

Dose.—2 to 15 grains (or minims if fluid); it is best to begin with a small dose, 2 to 3 grains three or four times a day, gradually increasing; should be given after meals in Milk or emulsion with Gum Acacia.

An **ointment** can be made of a strength about 1 in 4, with Unguentum Paraffini, or other basis.

GYNOCARDIC ACID.—Chaulmugra Oil contains about 12 p.c. of an active principle, Gynocardic Acid, the dose of which is $\frac{1}{2}$ grain in **pill** three times daily, gradually increasing to 2 grains.

Magnesium Gynocardate.—A granular powder. Dose.—1 to 3 grains.

HÆMATOXYLI LIGNUM.

LOGWOOD.

The heart-wood of *Hæmatoxylon Campechianum*.

Imported from Campeachy in Central America, from Honduras and Jamaica, that from Campeachy being the most valuable.

Medicinal Properties.—Astringent, without irritating properties, useful in diarrhœa of phthisis and chronic diarrhœa and dysentery, and in passive hæmorrhages; in infantile diarrhœa; it does not tend to cause subsequent constipation. Also as an injection for leucorrhœa.

Incompatibles.—Mineral Acids, metallic salts, Lime Water, Tartar Emetic.

Official Preparation.—Decoctum Hæmatoxyli.

Not Official.—Extractum Hæmatoxyli, Extractum Hæmatoxyli Liquidum and Hæmatoxylin.

Foreign Pharmacopœias.—Official in Austr., Belg., Fr. (Bois de Campêche), Mex. (Palo de Campeche), Port. (Campeche), Russ., Swed. (Lignum Campechianum), U.S.; not in the others.

Description.—The wood is hard, heavy, dull orange to purplish-red externally, and internally reddish-brown. The chips or coarse powder, which should be unfermented, have a slight and somewhat agreeable odour, and a sweetish astringent taste. When chewed it colours the saliva pink.

The cherry-red inner wood is the part used.

It is said to be fermented to develop colour before coming into the market, and is recommended to be used *unfermented* for medicinal purposes (*P.J.* (3) xviii. 285), but there is no direct evidence that the latter is therapeutically superior. Whatever reputation Logwood may possess was probably obtained from the fermented wood, in which the Hæmatoxylin would be more or less oxidised. The general view is that the Tannin was responsible for much of the astringency, but Siebold (*loc. cit.*) asserts that Tannin does not exist in the wood in quantity sufficient to be of any importance, and ascribes the whole virtue to Hæmatoxylin. But unoxidised Hæmatoxylin has no astringency whatever, so that if Siebold is correct about the Tannin, one of two things must be true. Either (1) Astringency has nothing to do with the medicinal properties of Logwood; or (2) Siebold's inference is a mistaken one and the *fermented* wood may after all be the best to use.

Preparations.

DECOCTUM HÆMATOXYLI. DECOCTION OF LOGWOOD. (ALTERED.)

Logwood, in chips, 1 oz.; Cinnamon Bark, bruised, 70 grains;

Distilled Water, a sufficient quantity. Boil the Logwood with 24 fl. oz. of Distilled Water in a suitable vessel for ten minutes, adding the Cinnamon Bark towards the end of the time; strain; pour enough Distilled Water over the contents of the strainer to make 20 fl. oz. of the strained Decoction. = (1 in 20).

Proportion of Cinnamon increased.

Iron vessels should not be used.

Dose.— $\frac{1}{2}$ to 2 fl. oz.

(Not in the other Pharmacopœias.)

Not Official.

EXTRACTUM HÆMATOXYLI.—Logwood, in fine chips, 1; boiling Distilled Water, 10; infuse twenty-four hours, boil to 5, strain, and evaporate to dryness by a water-bath, stirring with a wooden spatula. Iron vessels should not be used.

Dose.—10 to 30 grains.

Foreign Pharmacopœias.—Official in Belg. and U.S.; not in the others.

EXTRACTUM HÆMATOXYLI LIQUIDUM (*B.P.C.*).—Unfermented Logwood, in No. 16 powder, 10; boil it with 20 of Distilled Water for half an hour and strain; boil it with 20 more of Water for half an hour and strain; repeat the process for the third time, and having mixed the strained liquors, evaporate over a water-bath (or preferably in vacuo) to the measure of 10; allow it to settle for a week, then draw off the clear liquor from the sediment.

The product has a fine red colour and sp. gr. 1.060.—*P.J.* (3) xviii. 285.

Dose.—30 to 120 minims.

HÆMATOXYLIN ($C_{16}H_{14}O_6$).—Sparingly soluble in cold Water, readily in Alcohol and Ether. It has a sweet taste, without astringency. Used in preparing solutions for staining histological specimens.

HAMAMELIDIS CORTEX.

HAMAMELIS BARK.

B.P.Syn.—WITCH HAZEL BARK.

The dried bark of *Hamamelis Virginiana*.

Medicinal Properties.—A local and a reputed remote astringent and hæmostatic. Given in various forms of passive hæmorrhage, epistaxis, hæmoptysis, hæmatemesis, menorrhagia, and bleeding piles, also for varicose veins.

Official Preparations.—Of the **Bark**, Tinctura Hamamelidis; of the **Dried Leaves**, Extractum Hamamelidis Liquidum; of the **Fresh Leaves**, Liquor Hamamelidis; of the **Liquid Extract**, Unguentum Hamamelidis.

Not Official.—Extractum Hamamelidis, Gossypium Hamamelis, and Hamamelin.

Description.—Usually in curved pieces about one-sixteenth of an inch (one and a half millimetres) thick, and varying from two to eight inches (one-half to two decimetres) in length, sometimes covered with a silvery-grey or dark-grey scaly cork marked with transverse lenticels, but frequently freed from the cork, and then exhibiting a nearly smooth reddish-brown outer surface. The inner surface is pale

reddish-pink in colour, and finely striated longitudinally; the fracture is laminated and coarsely fibrous. The Bark has an astringent taste, but no marked odour. The transverse section exhibits a complete ring of sclerenchymatous cells and numerous tangentially elongated groups of bast fibres.

Preparation.

TINCTURA HAMAMELIDIS. TINCTURE OF HAMAMELIS. (ALTERED.)

Hamamelis Bark in No. 20 powder, 2; Alcohol (45 p.c.), a sufficient quantity. Moisten the powder with 1 of the Alcohol, and complete the percolation process. The resulting Tincture should measure 20.

=(1 in 10).

Now made with Alcohol (45 p.c.) in place of Proof Spirit.

Dose.—30 to 60 minims.

Not Official.

EXTRACTUM HAMAMELIDIS.—Hamamelis Bark in powder, percolated with Alcohol (60 p.c.) and the percolate evaporated to the consistence of an extract.

Yield of Extract, 20 to 25 p.c.

Dose.— $\frac{1}{2}$ to 2 grains in pill; $1\frac{1}{2}$ grains in suppositories; 1 drm. in 7 drm. of Soft Paraffin or other diluent, for an ointment.

GOSSYPIUM HAMAMELIS (T.H.).—Tincture of Hamamelis $\frac{1}{2}$ fl. oz., Glycerin 10 minims, Cotton Wool, in a thin sheet, 60 grains. Mix the Tincture and Glycerin, and saturate the wool evenly with the mixture. Dry by exposure to the air. Astringent and sedative.

HAMAMELIN.—A powdered extractive.

Dose.—1 to 5 grains.

Hamamelin prepared from the leaves with Rectified Spirit was far more efficacious in suppositories than the resinoid from the bark.—*C.D.* '98, i. 86.

HAMAMELIDIS FOLIA.

HAMAMELIS LEAVES.

B.P.Syn.—WITCH HAZEL LEAVES.

The leaves, fresh and dried, of *Hamamelis Virginiana*.

Foreign Pharmacopœias.—Official in Fr., Mex., Norw. and U.S.; not in the others.

Description.—Broadly oval in outline, usually varying in length from three to six inches (seven to fifteen centimetres). The upper surface is dark green or brownish-green in colour, the under surface paler; the apex is obtuse, the margin sinuate. The Leaves are narrowed towards the base, oblique, slightly cordate and shortly petiolate. They are pinnately veined, the veins being prominent on the under surface, where they are furnished with stellate hairs. They have an astringent, slightly bitter taste, but no marked odour.

Preparations.

EXTRACTUM HAMAMELIDIS LIQUIDUM. LIQUID EXTRACT OF HAMAMELIS. (MODIFIED.)

Hamamelis Leaves in No. 40 powder, 20; Alcohol (45 p.c.), a sufficient quantity. Moisten the powdered Hamamelis Leaves with about

8 of the Alcohol; pack the moistened powder in a percolator, and add sufficient menstruum to saturate it thoroughly; when the liquid begins to drop, close the lower orifice of the percolator; set aside for forty-eight hours; then allow percolation to proceed, gradually adding menstruum until the Hamamelis Leaves are exhausted; reserve the first 17 of the percolate; remove the Alcohol from the remainder by distillation; evaporate the residue to a soft extract; dissolve this in the reserved portion; add sufficient menstruum to produce 20 of the Liquid Extract. = (1 in 1).

Alcohol (45 p.c.), now used instead of Rectified Spirit and Water.

Dose.—5 to 15 minims.

Foreign Pharmacopœias.—Official in Norw. and U.S.; not in the others.

LIQUOR HAMAMELIDIS. SOLUTION OF HAMAMELIS. (NEW.)

Fresh Hamamelis Leaves, 50; Water, 100; Alcohol (90 p.c.), 10. Macerate in a still for twenty-four hours; then distil one half.

It probably owes its virtues to the presence of a small quantity of essential Oil. An almost unfailling hæmostatic.—*T.G.* '94, 842.

