

C.c.: 37.2 niobic acid, 18.6 tantalic acid, 12 iron protoxide, 14 to 20 uranium oxide, 6 thorium oxide, 4 zirconia, and 16 yttria with lime and magnesia. Miask, Mitchell county in North Carolina. The *Yttrilite* of Hermann.

698. NOLHTE, R_2N_2 .
Massive. H.—4.5 to 5; G.—5.04. Black-brown. Splintery. Brittle. Opaque; vitreous. Niobic acid 50.4, uranium oxide 14.4, zirconia 3, ferrous oxide 8, yttria 14.4, lime 4.7, water 4.6. Noh in Kongelf (Sweden).

699. HATCHETTOLITE.
Cubic; O, ∞O . Yellowish brown. Resinous lustre. Fracture conchoidal. H.—5; G.—4.8 to 4.9. C.c.: niobic acid 34.3, tantalic acid 29.8, uranium oxide 15.5, lime 8.9, water 4.5. North Carolina.

ANTIMONIATES.

700. ROMEITE, $Ca_2Sb_2O_7$.
Pyramidal; P 110° 50'. Scratches glass. G.—4.7. Honey-yellow or hyacinth-red. B.B. fuses to a blackish slag. Sol. in acids. C.c.: 41.3 antimonious acid, 37.3 antimony oxide, and 21.4 lime, but with 2 to 3 manganese and iron protoxide. St. Marcel in Piedmont. *Schneebergite*, from Tyrol, may be an impure variety.

701. BLEINIERE, $Pb(Sb, Sb) + H$.
Reniform and massive. H.—4; G.—3.9 to 4.8. Translucent; resinous to earthy. Colourless, yellow, brown, and grey. B.B. reduced on charcoal. C.c.: oxide of lead 41 to 62, antimonious acid 32 to 47, water 6 to 12. Lostwithiel, Horhausen, Nertchinsk.

702. NADORITE, $PbSb + PbCl_2$.
Right prismatic; ∞P 132° 51'. Crystals tabular. Cl. macro-diagonal. H.—3; G.—7. Yellowish or greyish brown. Resinous to adamantine; translucent. C.c.: lead 52.2, antimony 30.8, oxygen 8, chlorine 9. Constantine (Algeria).

703. RIVOTITE.
Massive. Yellowish to greyish green. Opaque; fracture uneven; brittle. H.—3.5 to 4; G.—3.6. C.c.: oxide of copper 39.5, oxide of silver 1.2, antimonious acid 42, carbonic acid 21. Sierra del Cadi in the province of Lerida. *Thrombolite* from Rezbanya, Hungary, may be a hydrated variety.

704. MELLITE, $Al(C_2O_7) + 18H$.
Pyramidal; P 93° 5'. OP ; $P\infty$; and $\infty P\infty$. Cl. P; fracture conchoidal; brittle. H.—2 to 2.5; G.—1.5 to 1.6. Transparent; doubly refractive; vitreous. Honey-yellow or reddish; streak white. In closed tube yields water. B.B. chars without odour. Burns white and acts like alumina. Sol. in n. acid or potash. C.c.: alumina 14.4, mellic acid 40.3, water 45.3. In lignite at Artern in Thuringia and Luschnitz in Bohemia; Walchow in Moravia (cretaceous); in coal at Malovka in Tula.



Fig. 606.

705. OXALITE, $2Fe_2O_3 + 3H$.
Capillary crystals, also botryoidal or compact; fracture uneven; sectile. H.—2; G.—2.2. Opaque; resinous to dull. Straw-yellow. B.B. turns black, then red. Sol. to yellow solution in acids. C.c.: 42.1 iron protoxide, 42.1 oxalic acid, 15.8 water. In lignite at Kolosoruk near Bilin, Duisburg, and Gross Almerode in Hesse.

706. WHEWELLITE, $Ca_2O + H$.
Oblique prismatic, O 72° 41'. ∞P 100° 38'. Cl. basal, perfect; brittle. H.—2.5 to 2.8; G.—1.838. Transparent to opaque; vitreous. Colourless. C.c.: 49.31 oxalic acid, 38.36 lime, 12.33 water. Hungary.

THE MINERAL RESINS.

Many of these are only vegetable resins slightly altered. Naphtha is fluid; the others solid, with H.—1 to 2 or 2.5. Most are amorphous, a few crystalline and monoclinic. G.—0.6 to 1.6. Mostly resinous; colourless, or coloured brown, yellow, or red, with paler streak. Sol. in acids, alcohol, ether, and oils. Melt readily, and burn with flame and smoke.

707. NAPHTHA, $PETROLEUM, CH_2$.
Liquid. Colourless, yellow, or brown. Transparent or translucent. G.—0.7 to 0.9. Volatilizes in the atmosphere with an aromatic bituminous odour. C.c.: 84 to 88 carbon, and 12 to 16 hydrogen. Varieties are—

Naphtha.—Very fluid, transparent, and light yellow. Tegern Lake in Bavaria, Amiano near Parma, Salies in the Pyrenees, Rangoon, Baku on the Caspian Sea, China, Persia, and North America. Used for burning, and in preparing varnishes.

