to pink spherules up to 3 cm across in basalt at Hills Port, south of The Gobbins, Island Magee, Co. Antrim; XRD and electron microprobe identification. R. Nawaz and J. F. Malone (1982) *Mineral. Mag.* **46**, 365–9; R. Nawaz, unpublished data on UM specimens.

*Tyrolite*

Orthombic

Radiating groups (2–3 mm) and crusts of bladed crystals with tetrahedrite, from old dumps at Hollyford mine, 9 km NNE of Tipperary, Co. Tipperary. Specimens in BM(NH), collected by A. Russell in 1946 and 1954. [Cf. Fifth Supplementary List (Scottish), which gives an unpublished Scottish occurrence. Known from several other Irish and British localities, but only the occurrence at Alderley Edge, Cheshire, has been briefly mentioned in print. The 'tyrolite' from Matlock, Derbyshire (Hintze, vol. 1, Abt. 4, pt. 2, p. 1078; Dana, 7th edn, vol. 2, p. 926) remains unconfirmed, and was probably aurichalcite, which H. J. A. Brooke (1823) *Quart. J. Lit. Sci. Arts* **16**, 277 confusingly called 'Kupferschaum'.]

*Wellsite*

Monoclinic

Colourless, whitish or orange-tinged twinned crystals (<5 mm) resembling phillipsite, in cavities in tholeiitic basalt at Benanouran Head, Giant's Causeway, Co. Antrim; identified by morphology, XRD, and electron microprobe analysis. I. Adair, pers. comm., 1986.

*Xanthoconite*

Monoclinic

Abundant fine intergrowths with proustite, baryte and galena, from a silver-rich pod cutting massive pyrite in the B zone at Silvermines, Co.

Tipperary; optical and XRD identification. C. B, **88**, 125; C. J. Andrew, pers., comm., 1987. Gasparri (1978) unpubl. report, Minmet Scientific, Toronto, Canada; S. Taylor and C. J. Andrew (1979) *Trans. Inst. Mining Metall.*, sect. [Manuscript received 3 April 1987]