UNGUENTUM HAMAMELIDIS. HAMAMELIS OINTMENT. (ALTERED.)

Liquid Extract of Hamamelis, $\frac{1}{4}$; Hydrous Wool Fat, 2 $\frac{1}{2}$. Mix. = (1 in 10).

Now made with Hydrous Wool Fat in place of Simple Ointment.

—
Not Official.

HELLEBORUS.

CHRISTMAS ROSE.

The rhizome and rootlets of *Helleborus niger*.

It contains the glucosides Helleborein and Helleborin.—*J.C.S. Abs.* '98, i, 39.

(It may be noted that 'White Hellebore' is *Veratrum Album*, and 'Green Hellebore' is *Veratrum Viride*.)

Medicinal Properties.—A hydragogue cathartic and emmenagogue. Poisonous in large doses.

Foreign Pharmacopœias.—Official in Belg., Fr., Mex. (Eleboro), Port. and Span.; not in the others.

Preparation.

TINCTURA HELLEBORI.—Hellebore Root, 1; percolated with Alcohol (60 p.c.) to obtain 8.

Dose.—20 to 60 minims in water.

Foreign Pharmacopœias.—Official in Port. 1 in 5; not in the others.

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HEMIDESMI RADIX.

HEMIDESMUS ROOT.

The dried root of *Hemidesmus Indicus*.

Imported from India.

Medicinal Properties.—Alterative and tonic.

It was brought to England by Dr. Ashburner about the year 1830, and was prescribed for the same purposes as Sarsaparilla, but it did not prove very satisfactory, and is now used chiefly as a flavouring agent.

Official Preparation.—Syrupus Hemidesmi.

Description.—The root is long, rigid, nearly cylindrical, tortuous, and longitudinally furrowed. It seldom exceeds one quarter of an inch (six millimetres) in thickness, and is of a reddish-brown or dark-brown colour. On one side of the root the cork is frequently separated from and raised above the cortex, and is transversely fissured. The transverse section exhibits numerous laticiferous cells in the cortex. The Root has a fragrant odour and a somewhat sweet taste.

(Not in the other Pharmacopœias.)

Preparation.

SYRUPUS HEMIDESMI. SYRUP OF HEMIDESMUS.

Hemidesmus Root, bruised, 4; Refined Sugar, 28; Distilled Water, boiling, 20. Infuse the Hemidesmus Root in the Distilled Water, in a covered vessel, for four hours, and strain. Set the infusion aside until clear; then decant the clear liquid, add the Refined Sugar, and dissolve by the aid of gentle heat. The weight of the product should be 42. =(1 in 8).

Dose.— $\frac{1}{2}$ to 1 fl. drm.

(Not in the other Pharmacopœias.)

HIRUDO.

LEECHES.

1. *Sanguisuga medicinalis*, the Speckled Leech; and
2. *Sanguisuga officinalis*, the Green Leech.

Description.—Body soft, smooth, two inches (five centimetres) or more in length, tapering to each extremity, plano-convex, marked with from ninety to one hundred fine annulations; back olive-green with six rusty-red longitudinal stripes. The anterior end is terminated by a small sucker surrounding the tri-radiate jaws, and the posterior end by a large sucker. 1. Ventral surface greenish-yellow, spotted with black; 2. Ventral surface olive-green, not spotted.

Imported chiefly from Hamburg. Also collected in large numbers in Spain, France, Italy, and Hungary.

Used for the abstraction of blood from congested parts; in pleurisy, typhlitis, pericarditis, and in cardiac distress.

Bleeding from leech bites is sometimes difficult to stop. The following remedies have been applied with advantage:—Matico, Solution of Ferric Chloride, Silver Nitrate Point, saturated Solution of Alum, and pressure on the part.

Foreign Pharmacopœias.—Official in Austr., Belg., Dan., Dutch, Fr. (Sangue Medicinale), Ger., Hung., Ital., Jap. (Hirudines), Port. (Sanguesugas), Span. (Sanguijuela), Swed. and Swiss; not in the others.

HOMATROPINÆ HYDROBROMIDUM.

HOMATROPINE HYDROBROMIDE.

HYDROBROMATE OF HOMATROPINE.—*B.P.* Add. '90. $C_{16}H_{21}NO_3.HBr$, eq. 353.49.

The Hydrobromide of an alkaloid prepared from Tropine.

Atropine, under the action of Barium Hydrate, splits up into Tropic Acid and Tropine; the latter, combined with Amygdalic Acid and acted upon by diluted Hydrochloric Acid, forms Oxytoluyl-tropine or Homatropine.

Solubility.—1 in 6 of Water; 1 in 18 of Alcohol (90 p.c.).**Medicinal Properties.**—Mydriatic. Dilates the pupil as rapidly, though not so energetically as, Atropine, but its effects disappear much sooner. When used with Cocaine the action is quicker and more powerful.**Dose.**— $\frac{1}{30}$ to $\frac{1}{15}$ grain.**Official Preparation.**—Lamellæ Homatropinæ.**Not Official.**—Guttæ Homatropinæ, Homatropina, Oleum Homatropinæ cum Cocaina.**Foreign Pharmacopœias.**—Official in Dan., Dutch, Fr., Ger., Russ. and Swiss; not in the others.**Description.**—A white crystalline powder or aggregation of minute trimetric crystals.**Tests.**—The solutions should be neutral to Litmus. A dilute aqueous solution, when applied to the eye, powerfully dilates the pupil. Heated on platinum foil it fuses and burns without leaving an appreciable residue. If 2 c.c. of Chloroform be shaken with 1 c.c. of a 10 p.c. aqueous solution, to which Solution of Chlorine has been cautiously added, the Chloroform will assume a brownish colour.

It affords the reactions characteristic of Hydrobromides.

A 2 p.c. aqueous solution yields no precipitate on the cautious addition of Solution of Ammonia previously diluted with twice its volume of Water, but dilute Solution of Potassium Hydroxide produces in it a white precipitate, soluble in excess of the reagent.

A 2 p.c. solution of Atropine Sulphate with solution of Ammonia under the above conditions gives a distinct turbidity, but with Hyoscyamine and Hyoscine Hydrobromides no reaction is visible. A 1 p.c. solution of Atropine Sulphate, however, remains unchanged.

Solution of Iodine causes a brown and Test-solution of Mercuric Chloride a white precipitate.

If about .01 gramme be dissolved in a little Water, and the solution be rendered alkaline with Solution of Ammonia and shaken with Chloroform, the separated Chloroform will leave on evaporation a residue which will turn yellow, and finally brick-red, when warmed with about 1.5 c.c. of a 2 p.c. solution of Mercuric Chloride in a mixture of five volumes of Alcohol (90 p.c.) and three volumes of Water.

Any salt of Atropine or Hyoscyamine under exactly similar conditions will give the same reaction, but with Hyoscine no formation of Mercuric Oxide appears to take place.

When treated with Fuming Nitric Acid and Potassium Hydroxide, as described under 'Atropin,' no reddish-violet coloration is developed (distinction from Atropine), the residue becoming reddish-yellow.

This is the most characteristic test for Homatropine. Atropine gives a deep purple coloration, as do also Hyoscyamine and Hyoscyne, but in the case of the latter two, the colour is less intense and more transient.

Preparation.

LAMELLÆ HOMATROPINÆ. DISCS OF HOMATROPINE. (New.)

Discs of Gelatin, with some Glycerin, each weighing about $\frac{1}{10}$ grain, and containing $\frac{1}{100}$ grain of Homatropine Hydrobromide.

Not Official.

GUTTÆ HOMATROPINÆ (*L.H.* and *L.O.H.*).—Homatropine Hydrobromide, 4 grains; Distilled Water, 1 fl. oz.

HOMATROPINA.—Colourless crystals, not deliquescent, nearly insoluble in Water, but soluble 1 in 80 of Olive Oil, 1 in 20 of Castor Oil, and combines readily with Oleic Acid.

Used in cases where an oily preparation or an ointment is required.

Foreign Pharmacopœias.—Official in Fr. and Mex.

OLEUM HOMATROPINÆ CUM COCAINA (*L.O.H.*).—Homatropine pure, 10 grains; Cocaine (alkaloid) 10 grains; Castor Oil, 1 fl. oz.: heat together till dissolved.

Not Official.

HORDEUM DECORTICATUM.

PEARL BARLEY.

The dried seed of *Hordeum distichon*, divested of its integuments: from plants cultivated in Britain.

Foreign Pharmacopœias.—Official in Belg., Fr. (*Orge Perlé*), Ital. (*Orzo*), Port. (*Cevada Santa*), Mex. and Span. (*Cebada*); not in the others.

Preparation.

DECOCTUM HORDEI.—Pearl Barley, 1; wash the Barley with cold Water, and reject the washings; boil the washed Barley with 15 of Distilled Water for twenty minutes in a covered vessel, and strain. Product about 10. = (about 1 in 10).

Foreign Pharmacopœias.—Official in Dutch, 8 in 100; Fr. (*Tisane d'Orge*), 1 in 50; not in the others.

Medicinal Properties.—Nutritive and demulcent, used in catarrhal conditions of the respiratory and urinary systems; as a drink in febrile diseases, and to dilute cow's milk for feeding children, thus forming a more easily digested curd.

Dose.—1 to 4 fl. oz.

HYDRARGYRUM.

MERCURY.

Hg, eq. 198·80.

A metal obtained from native Mercuric Sulphide.

It becomes solid at -39° F. ($-39\cdot4^{\circ}$ C.) Sp. gr. 13·5. Boils at 360° C., but volatilises slightly even at the ordinary temperatures.