Petroleum.—Darker yellow or blackish brown; less fluid or volatile. Ormskirk in Lancashire; Coalbrookdale, Pitchford, and

Madley in Shropshire; St Catherine's Well, south of Edinburgh; Mainland of Orkney; and many other parts of Europe.

708. ELATERITE (*Elastic Bitumen, Mineral Caoutchouc*), CH_2 .
Compact; reniform or fungoid; elastic and flexible like caoutchouc, very soft. G.—0.8 to 1.23. Resinous. Blackish, reddish, or yellowish brown. Strong bituminous odour. C.c.: 84 to 86 carbon, 12 to 14 hydrogen, and a little oxygen. Derbyshire, Montrelais near Nantes, and Woodbury in Connecticut.

709. ASPHALTUM, BITUMEN.
Compact and disseminated; fracture conchoidal, sometimes vesicular; sectile. H.—2; G.—1.1 to 1.2. Opaque, resinous, and pitch-black; strong bituminous odour, especially when rubbed. Takes fire easily, and burns with a bright flame and thick smoke. Sol. in ether, except a small remainder, which is dissolved in oil of turpentine. C.c.: 76 to 85 carbon, 2 to 10 oxygen, 6 to 10 hydrogen, and 1 to 3 nitrogen. Limmer near Hanover, Seyssel on the Rhone, Val Travers in Neuchatel, Lobsann in Alsace, in the Haiz, Dead Sea, Persia, and Trinidad; Cornwall, Haughmond Hill (Shropshire), East and West Lothians, Elie and Burntisland (Fife).

710. ALBERTITE.
Massive. Velvet-black. Adamantine lustre; brittle. C.c.: carbon 86, hydrogen 9, nitrogen 2.9, oxygen 2. Hoy, Orkney; Strathpeffer, Ross; Hillsborough, New Brunswick.

711. PIAUZITE.
Massive; imperfect conchoidal, sectile. H.—1.5; G.—1.22. Dimly translucent on very thin edges; resinous. Blackish brown; streak yellowish brown. Fuses at 600° Fahr., and burns with an aromatic odour, lively flame, and dense smoke. Sol. in ether and caustic potash. Piauz near Rudolfswerth in Carniola.

712. IKOLYTE.
Massive; conchoidal fracture. H.—7; G.—1.003. Resinous. Hyacinth-red; streak ochre-yellow. Rubbed between the fingers it emits an aromatic odour; becomes soft at 119°, but is still viscid at 212°. Oberhart near Gloggnitz in Austria.

713. AMBER (*Succinite*), $C_{10}H_8O$.
Round irregular lumps, grains, or drops. Fracture perfect conchoidal; slightly brittle. H.—2 to 2.5; G.—1 to 1.1. Transparent to translucent or almost opaque; resinous. Honey-yellow, hyacinth-red, brown, yellowish white; also streaked or spotted. When rubbed emits an agreeable odour, and becomes negatively electric. It melts at 550°, emitting water, an empyreumatic oil, and succinic acid; it burns with a bright flame and pleasant odour, leaving a carbonaceous remainder; only a small part is soluble in alcohol. C.c.: 79 carbon, 10.5 hydrogen, and 10.5 oxygen. Derived chiefly from an extinct coniferous tree (*Pinites succinifer*), and found in the Tertiary and diluvial formations of many countries, especially northern Germany and shores of the Baltic, Sicily, Spain, and northern Italy, rarely in Britain (on the shores of Fife, Norfolk, Suffolk, and Essex, and at Kensington, near London). Used for ornamental purposes, and for preparing succinic acid and varnishes. *Krantsite*, from Nienburg, is essentially the same.

714. RETINITE (*Retinasphalt*).
Roundish or irregular lumps; fracture uneven or conchoidal; very easily frangible. H.—1.5 to 2; G.—1.05 to 1.15. Translucent or opaque; resinous or glistening. Yellow or brown. Melts at a low heat, and burns with an aromatic or bituminous odour. C.c.: in general carbon, hydrogen, and oxygen, in very uncertain amount. Bovey, Halle, Cape Sable, and Osnabrück. *Pyroretinite* from Aussig in Bohemia is similar.

715. WALCHOWITE, $C_{12}H_8O$.
Rounded pieces, with a conchoidal fracture. H.—1.5 to 2; G.—1.085 to 1.089. Translucent, resinous. Yellow with brown stripes, and a yellowish white streak. It fuses at 482°, and burns readily. Soluble partially (7.5 per cent.) in ether; in a acid forms a dark-brown solution. C.c.: 80.4 carbon, 10.7 hydrogen, and 8.9 oxygen. Walchow in Moravia.

716. COPALINE (*Fossil Copal, Highgate Resin*), $C_{20}H_{14}O$.
Irregular fragments. H.—1.5; G.—1.046. Translucent, resinous; burns with light yellow flame and much smoke; alcohol dissolves little of it; becomes black in sulphuric acid. C.c.: 85.54 carbon, 11.63 hydrogen, 2.76 oxygen. Highgate near London. A similar resin from Settling-Stones mine in Northumberland, found in flat drops or crusts on calc-spar, is infusible at 500° Fahr.; G.—1.16 to 1.54; it contains 85.13 carbon, 10.85 hydrogen, and 3.26 ashes.