From China, Almaden in Spain, and Idria in Carniola; also from Peru and California. It is chiefly obtained from its Sulphide (native Cinnabar) by distillation with Calcium Oxide; but it is sometimes found in globules disseminated through the ore.

Mercury, as imported, is, after being squeezed through leather, nearly free from impurities. It was first employed medicinally by the Arabian physicians Avicenna and Rhazes, but they only ventured to use it externally against vermin and cutaneous diseases. We are indebted to that renowned empiric Paracelsus for its administration internally.—*Pereira, Mat. Med.* 1849.

Medicinal Properties.—Mercury as a metal is seldom given alone. In a state of minute sub-division with Chalk, or in pill form, however, it has the effect of increasing the various secretions, its influence upon the salivary glands being the ordinary index of the extent of its action. It is an alterative, indirect cholagogue, purgative, diuretic, and a glandular stimulant. It causes the absorption and prevents the formation of morbid effusions, and is itself absorbed by all the tissues of the body.

Of great use, internally, in primary and secondary, and with iodides in tertiary, syphilis, but the doses should not be such as to cause salivation.

Externally, by means of the **ointment**, oleate or **liniment**, in syphilis, in parasitic skin diseases, and as an absorbent in chronic synovitis, peritonitis and other chronic inflammations, and glandular enlargements.

See also under the various preparations and salts of Mercury.

Official Preparations.—Emplastrum Ammoniaci cum Hydrargyro, Emplastrum Hydrargyri, Hydrargyrum cum Creta, Liquor Hydrargyri Nitratis Acidus, Pilula Hydrargyri, and Unguentum Hydrargyri Nitratis.

Not Official.—Mercury Plaster Mull, Mercury and Carbolic Plaster Mull, Oleum Cinereum, Suppositoria Hydrargyri, Hydrargyri Benzoas, Unguentum Cinereum.

Foreign Pharmacopœias.—Official in all.

Description.—Silver-white, liquid at ordinary temperatures, and easily divisible into spherical globules.

Test.—Readily volatilises at a temperature below that of visible redness, leaving only an insignificant amount of fixed residue.

Preparations.

EMPLASTRUM HYDRARGYRI. MERCURIAL PLASTER.

Mercury (by weight), 3 oz.; Olive Oil, 56 grains; Sublimed Sulphur, 8 grains; Lead Plaster, 6 oz. Heat the Olive Oil; add the Sulphur to it gradually; stir until they are uniformly blended; with this mixture triturate the Mercury until metallic globules are no longer visible; add the Lead Plaster previously melted; mix. =(about 1 in 3).

Foreign Pharmacopœias.—Official in Austr., Dan., Ger., Hung., Ital., Norw., Russ., Swed. and Swiss, 1 in 5; Belg., 1 in 5.25; Dutch, 1 in 4; Fr., 1 in 5.6; Mex., 1 in 5.57; Span., 1 in 7.5; U.S., 3 in 10: the ingredients differ considerably.

EMPLASTRUM AMMONIACI CUM HYDRARGYRO. AMMONIACUM AND MERCURY PLASTER. (MODIFIED.)

Ammoniacum, 12 oz.; Mercury (by weight), 3 oz.; Olive Oil, 56 grains;

Sublimed Sulphur, 8 grains. Heat the Olive Oil; add the Sulphur to it gradually, stirring until they are uniformly blended; with this mixture triturate the Mercury until metallic globules are no longer visible; add the Ammoniacum, previously purified by boiling with successive portions of water, passing the resulting emulsions through, while rubbing the residues on a hair sieve, and, after mixing, evaporating the emulsions to a suitable consistence. = (nearly 1 in 5).

The Ammoniacum is now purified by boiling with Water and evaporating the emulsions.

Applied in glandular swellings, in chronic hepatic enlargement, syphilitic nodes, and in chronic synovitis.

Foreign Pharmacopœias.—Official in U.S., resembles Brit.; not in the others.

LINIMENTUM HYDRARGYRI. LINIMENT OF MERCURY. (ALTERED).

Ointment of Mercury, 1 oz.; Strong Solution of Ammonia, 160 minims; Liniment of Camphor, a sufficient quantity. Add the Strong Solution of Ammonia to sufficient of the Liniment of Camphor to produce 1½ fl. oz.; triturate the Ointment of Mercury with sufficient of the Liniment of Camphor to produce 1½ fl. oz.; mix the two liquids.

(1 Ointment in 3, or 1 of Mercury in 6).

Strong Solution of Ammonia now used, and the quantity of Liniment of Camphor increased.

A stimulating Liniment, applied as an absorbent to swollen joints; placed with lint in the arm-pits, it is a mode of producing salivation; rubbed into the abdominal wall in tubercular peritonitis it is of the highest value.

(Not in the other Pharmacopœias.)

PILULA HYDRARGYRI. MERCURY PILL. *B.P.Syn.*—BLUE PILL.

Mercury (by weight), 2; Confection of Roses, 3; Liquorice Root in fine powder, 1: rub the Mercury with the Confection of Roses until metallic globules are no longer visible; add the Liquorice Root; beat together until thoroughly mixed. = (1 in 3).

8 commercial samples examined contained 28 to 41 p. c. of Mercury, and little or no Oxide; 5 of the 8 samples were prepared with Confection of Hips.—*P.J.* (3) xv. 230.

Dose.—4 to 8 grains.

Foreign Pharmacopœias.—Official in Belg., *Pilulæ Hydrargyriceæ*; Fr., *Pilules Mercurielles Simples*; Jap., Mex., *Pildoras Azules*; Port., *Pilulas Mercuriales*; Swed., *Pilulæ Hydrargyri*; U.S., *Massa Hydrargyri*; all 1 in 3; not in the others.)

UNGUENTUM HYDRARGYRI. MERCURY OINTMENT.

Mercury (by weight), 16; Lard, 16; Prepared Suet, 1: Triturate until metallic globules cease to be visible. = (nearly 1 in 2).

Official Preparations.—Used in the preparation of *Linimentum Hydrargyri* and *Unguentum Hydrargyri Compositum*.

8 commercial samples examined contained 38 to 46 p. c. of Mercury; 4 of them contained small proportions of Oleate.—*P.J.* (3) xv. 230.

Foreign Pharmacopœias.—Official in Belg., Fr., Mex. (*Unguento de Mercurio Doble*), Port. and U.S., 1 in 2; Fr. has also *Pommade Mercurielle Faible*, 1 in 8; Span. (*Pomada Mercurial Doble*), and Ital. (*Pomata Mercuriale*), 1 in 2; Span. (*P. M. Terciada*), 1 in 3, and (*P. M. Simple*), 1 in 6; Austr., Ger., Hung., Russ.

and Swiss (Ung. Hydr. Ciner.), 1 in 3; Dutch, 1 in 4; Dan., Jap., Norw. and Swed., 1 in 5.

UNGUENTUM HYDRARGYRI COMPOSITUM. COMPOUND MERCURY OINTMENT. (ALTERED.)

Mercury Ointment, 10; Yellow Beeswax, 6; Olive Oil (by weight), 6; Camphor, in flowers, 3. Mix the Beeswax, Olive Oil, and Mercury Ointment with the aid of heat; add the Camphor; triturate until cold.
=(1 Mercury in 5).

Contains rather less Mercury Ointment, and the manipulation is modified, as previously suggested in *Companion*.

This is Scott's celebrated absorbent Ointment (Scott's dressing), the Soap Cerate being replaced by the Oil and Beeswax.

It is an admirable Ointment to apply to chronic joint enlargements.

Not Official.

MERCURY PLASTER MULL (UNNA).—Containing 1 grain of Mercury to the square inch.

MERCURY AND CARBOLIC PLASTER MULL (UNNA).—Containing 1 grain of Mercury and $\frac{3}{8}$ grain of Carbolic Acid to the square inch.

OLEUM CINEREUM. 'GREY OIL.'—White Vaseline, 2.5; Mercury Ointment, 1; Mercury, 19.5; triturate in a warm mortar until the Mercury is extinguished; then add White Vaseline, 7; Liquid Vaseline, 20: all by weight.

This preparation contains 40 p. c. of Mercury.—*P.J.* (3) xix. 704.

Medicinal Properties.—For **hypodermic injection** in syphilis. **Dose.**—1 to 2 minims.—*B.M.J.* '88, i. 1296; *T.G.* '94, 319.

SUPPOSITORIA HYDRARGYRI.—Mercury Ointment, 60 grains; Oil of Theobroma, 120 grains: melt the Oil of Theobroma with sufficient heat, add the Mercury Ointment, and stir till well mixed, and without applying more heat, immediately pour into moulds, the capacity of 15 grains each; or the fluid mixture may be allowed to cool and then be divided into 12 equal parts, each of which shall be made into a conical or other convenient form of suppository.

Each suppository contains 5 grains of Mercury Ointment.

UNGUENTUM CINEREUM.—Mercury and Lanoline, of each 1 oz.; best Olive Oil, $\frac{1}{2}$ fl. oz.—*Leck Hospital*.

HYDRARGYRI BENZOAS.—A white crystalline salt. Has been used for injection into buboes.—*B.M.J.* '90, i. 1087; *B.M.J.E.* '97, ii. 55; *L.* '91, ii. 505.

Process for its preparation.—*J.S.C.I.* '97, 255.

Not Official.

HYDRARGYRI CYANIDUM.

$\text{Hg}(\text{CN})_2$.

Colourless crystals. Not decomposed by Alkalis.

Solubility.—1 in 13 of Water; 1 in 20 of Alcohol (90 p.c.).

Medicinal Properties.—A powerful antiseptic. Used as a local application (5 to 15 grains in 1 fl. oz. of Water) to syphilitic rashes and sores of the throat, tongue, &c.—*Ringer*.

Intravenous injection in syphilis.—*P.J.* '95, ii. '91. $\frac{1}{2}$ p.c. solution as an antiseptic in ophthalmic practice.—*P.J.* '96, ii. 19.

Ph. Ger. maximum single dose, $\frac{1}{2}$ grain; maximum daily dose, $1\frac{1}{2}$ grains.

Foreign Pharmacopœias.—Official in U.S.; Belg., Cyanuretum Hydrargyri; Fr., Cyanure Mercurique; Ger. Hung. and Russ., Hydrargyrum Cyanatum; Port., Cyaneto Mercurico; Mex., Cianuro de Mercurio; Span., Cianuro Mercurico.

Mercury Oxycyanide as an antiseptic in aqueous solution, 1 in 200.—*B.M.J.E.* '95, ii. 104; *T.G.* '96, 405.

MERCURY ZINCO-CYANIDE.—A product which has been found by Lord Lister to have valuable antiseptic properties.—*P.J.* (3) xx. 653; (3) xxii. 769.

There is also a **gauze** prepared with it.—*B.M.J.* '89, ii. 1025; *L.* '89, ii. 943.

Mercurialism resulting from use of the cyanide gauze as a dressing, and experiments dealing with it.—*P.J.* '96, ii. 382.

HYDRARGYRI IODIDUM RUBRUM.

MERCURIC IODIDE.

B.P. Syn.—BINIODIDE OF MERCURY.

HgI₂, eq. 450·60.

Precipitated Mercuric Iodide, **HgI₂**, formed by the interaction of Mercuric Chloride and Potassium Iodide.

Solubility.—Almost insoluble in Water; sparingly soluble in Glycerin; 1 in 300 of Alcohol (90 p.c.); 1 in 70 of Ether; 1 in 280 of Olive or Almond Oil or Lard; 1 in 50 of Castor Oil; insoluble in Paraffinum Mollè; freely in an aqueous solution of Potassium Iodide or Mercuric Chloride.

Potassio-Mercuric Iodide will dissolve readily in Oils.—*C.D.* '85, 597.

Medicinal Properties.—Alterative and deobstruent. A powerful irritant poison in over-doses, similar to the Green Iodide, only much more active. It is used internally in the same cases as Corrosive Sublimate, more particularly in chronic glandular enlargements and rheumatism and cutaneous diseases when due to syphilis. As an antiseptic lotion (1 in 5,000) in surgical and obstetric practice.

The Ointment is a most effective application for bronchocele, and a good application for warts and syphilitic nodes and for lupus. If applied to the eyelids, should be diluted $\frac{1}{4}$ the strength.

In infantile diarrhoea.—*Pr.* lv., 208; *P.J.* '95, ii. 215.

Dose.— $\frac{1}{32}$ to $\frac{1}{16}$ grain.

Prescribing Notes.—Usually given in the form of **Pilules** well triturated with Milk Sugar and Glucose, *q. s.* When prescribed in **Solution** it is dissolved by the aid of Potassium Iodide.

Official Preparation.—Unguentum Hydrargyri Iodidi Rubri. Used in the preparation of Liquor Arsenii et Hydrargyri Iodidi.

Not Official.—Hydrargyri et Potassii Iodidum and Injectio Hydrarg. Biniod.

Foreign Pharmacopœias.—Official in U.S.; Austr. and Hung., Hydrargyrum Bijodatium Rubrum; Belg., Deuto-Ioduretum Hydrargyri; Dan., Iodetum Hydrargyricum Rubrum; Dutch, Iodetum Hydrargyricum; Fr., Ioduro Mercurique; Ger., Jap., Russ. and Swiss, Hydrargyrum Bijodatium; Ital., Bijoduro di Mercurio; Mex., Yoduro Mercurico; Port., Iodeto Mercurico; Span., Ioduro Mercurico; Swed., Iodetum Hydrargyricum Præcipitatum; not in Norw.

Description.—A crystalline powder of a vermilion colour, becoming yellow when a film of it spread on a sheet of paper is gently heated over a lamp.

Tests.—Freely and entirely soluble in Ether (absence of Mercurous Iodide), or in Solution of Potassium Iodide. It affords the reactions characteristic of Mercuric compounds and of Iodides. It volatilises at a temperature under redness, leaving not more than a trace of fixed matter. When heated with excess of Copper it should yield 43.5 to 44 p.c. of metallic Mercury.

Preparation.

UNGUENTUM HYDRARGYRI IODIDI RUBRI. MERCURIC IODIDE OINTMENT. *B.P. Syn.*—OINTMENT OF RED IODIDE OF MERCURY. (ALTERED.)

Mercuric Iodide, in fine powder, 20 grains; Benzoated Lard, 480 grains. Mix. = (1 in 25).

Now 1 in 25 instead of 1 in 28½, and made with Benzoated Lard in place of Simple Ointment.

Foreign Pharmacopœias.—Official in Ital., 1 in 10; Mex., Pomada, 1 in 50; not in the others.

Not Official.

HYDRARGYRI ET POTASSII IODIDUM.—Yellow acicular crystals.

An aqueous solution of 1 in 12,000 is a powerful antiseptic.—*T.G.* '85, 826.

INJECTIO HYDRARGYRI BINIODIDI (pro Vagina).—Mercuric Chloride 8 grains, Potassium Iodide 5 grains, Water to 1 fl. oz. 1 fl. drm. to a pint of Water.—(Lock Hospital. = (1 in 10,000).

Not Official.

HYDRARGYRI IODIDUM VIRIDE.

GREEN IODIDE OF MERCURY.

HgI, eq. 324.70.

A dull green powder containing excess of Mercury, which decomposes upon exposure to light.

Solubility.—Insoluble in Water, Alcohol, and Ether.

Medicinal Properties.—Given in syphilis and in strumous and rheumatic affections. Employed as an ointment (1 part to 8 of Lard) for scrofulous and syphilitic eruptions, chronic skin diseases, enlarged glands and bronchocele.

Dose.—It varies with different prescribers from ¼ grain to 2 grains.

Incompatible with soluble Iodides.—*C.D.* '92, ii. 275.

Foreign Pharmacopœias.—Official in U.S.; Austr. and Hung., Hydrargyrum Jodatam flavum; Belg., Proto Ioduretum Hydrargyri; Dutch and Swed., Iodetum Hydrargyrosium; Fr., Iodure Mercureux; Ital., Proto-Joduro di Mercurio; Mex. Yoduro Mercurioso; Port., Iodeto Mercurioso; Swiss, Hydrargyrum Jodatam; Span., Ioduro Mercurioso. Not in Jap. or Norw.

Tests.—Entirely volatilised at a red heat. When shaken in a tube with Ether, nothing is dissolved. Is not acted upon by Aniline at a boiling heat, but if Biniiodide be present, a magenta colour is produced.

This latter test is stated (*P.J.* (3) xxi. 259) not to give the reaction, while Ether would extract traces of Red Iodide; but (*P.J.* (3) xiv. 989) points out that the Ether

washing decomposes the Green Iodide with formation of Red Iodide, and that although this also happens with Chloroform, yet it is to a much less extent.

Preparations.

PILULA HYDRARGYRI IODIDI VIRIDIS (B.S.H.).—Green Iodide of Mercury, $\frac{1}{2}$ grain; Opium, $\frac{1}{4}$ grain; Extract of Gentian, 2 grains.

UNGUENTUM HYDRARGYRI IODIDI VIRIDIS CUM ATROPINA.—Green Iodide of Mercury, 10 grains; Atropine, 1 grain; Lard, $\frac{1}{2}$ oz.

HYDRARGYRI NITRATIS LIQUOR ACIDUS.

ACID SOLUTION OF MERCURIC NITRATE.

Mercury (by weight), 4; Nitric Acid, 5; Distilled Water, $1\frac{1}{2}$. Mix the Nitric Acid with the Distilled Water in a flask; dissolve the Mercury in the mixture without the application of heat; then boil gently for fifteen minutes; cool, and preserve the solution, which should weigh about three times the quantity of the Mercury employed, in a stoppered bottle not exposed to the light.

Medicinal Properties.—Caustic and antiseptic. Applied to syphilitic warts, ulcers, tubercles, &c.; care should be taken that the surrounding healthy parts are not touched. Used in cancerous growths and in lupus. As a **gargle**, 1 or 2 minims to 1 fl. oz. water. As an **injection** in gonorrhœa, 1 minim to 2 fl. oz. water.

Official Preparations.—Unguentum Hydrargyri Nitratis and Unguentum Hydrargyri Nitratis Dilutum contain Mercuric Nitrate.

Foreign Pharmacopœias.—Official in U.S., sp. gr. 2.100; Belg., Nitræs Hydrargyri liquidus, sp. gr. 1.44–1.45; Fr., Azotate Mercurique Liquide, sp. gr. 2.246; Ital., Nitrato Mercurico liquido, sp. gr. 2.250; Port., Solutio de Azotato Mercurico; Span., Nitrato Mercurico Acido, sp. gr. 2.246; Swed., Solutio Nitratis Hydrargyri; Mex., Nitrato Mercurico; not in the others.

Description.—A colourless and strongly acid liquid, which affords the reactions characteristic of Mercuric salts and Nitrates.

Tests.—Sp. gr. about 2.0. It should not yield any characteristic reaction with the tests for Mercurous salts.

Preparations.

UNGUENTUM HYDRARGYRI NITRATIS. MERCURIC NITRATE OINTMENT. *B.P.Syn.*—OINTMENT OF NITRATE OF MERCURY. *N.O.Syn.*—CITRINE OINTMENT. (ALTERED.)