717. BERENGELITE, $C_{20}H_{14}O_2$.
Amorphous; conchoidal fracture. Dark brown, inclining to green; yellow streak. Resinous; unpleasant odour, and bitter taste. Fuses below 212°, and continues soft afterwards at ordinary temperatures; easily soluble in alcohol. C.c.: 72.40 carbon, 9.28 hydrogen, 18.31 oxygen. San Juan de Berengela in Peru.

718. GUAYAQUILLITE, $C_{20}H_{14}O_3$.
Amorphous; yielding easily to the knife, and very friable. G.

—1.092. Pale yellow. Slightly resinous. Fluid at 212°, viscid when cold; slightly soluble in water, and largely in alcohol, forming a yellow fluid with a bitter taste. C.c.: 77.01 carbon, 8.18 hydrogen, and 14.80 oxygen. Guayaquil in South America.

Bogbutter, from the Irish peat mosses, is similar; it melts at 124°, is easily soluble in alcohol, and contains 73.70 carbon, 12.50 hydrogen, and 13.72 oxygen.

719. HARTINE, $C_{20}H_{20} + H$.
Round masses or thin layers. Brittle, but easily cut with a knife. G.—1.6. Resinous. Reddish brown by reflected and deep red by transmitted light; streak light brown. Becomes black on exposure. C.c.: 86.43 carbon, 8.01 hydrogen, 5.56 oxygen. In the main coal seam at Middleton near Leeds, and at Newcastle.

720. OZOCERITE (*Native Paraffin*), CH_2 .
Amorphous, sometimes fibrous. Very soft, pliable, and easily fashioned with the fingers. G.—0.94 to 0.97. Glimmering or glistening; dark leek-green by reflected light. Strong paraffin or aromatic odour; fuses easily to a clear oily fluid; at higher temperature burns with a clear flame, seldom leaving any ashes; readily soluble in oil of turpentine, with great difficulty in alcohol or ether. C.c.: 85.7 carbon, and 14.3 hydrogen. Binny (Linlithgow), and Edinburgh; Slank and Zietriska in Moldavia, near Garming in Austria, and Baku; also at Urpeth coal-mine near Newcastle-on-Tyne. *Pyropissite* may be a variety.

721. HATCHETTINE (*Mineral Tallow*).
Flaky, like spermaceti; or subgranular, like beeswax; soft and flexible. G.—0.6. Translucent; weakly pearly. Yellowish white, wax-yellow, or greenish yellow. Greasy inodorous; readily soluble in ether. C.c.: 85.91 carbon, 14.62 hydrogen, or similar to ozocerite. Loch Fyne (fusible at 115°), Merthyr-Tydvil, Schaumburg.

722. FICHELITE, C_8H_8 .
Crystalline (oblique prismatic) lamella, which swim in water, but sink in alcohol. White and pearly. Fuse at 114°, but again become crystalline on cooling. Very easily soluble in ether, and precipitated by alcohol. C.c.: 88.9 carbon and 11.1 hydrogen. In pine wood in a peat-moss near Redwitz in Bavaria.

723. HARTITE, C_8H_8 .
Anorthic; but mostly like spermaceti or white wax, and lamellar. Sectile, but not flexible. H.—1; G.—1.046. Translucent; dull resinous. White. Melts at 165°, and burns with much smoke. Very soluble in ether, much less so in alcohol. C.c.: 87.8 carbon, and 12.2 hydrogen. Oberhart in Austria.

724. KÖNIGITE, C_8H_8 .
Crystalline folia and grains. Soft. G.—0.88. Translucent; resinous. White, without smell. Fuses at 120° to 137°. Sol. in n. acid; precipitated by water in a white crystalline mass. C.c.: 92.3 carbon, 7.7 hydrogen. Uznach near St Gall, Redwitz.

725. SCHEERERITE, CH_2 .
Oblique prismatic; tabular or acicular. Soft and rather brittle. G.—1 to 1.2. Translucent; resinous or adamantine. White, inclining to yellow or green. Feels greasy, has no taste, and when cold no smell, but when heated a weak aromatic odour. Insoluble in water; readily sol. in alcohol, ether, and n. and s. acids. C.c.: 75 carbon, 25 hydrogen. Uznach. *Branchite*, white, translucent, fusing at 167°, is similar; Montevaso in Tuscany.

726. IDRIALITE, C_8H_8 .
Massive; fracture uneven or slaty; sectile. H.—1 to 1.5; G.—1.4 to 1.6 (1.7 to 3.2). Opaque; resinous. Greyish or brownish black; streak blackish brown, inclining to red. Feels greasy. Burns with a thick smoky flame, giving out sulphurous acid, and leaving some reddish brown ashes. C.c.: 77 idrialine (—94.7 carbon and 5.3 hydrogen) and 18 cinnabar, with a little silica, alumina, pyrite, and lime. The idrialine may be extracted by warm olive oil or oil of turpentine as a pearly shining mass, difficultly fusible. Idria.

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