Mercury (by weight), 1; Nitric Acid, 3; Lard, 4; Olive Oil (by weight), 7. Dissolve the Mercury in the Nitric Acid without the aid of heat, agitating gently from time to time. Heat the Lard and Olive Oil together on a sand-bath, so that the mixture when transferred to a heated earthenware jar, capable of holding ten times the quantity, shall be at a temperature of about 290° F. (143.3° C.). Add the cold Mercurial Solution very gradually, stirring constantly to promote disengagement of the fumes. After frothing has ceased, the mixture, which should have a temperature of not less than 200° F. (93.3° C.),

must be kept stirred until it is cold. The resulting Ointment should be firm in consistence and have a pale lemon colour.

=(about 1 in 16½).

Now made with more Lard and less Olive Oil and process altered.

After a large number of experiments in which the Mercuric solution was added to, the mixture of Lard and Oil brought to temperatures varying from 180° to 350° F., and other experiments in which the Lard and Oil were previously oxidised with Nitric Acid, the following process was finally decided upon as yielding an ointment of a fine colour and one which would keep almost unchanged for at least three months. It gave uniform results with different workers. On the other hand, working by the B.P. formula, ointments very different in appearance were produced by different operators, and even by the same operator at different times.

Dissolve, without the aid of heat, the Mercury in the Nitric Acid. Heat the Lard and Oil on a water-bath, until the Lard is dissolved, and when at a temperature of 180°–190° F. add the Mercuric Solution (cold) to the melted fats and stir continuously. When brisk effervescence has commenced continue the heat for ten minutes, then remove from the water-bath and stir till cold.

The product should have a good consistence, and if kept in covered pots should retain its pale lemon colour for several months. In our hands this method has never yielded a 'spongy' product. The heat should not be continued until all action has ceased, for the product will then be of a darker colour and blacken in the course of a week or two.—*P.J.* '97, i. 172; '98, ii. 165, 179, 232, 236; *C.D.* '98, i. 933; *A.J.P.* '97, 208, 232.

Medicinal Properties.—Applied in chronic diseases of the skin as a stimulant and alterative; in tinea tarsi it is diluted with 7 parts of Vaseline and applied by means of a camel's-hair pencil to the eyelids. Diluted with Glycerin and applied by a brush to the nostrils in ozoena.

This Ointment, when diluted with Lard, soon acquires a leaden colour; it changes less with Spermaceti Ointment, and least of all when diluted with Soft Paraffin.

Incompatibles.—All reducing agents, Camphor, Essential Oils, Lard, etc.

Official Preparation.—Unguentum Hydrargyri Nitratis Dilutum.

Foreign Pharmacopœias.—Official in Belg., Mercury 2, Nitric Acid (sp. gr. 1.33) 3, Lard 12, Olive Oil 12; Fr., Mercury 1, Nitric Acid (sp. gr. 1.39) 2, Lard 10, Olive Oil 10; Mex., Mercury 4, Nitric Acid 6, Lard 64; Port., Sol. Mercuric Nitrate 2, Lard 9, Olive Oil 9; Span., Mercury 2, Nitric Acid (sp. gr. 1.32) 3, Lard 16, Olive Oil 16; Swed., Mercury 1, Nitric Acid (sp. gr. 1.5) 2, Lard 12; U.S., Mercury 7, Nitric Acid (sp. g. 1.414) 17.5, Lard Oil 76.

UNGUENTUM HYDRARGYRI NITRATIS DILUTUM. DILUTED MERCURIC NITRATE OINTMENT. *B.P. Syn.*—DILUTED OINTMENT OF NITRATE OF MERCURY. (ALTERED.)

Mercuric Nitrate Ointment, 1; Soft Paraffin, yellow, 4: mix.

Now 1 in 5 instead of 1 in 3.

HYDRARGYRI OLEAS.

MERCURIC OLEATE.

Precipitated Mercuric Oleate, formed by the interaction of Mercuric Chloride and Sodium Oleate.

Now made by precipitation instead of treating Mercuric Oxide with Oleic Acid.

An Oleate containing 20 p.c. is readily made as follows:—Mercuric Oxide (finely powdered), 4; Oleic Acid (by weight), 16; Ether (720), 1: mix the Oxide of Mercury with the Ether and stir in rapidly the whole of the Oleic Acid, warm to 120° F., stirring frequently till the Oxide is dissolved. The operation should be complete in 1 to 2 hours.

Mercuric Oleate was introduced by Prof. Marshall in 1872, and was made of three different strengths, containing respectively 5 p.c., 10 p.c., and 20 p.c. of Mercuric Oxide.

The 5 p.c. very quickly changed to a black colour owing to reduction of the Mercuric Oxide; the 10 p.c. kept better but not very long without change. It is better to keep the 20 p.c. and dilute it when required for use.

Medicinal Properties.—Similar to those of Mercury Ointment and Liniment, but more easily absorbed. Used with great success in tubercular peritonitis. Has been strongly recommended as an application for persistent inflammation in the joints or other parts near the surface, more particularly when combined with Morphine. It is useful, spread on lint and placed in the axilla, for syphilis; also as an application for non-ulcerated syphilitic indurations. A good application for killing pediculi.

Official Preparation.—Unguentum Hydrargyri Oleatis.

Not Official.—Hydrargyri Oleas c. Morphina.

Foreign Pharmacopœias.—Official in Mex. and U.S.; not in the others.

O.M.P.—Mercuric Chloride, 1 oz.; Hard Soap, powdered, 2 oz.; Oleic Acid, 1 fl. drm.; Distilled Water, boiling, a sufficient quantity. Dissolve the Mercuric Chloride in 10 fl. oz. of the Distilled Water. Triturate the Oleic Acid with the Hard Soap, and dissolve the product in 11 fl. oz. of the Distilled Water. Mix the solutions; boil for ten minutes; set aside for the Mercuric Oleate to deposit; decant the supernatant liquid; wash the precipitated Oleate with hot Distilled Water until the decanted liquid affords little or no reaction for Chloride, and then dry it on a water-bath.

Description.—A substance of unctuous consistence, having a light greyish-yellow colour, liable to darken by keeping. It has a somewhat saponaceous odour.

Preparation.

UNGUENTUM HYDRARGYRI OLEATIS. MERCURIC OLEATE OINTMENT. (New.)

Mercuric Oleate, 1; Benzoated Lard, 3. Mix.

Not Official.

HYDRARGYRI OLEAS C. MORPHINA is made by dissolving 1 grain of Morphine Alkaloid in each drm. of the Mercuric Oleate.

HYDRARGYRI OXIDUM FLAVUM.

YELLOW MERCURIC OXIDE.

HgO, eq. 214.68.

Precipitated Mercuric Oxide, HgO, obtained by the interaction of Mercuric Chloride and Sodium Hydroxide.

Solubility.—Practically insoluble in Water or Alcohol (90 p.c.)

Medicinal Properties.—Similar to the Red Mercuric Oxide.

Official Preparation.—Unguentum Hydrargyri Oxidi Flavi.

Foreign Pharmacopœias.—Official in Austr., Hung., Jap. and Swiss, Hydrargyrum oxydatum flavum; Belg., Oxydum Hydrargyri Flavum; Dan. and Dutch, Oxydum Hydrargyricum Flavum; Fr., Oxyde Mercurique Jaune; Ger., Russ. and Swiss, Hydrargyrum oxydatum viâ humidâ paratum; Ital., Ossido Mercurico Giallo; Norw., Oxidum Hydrargyricum; Mex. and Span., Oxido Mercurico Amarillo; Swed., Oxydum Hydrargyricum Præcipitatum; U.S., Hyd. Oxid. Flav.

Description.—A yellow powder, yielding nothing to Water, but being readily dissolved by Hydrochloric Acid, the solution affording the reactions characteristic of Mercuric salts.

Tests.—Gently heated it assumes a red colour. Heated to incipient redness it is resolved into Oxygen and the vapour of Mercury, leaving only an insignificant amount of fixed residue; the proportion of metallic Mercury obtained being 92 to 92.5 p.c.

Preparation.

UNGUENTUM HYDRARGYRI OXIDI FLAVI. YELLOW MERCURIC OXIDE OINTMENT. (New.)

Yellow Mercuric Oxide, in very fine powder, 10 grains; Soft Paraffin, yellow, 490 grains. Mix. (1 in 50.)

Medicinal Properties.—Used in cases of chronic eczema, pityriasis, ringworm, chronic lichen, and syphilitic eruptions.

Diluted with an equal or twice the quantity of Vaseline, is a most valuable remedy for ophthalmia tarsi, corneal ulceration and all forms of conjunctival inflammation.

Foreign Pharmacopœias.—Official in Dutch, Yellow Oxide 1, White Vaseline 19; Fr. (Pommade avec l'Oxyde Jaune de Mercure) and Mex. (Pomada de Oxido Amarillo de Mercurio), Yellow Oxide 1, Vaseline 15; Jap., Yellow Oxide 1, Vaseline 9; Russ., Yellow Oxide 1, Lard 49; U.S., Yellow Oxide 10, Lard 72, Yellow Wax 18; not in the others.

HYDRARGYRI OXIDUM RUBRUM.

RED MERCURIC OXIDE.

HgO, eq. 214.68.

Obtained by heating Mercurous Nitrate until acid vapours cease to be evolved.

Solubility.—Insoluble in Water and Alcohol 90 p.c.; readily soluble in Hydrochloric Acid.

Medicinal Properties.—A powerful irritant rarely used internally. Employed, either in powder or ointment, as an escharotic to indolent ulcers and fungoid growths. (See p. 348.)

Official Preparation.—Unguentum Hydrargyri Oxidi Rubri.

Foreign Pharmacopœias.—Official in U.S.; Belg. Oxydum Hydrargyri Rubrum; Dan., Dutch, Norw. and Swed., Oxydum Hydrargyricum; Fr., Oxide Mercurique Rouge; Ger. and Swiss, Hydrargyrum Oxydatum; Ital., Ossido Mercurico Rosso; Jap., Hydrargyrum Oxydatum Rubrum; Mex., Oxido Mercurico; Port., Oxydo Mercurico; Russ., Hydrargyrum Oxydatum Levigatum; Span., Oxido Mercurico Rojo. Not in Austr. or Hung.

Description.—Orange-red crystalline scales or powder answering to the tests given under 'Hydrargyri Oxidum Flavum.'

Tests.—When gently heated it becomes dark violet, but resumes its orange-red colour on cooling. When heated in a dry test-tube it should not evolve orange fumes (absence of Nitrates).

Preparation.

UNGUENTUM HYDRARGYRI OXIDI RUBRI. RED MERCURIC OXIDE OINTMENT. *B.P. Syn.*—RED PRECIPITATE OINTMENT. (ALTERED.)

Red Mercuric Oxide, in very fine powder, $\frac{1}{4}$; Paraffin Ointment, yellow, $2\frac{1}{4}$. Mix. = (1 in 10).

Now 1 in 10 instead of 1 in 8, and made with Yellow Paraffin Ointment in place of Hard and Soft Paraffin.

Medicinal Properties.—Caustic for chronic ulcers and unhealthy granulations and soft warts. Much diluted, is used for ulcerations of the cornea and chronic ophthalmia, but the Ointment of the Yellow Oxide is preferred by many.

Foreign Pharmacopœias.—Official in Belg., 1 in 50; Dan., Dutch, Norw., Port. and Swiss, 1 in 20; Fr., Mex. and Span., 1 in 16; Ger., Jap. and U.S., 1 in 10; Russ., with Yellow Oxide (p. 347). Not in Austr., Hung., Ital. or Swed.

HYDRARGYRI PERCHLORIDUM.

MERCURIC CHLORIDE.

HgCl_2 , eq. 269·18.

B.P. Syn.—BICHLORIDE OF MERCURY; CORROSIVE SUBLIMATE; PERCHLORIDE OF MERCURY.

A salt, obtained as a sublimate by heating a mixture of Mercuric Sulphate, Sodium Chloride, and a little Black Oxide of Manganese.

Solubility.—1 in 19 of Water; 1 in 5 of Alcohol (90 p.c.); 1 in 3 of Absolute Alcohol; 1 in 6 of Ether, *B.P.* (.735); 1 in 11 of Purified Ether (.720); 8 in 13 of Glycerin.

Medicinal Properties.—Antiseptic, disinfectant, escharotic, alterative; given in very small doses in syphilitic affections, and in syphilitic and non-syphilitic skin diseases. Externally as a **lotion**, 1 grain to the fluid ounce, or **ointment**, 2 to 8 grains in the ounce, in chronic and parasitic skin diseases, and in acne and freckles; 1 in 1000 is used for syphilitic ulcers; as an ordinary surgical dressing and in obstetric practice 1 in 2000 is sufficient; as an **injection**, 1 grain to 8 fl. oz., for chronic discharges, such as leucorrhœa and gonorrhœa; and as a **gargle**, 1 grain in 4 fl. oz., for ulcerated and syphilitic sore

throat; as a collyrium, 1 grain in 8 fl. oz. For syphilis by **hypodermic injection**, $\frac{1}{32}$ to $\frac{1}{16}$ grain (with Sodium Chloride), in divided portions in the course of the day. As a local application in diphtheria.

In France it is legal to supply registered nurses (for obstetric purposes) with a lotion containing .025 gramme Mercuric Chloride and 1 gramme Tartaric Acid per litre, also an ointment containing 1 p.c. in Vaseline.—*A.J.P.* '90, 180.

The disadvantages of Mercuric Chloride as a disinfectant and antiseptic are due (1) to its forming with albumen an inert and insoluble compound, (2) to its corrosive action on metals, and (3) to its being a powerful poison.

To prevent its antiseptic value being destroyed by the formation of an albuminate, five parts of Tartaric or Hydrochloric Acid should be added to each part of Mercuric Chloride.

As a disinfectant of enteric or other infectious stools and urine, an equal quantity of a 1 in 500 acidulated solution should be used. They should be thoroughly mixed and left in contact for at least two hours before they are finally disposed of.

An aqueous solution of 1 in 1000 is employed for disinfecting the hands, towels, sponges, etc. in operative surgery; it corrodes surgical instruments. A solution of the same strength is used for washing infected rooms, furniture and other articles, and for soaking infected linen. The solution is often coloured with aniline blue or methyl violet to guard against its being mistaken for water or other harmless fluid.

Recommended for dysentery in India, $\frac{1}{12}$ grain every 4 hours.—*L.* '89, ii. 901.

Injection of Corrosive Sublimate solution in hydrocele.—*L.* '97, ii. 594.

A case of tetanus treated by injection of Corrosive Sublimate.—*B.M.J.* '97, i. 138.

Hypodermic injections of Sublimate in lupus.—*B.M.J.E.* '96, i. 52.

Injections of Corrosive Sublimate in tuberculosis.—*B.M.J.E.* '96, i. 71.

Is a powerful hepatic, but a feeble intestinal stimulant.

When Calomel and Mercuric Chloride are given together, both the liver and intestinal glands are stimulated.—Dr. Rutherford.

Dose.— $\frac{1}{32}$ to $\frac{1}{16}$ grain.

Prescribing Notes.—Generally prescribed in the form of the **Liquor** or given in **pills** well triturated with Milk Sugar and Glucose *q. s.* **Compressed Discs** are prepared for making an antiseptic solution, 1 in 1000.—*See also Not Official.*

Incompatibles.—Alkalis and their Carbonates, Lime Water, Tartar Emetic, Silver Nitrate, Lead Acetate, Albumen, Potassium Iodide, Soaps, Decoction of Cinchona, Tannin, alkaline Sulphides.

Official Preparations.—Liquor Hydrargyri Perchloridi, and Lotio Hydrargyri Flava. Used in the preparation of Hydrargyri Oleas, Hydrargyri Oxidum Flavum, and Hydrargyrum Ammoniatum.

Not Official.—Corrosive Sublimate Discs, Sublimate Wood Wool, Sal Alembroth, Injectio Sal Alembroth Hypodermica, Hydrargyrum Carbolicum, and Pilula Hydrargyri Carbolici.

Antidotes.—In case of poisoning by Corrosive Sublimate, raw eggs should be administered in large quantity; flour with milk may also be given; the stomach should then be washed out or an emetic employed.

Foreign Pharmacopœias.—Official in Austr. and Hung., Hydrargyrum Bichloratum Corrosivum; Belg., Sublimatus Corrosivus; Dan., Norw. and Swed., Chloretum Hydrargyricum Corrosivum; Dutch, Chloretum Hydrargyricum; Fr., Chlorure Mercurique; Ger., Jap., Russ. and Swiss, Hydrargyrum Bichloratum;

Ital., Bichloruro di Mercurio; Port., Chloreto Mercurico; Mex. and Span., Cloruro Mercurico; U.S., Hydrargyri Chloridum Corrosivum.

Description.—Heavy colourless masses of prismatic crystals, possessing a highly acrid metallic taste.

Tests.—It affords the reactions characteristic of Mercuric salts and of Chlorides. When heated it sublimes without decomposition, leaving only a trace of fixed residue. When heated with excess of Lime it yields 72·8 to 73·8 p.c. of metallic Mercury.

An aqueous solution when boiled with Copper foil, gives a grey deposit, which assumes a silvery lustre on being rubbed.

In a Glycerin solution Potassium Hydroxide does not cause a precipitate; and when Caustic Alkali and Glycerin are both present, even Alkaline Sulphides will not give a precipitate.

Preparations.

LIQUOR HYDRARGYRI PERCHLORIDI. SOLUTION OF MERCURIC CHLORIDE. (ALTERED.)

Mercuric Chloride, 1 grain. Distilled Water, 2 fl. oz. Dissolve.
=(1 in 875).

Ammonium Chloride now omitted.

This Solution contains $\frac{1}{17}$ grain of Mercuric Chloride in 1 ℥. drm., or ·114 gramme in 100 c.c.

Dose.— $\frac{1}{2}$ to 1 fl. drm.

Foreign Pharmacopœias.—Official in Belg., *Liquor Sublimati Corrosivi* (Van Swieten); Fr., *Soluté de Bichlorure de Mercure*; Ital., *Soluzione Idroalecolica di Bichloruro di Mercurio*; Port., *Soluto de Chloreto Mercurico*; Swiss, *Hydrargyrum Bichloratum Solutum*: all 1 in 1000; Mex., *Solucion de Van-Swieten*, 1 in 1000 containing 10 p.c. of Alcohol, 80°; Span., *Solucion Hidro-Alcoholica de Cloruro Mercurico*, 1 in 1200. Not in the others.

LOTIO HYDRARGYRI FLAVA. YELLOW MERCURIAL LOTION. *B.P.Syn.*

—YELLOW WASH. (ALTERED.)

Mercuric Chloride, 20 grains; Solution of Lime, 10 fl. oz.: mix.
=(1 in 240).

Now 2 grains to the fluid ounce.

This lotion owes its efficacy to the precipitated Mercuric Oxide, and is used for the same purposes as Mercuric Oxide Ointment.

Foreign Pharmacopœias.—Official in Belg. and Dutch (*Aq. Phagedenica*), 1 in 250; Fr. (*Eau Phagédénique*), 1 in 300; Mex. (*Agua Fagédénica Roja*), 1 in 600; Span. (*Agua Fagédénica*), 1 in 350. Not in the others.

Not Official.

CORROSIVE SUBLIMATE DISCS.—Compressed discs containing $8\frac{3}{4}$ grains of Mercuric Chloride, with an equal weight of Sodium Chloride, and coloured with Methyl Violet.

One disc dissolved in a pint of water forms a solution containing 1 of Mercuric Chloride in 1000.

One pint of London Water with 10 grains of Mercuric Chloride makes a clear solution, also with the addition of 10 grains of Sodium Chloride; but with 10 grains of Ammonium Chloride it is very turbid. The latter, therefore, should not be used in making the discs.

SUBLIMATE WOOD WOOL.—Pinewood almost in a state of powder, containing $\frac{1}{2}$ p.c. of Corrosive Sublimate. It is highly absorbent.

SAL ALEMBROTH.—Mercuric Ammonium Chloride, $2\text{NH}_4\text{Cl} \cdot \text{HgCl}_2 \cdot \text{H}_2\text{O}$; when exposed to dry air the water is given off.

Solubility.—2 in 1 of Water, 1 in $3\frac{1}{2}$ of Alcohol (90 p.c.), 1 in 1 of Glycerin.

Medicinal Properties.—A powerful antiseptic, but it is not so irritating as Corrosive Sublimate. Used in the antiseptic treatment of wounds.

For **hypodermic** injection in syphilis, $\frac{1}{2}$ grain dissolved in 10 minims of Water.—*B.M.J.* '88, i. 905.

Alembroth **Gauze**, 1 p.c.; **Wool**, 2 p.c.; they are tinted with aniline blue, and as the colour is bleached by purulent discharge, soakage of the dressing is readily noted.

INJECTIO SAL ALEMBROTH. HYPODERMICA.—Mercuric Chloride 32 grains, Ammonium Chloride 16 grains, Distilled Water 2 fl. oz. Dissolve.

Dose.—10 minims = $\frac{1}{2}$ grain of Sal Alembroth to be used for an **injection**.—*Lock Hospital.*

HYDRARGYRUM CARBOLICUM (Mercury Carbolate) (*Schadek*).—Colourless crystals, or a white powder. Obtained by precipitating an alcoholic solution of Mercuric Chloride with an alcoholic solution of Phenol and Potassium Hydroxide, and evaporating nearly to dryness, with subsequent washings.

Nearly insoluble in Water, and soluble with difficulty in cold Alcohol.

Medicinal Properties.—Recommended in secondary syphilis.—*L.* '87, i. 943; *L.* '87, ii. 277; *P.J.* (3) xviii. 605.

Dose.— $\frac{1}{2}$ to $\frac{1}{4}$ grain three times a day in **pill**; also **hypodermically**, suspended in Mucilage, strength 2 p.c.

PILULA HYDRARGYRI CARBOLICI.—Mercury Carbolate, $\frac{1}{2}$ grain; Extract of Liquorice, 1 grain; Powdered Liquorice, 1 grain, in each pill.

Dose.—Two to four pills daily.

Not Official.

HYDRARGYRI PERSULPHAS.

MERCURIC SULPHATE.

Syn.—HYDRARGYRI SULPHAS; SULPHATE OF MERCURY.

HgSO_4 , eq. 294.14.

A white, heavy, crystalline powder, prepared by dissolving Mercury in strong Sulphuric Acid and evaporating to complete dryness.

It is decomposed by water, forming a yellow oxysulphate called Turpeth Mineral, $\text{HgSO}_4 \cdot 2\text{HgO}$, and free Sulphuric Acid.

It is used for working small medical batteries.

Entirely volatilised by heat, but not below redness.

Foreign Pharmacopœias.—Official in Fr., Sulfate Mercurique; Mex., Port. and Span., Sulfato Mercurico; not in the others; Belg., Subsulphas Hydrargyri; Swiss, Hydrargyrum Sulfuricum basicum; U.S., Hydrargyri Subsalphas Flavus; these three are the yellow 'Turpeth Mineral.'

Preparation.

UNGUENTUM HYDRARGYRI SULPHATIS FLAVÆ (*B.S.H.*).—Yellow Sulphate of Mercury, 15 grains; Benzoated Lard, 1 oz. Mix.

Useful in ringworm and seborrhœa capitis.

HYDRARGYRI SUBCHLORIDUM.

MERCUROUS CHLORIDE.

B.P. Syn.—CALOMEL; HYDRARGYRI CHLORIDUM. SUBCHLORIDE OF MERCURY. Hg_2Cl_2 , eq. 467.98.

A salt obtained as a sublimate when a mixture of Mercurous Sulphate and Sodium Chloride is heated.

Solubility.—Insoluble in Water, Alcohol (90 p.c.), or Ether.

Medicinal Properties.—Alterative, indirect cholagogue, purgative, antiseptic and diuretic.

Calomel stimulates the intestinal glands, but not the liver.—*Dr. Rutherford.*

It is probable that the cholagogue action of Calomel is due to its having a peculiar stimulant action on the duodenum and ileum, so as to hurry the bile along the intestine and prevent its re-absorption.—*Brunton.*

As an alterative it is used in syphilitic affections, chronic skin diseases, and glandular enlargements.

Useful in chronic hepatitis, catarrhal jaundice, and in chronic pharyngitis; repeated small doses of great benefit in obstinate vomiting; also, in the gastro-intestinal catarrh and diarrhoea of children, for whom the absence of taste renders it convenient.

As a purgative in biliousness, hepatic and cardiac dropsy, apoplexy, gout, and in congested and torpid liver due to free living.

In enteric fever, the stupor, tremor, headache and coma, all of which may be due to intestinal sepsis and ptomaines, are removed, and the entire aspect of the case changed, by 1 to 3 grains of Calomel.—*Broadbent.*

In hiccough, one grain every hour is often successful. Its *local uses* are numerous: as an **insufflation**, or as a **gargle** in syphilitic sore throat; as an **injection** with or without Lime Water, in blenorrhagia; and by **fumigation**; for this latter purpose a spirit lamp under a metal cup containing 20 grains of Calomel is placed under a cane-seated chair on which the patient remains seated for twenty minutes, his body being covered with a blanket; an apparatus contrived by Mr. Lee is still better. In a wide range of skin affections, but especially syphilitic, it is invaluable as an **ointment**.

Should not be applied to the eye when a patient is taking Potassium Iodide, for it will cause severe inflammation.—*M.P.* '80, ii. 294.

Dose.— $\frac{1}{2}$ to 5 grains.

Prescribing Notes.—Calomel can be made into **pills** with Glucose, and if the pills be too small, they can be made larger by the addition of Milk Sugar. It is frequently prescribed with Compound Rhubarb Pill or Compound Pill of Colocynth and Henbane.

Incompatibles.—Bromides and Iodides, Nitro-Hydrochloric Acid, Hydrocyanic Acid, Chlorides of the Alkalis. Soap, even when neutral. Solutions of Lime, Potassium Hydroxide, or Sodium Hydroxide.

Official Preparations.—*Lotio Hydrargyri Nigra*, *Pilula Hydrargyri Subchloridi Composita*, and *Unguentum Hydrargyri Subchloridi*.

Not Official.—Calomel Cream, *Emplastrum Calomelanos*, *Pilula Calomelanos*

c. Coloc., Pilula Hydrargyri Subchloridi et Jalapæ, Pilula Hydrargyri Subchloridi et Scammonii and Pilula Zittmann.

Foreign Pharmacopœias.—Official in Belg., Calomelas; Dan. and Norw., Calomel; Fr., Protochlorure de Mercure par volatilisation, also Chlorure Mercurieux Précipité; Dutch, Chloretum Hydrargyrosium; Swed., Chloretum Hydrargyrosium Precipitatum; Austr. and Hung., Hydrargyrum Chloratum Mite, both the levigated and that sublimed in steam; Ger. and Swiss, Hydrargyrum Chloratum, also Hydrargyrum Chloratum vapore paratum; Ital., Protochloruro di Mercurio; Mex., Cloruro Mercurioso al vapor, also precipitado; Jap., Hydrargyrum Chloratum; Port., Chloreto Mercurioso, also Mercurio Doce; Russ., Hydrargyrum Chloratum Levigatum, also Hydrargyrum Chloratum Vapore præparatum; Span., Cloruro Mercurioso (Sublimado, Por el Vapor, and Precipitado); U.S., Hydrargyri Chloridum Mite.

The following synonyms are applied to Calomel obtained by precipitation:—Fr., Précipité Blanc; Port. and Span., Precipitatum Album. These terms do not mean, as in England, Ammoniated Mercury.

Description.—A dull-white heavy and nearly tasteless powder, sometimes rendered yellowish by prolonged trituration.

Tests.—It affords the reactions characteristic of Mercurous salts and of Chlorides. Hydrocyanic Acid converts it into Mercuric salt and a black powder readily yielding metallic Mercury. It volatilises when sufficiently heated, leaving only a trace of fixed residue. When heated with excess of Lime it should yield 84.4 to 84.9 p.c. of metallic Mercury. Warmed with Solution of Potassium Hydroxide it becomes black and does not evolve Ammonia (absence of Mercuric-ammonium Chloride). Warm Ether with which it has been shaken leaves, on evaporation, no residue (absence of Mercuric Chloride).

This evaporation must be performed at a low temperature, otherwise the Corrosive Sublimate (if present) will volatilise in the Ether vapour.

Preparations.

LOTIO HYDRARGYRI NIGRA. BLACK MERCURIAL LOTION. *B.P. Syn.*—
BLACK WASH. (ALTERED.)

Mercurous Chloride, 30 grains; Glycerin, $\frac{1}{2}$ fl. oz.; Mucilage of Tragacanth, $1\frac{1}{4}$ fl. oz.; Solution of Lime, a sufficient quantity. Triturate the Mercurous Chloride with the Glycerin and Mucilage of Tragacanth; transfer to a bottle; add 2 fl. oz. of the Solution of Lime; shake well; add sufficient Solution of Lime to produce 10 fl. oz. of the Lotion.

Glycerin and Mucilage of Tragacanth now added. = (about 1 in 146).

Useful application to syphilitic sores and foul ulcers.

Foreign Pharmacopœias.—Official in Mex. (Agua Fagédénica Negra), 1 in 600; not in the others.

PILULA HYDRARGYRI SUBCHLORIDI COMPOSITA. COMPOUND
PILL OF MERCUROUS CHLORIDE. *B.P. Syn.*—COMPOUND CALOMEL PILL; PLUM-
MER'S PILL. (ALTERED.)

Mercurous Chloride, 1 oz.; Sulphurated Antimony, 1 oz.; Guaiacum Resin, in powder, 2 oz.; Castor Oil, 180 grains; Alcohol (90 p.c.) 1 fl. drm., or a sufficient quantity. Mix to form a mass. = (1 in $4\frac{1}{2}$).

Castor Oil reduced, and Alcohol (90 p.c.) added.

Dose.—4 to 8 grains.

Foreign Pharmacopœias.—Official in Belg. (Pil. Plummeri), 1 in 3; U.S. (Pil. Antimonii Comp.), 1 in 4; not in the others.

UNGUENTUM HYDRARGYRI SUBCHLORIDI. MERCUROUS CHLORIDE OINTMENT. *B.P. Syn.*—CALOMEL OINTMENT. (ALTERED.)

Mercurous Chloride, 1; Benzoated Lard, 9: mix. =(1 in 10).
Now 1 in 10 instead of 1 in 6½.

Useful in the itching of some skin affections, psoriasis and eczema, also in pruritus ani. A good application to syphilitic sores.

Foreign Pharmacopœias.—Official in Fr. (Pommade de Chlorure Mercureux), 1 in 10; Port. (Pomada de Mercurio Doce), 1 in 10; Mex. (Pomada de Cloruro Mercurico), 1 and 20; Span. (Pomada de Cloruro Mercurioso), 2 in 17; not in the others.

Not Official.

CALOMEL CREAM.—Calomel, 10 grains; Vaseline to 1 oz.—*Lock Hospital.*

EMPLASTRUM CALOMELANOS.—*Syn.*—EMPLASTRUM ALBUM.—Contains 20 p.c. of Calomel, spread on silk or other suitable material.

PILULA CALOMELANOS C. COLOC.—Calomel, 1 grain; Compound Extract of Colocynth, 3½ grains; Ipecacuanha, ½ grain. Dose: One or two pills.—*Middlesex Hospital.*

PILULA HYDRARGYRI SUBCHLORIDI ET JALAPÆ (House pill).—Calomel, 1 grain; Jalap, 3 grains; Treacle, *q.s.*: in one pill.—*St. Bartholomew's Hospital.*

PILULA HYDRARGYRI SUBCHLORIDI ET SCAMMONII.—Calomel, 1 grain; Scammony, 3 grains; Treacle *q.s.*: in one pill.—*St. Bartholomew's Hospital.*

PILULA ZITTMANN.—Calomel, 2 grains; Compound Extract of Colocynth, 5 grains; Extract of Henbane, 2 grains. Make two pills.—*Lock Hospital.*

Not Official.

HYDRARGYRI TANNAS.

A greyish-green or blackish-grey powder, containing 40 to 50 p.c. of Mercury. It is decomposed by Water and solutions of the Alkalis. It is not materially affected by Diluted Hydrochloric Acid.

Medicinal Properties.—Has been found very useful in syphilis.

It is decomposed by the alkali of the intestines, and the Mercury rapidly passes into the system.—*L.* '84, i. 723, *M.T.* '85, ii. 869.

Dose.—1 to 2 grains in a pill, 3 times a day, an hour before meals.

Foreign Pharmacopœias.—Official in Austr. contains about 42 p.c. of Mercury; Mex. (Tanato de Mercurio); not in the others.

Process for determining the quantity of Mercury.—*P.J.* '96, i. 82.

HYDRARGYRUM AMMONIATUM.

AMMONIATED MERCURY.

B.P. Syn.—AMMONIO-CHLORIDE OF MERCURY; MERCURIC-AMMONIUM CHLORIDE; WHITE PRECIPITATE.

NH_2HgCl , eq. 249.93.

It is known as *infusible white precipitate*.

The *fusible* variety is obtained by adding a solution of Mercuric Chloride to a

mixture of Ammonium Chloride and Ammonia till the precipitate ceases to redissolve. It has the formula $HgCl_2 \cdot 2NH_3$.

Solubility.—Soluble in Hydrochloric Acid. Insoluble in Water, Alcohol (90 p.c.), and Ether.

Medicinal Properties.—Never given internally. Used in the form of ointment for chronic and parasitic skin diseases, impetigo, herpes, ringworm, and scabies. The ointment is used for pediculi, but the powder can be used alone or mixed with Rose Water, and the unpleasantness of greasing the linen avoided.

Official Preparation.—Unguentum Hydrargyri Ammoniatum.

Antidotes.—Stomach-pump or an emetic, preceded by raw eggs and raw flour and water.

Foreign Pharmacopœias.—Official in Austr. and Hung., Hydrarg. Bichloratum Ammoniatum; Belg., Præcipitatum Album; Dan. and Norw., Chloretum Amido-hydrargyricum; Dutch, Chloretum Hydrargyrico-ammonicum; Ger. and Jap., Hydrargyrum Præcipitatum Album; Ital., Cloramiduro di Mercurio; Swed., Chloretoamidatum Hydrargyricum; Russ. and Swiss, Hydrargyrum Amidato-bichloratum; U.S., Hydrargyrum Ammoniatum; Ph. Lond. 1788, Calx Hydrargyri Alba; not in Fr., Port. or Span.

The synonyms, Fr., Précipité Blanc; Port. and Span., Præcipitatum Album; apply to Calomel and *not* to Hydrargyrum Ammoniatum.

O.M.P.—Mercuric Chloride, 3; Solution of Ammonia, 4; Distilled Water, a sufficient quantity. Dissolve the Mercuric Chloride in 60 of the Distilled Water with the aid of heat; pour the liquid into the Solution of Ammonia diluted with 20 of Distilled Water, constantly stirring; collect the precipitate on a filter; wash it well with cold Distilled Water until the liquid which passes through is free from Chloride; dry the product at a temperature not exceeding 212° F. (100° C.).

Description.—A white powder on which Water has but little action, and Alcohol (90 p.c.) or Ether no action.

Tests.—Digested with Solution of Potassium Hydroxide it evolves Ammonia, acquiring a pale yellow colour, and the liquid, filtered and acidulated with Nitric Acid, gives a white precipitate with Solution of Silver Nitrate. Boiled with Solution of Stannous Chloride it becomes grey, and yields globules of metallic Mercury. It volatilises at a temperature under redness, without fusing, leaving only an insignificant amount of fixed residue. When heated with excess of Lime it should yield 78 to 79 p.c. of metallic Mercury.

The standard has been raised from 77.5 in *B.P.* '85 to 78–79 p.c. in *B.P.* '98.

Preparation.

UNGUENTUM HYDRARGYRI AMMONIATI. AMMONIATED MERCURY OINTMENT. *B.P. Syn.*—WHITE PRECIPITATE OINTMENT. (ALTERED.)

Ammoniated Mercury, 1; Paraffin Ointment, white, 9: mix. = (1 in 10).

Now made with White Paraffin Ointment in place of Simple Ointment.

Foreign Pharmacopœias.—Official in Dutch, Ung. Chloreti Hydrargyrico-ammonici, 1 in 10; Ger., Jap. and Swiss, Ung. Hydrargyri Album, and Russ., Ung. Hydrargyri Amidato-bichlorati, 1 in 10; U.S., 1 in 10; not in the others.

HYDRARGYRUM CUM CRETA.

MERCURY WITH CHALK.

B.P.Syn.—GREY POWDER.**Solubility.**—Insoluble in Water.**Medicinal Properties.**—Chiefly given to children as a cathartic; suitable for the prolonged administration of Mercury in syphilis.**Dose.**—1 to 5 grains.**Prescribing Notes.**—Best given as a **powder** by itself, or with Rhubarb, sometimes in **cachets**; but when required to be made into **pills**, Glucose is the best excipient.**Foreign Pharmacopœias.**—Official in Swed., same as Brit.; Mex., Polvo de Mercurio Calcereo; Port., Mercurio com Carbonato de Cal, 3 in 10; U.S., 3·8 in 10; not in the others.**O.M.P.**—Mercury (by weight), 1; Prepared Chalk, 2: Rub the Mercury and Prepared Chalk in a porcelain mortar until metallic globules cease to be visible to the naked eye, and the mixture acquires a uniform grey colour.**Description.**—A powder of a light-grey colour; free from grittiness; insoluble in Water; partly dissolved by Diluted Hydrochloric Acid, leaving the Mercury in a finely divided state.Twelve commercial samples examined contained Mercury 21·2 to 35·8 p.c. (and one sample, taken from the bottom of a stock bottle, gave as much as 49·6 p.c., probably owing to the Mercury having shaken down); Mercurous Oxide from a trace to 6 p.c.; Mercuric Oxide from ·65 to 4·6 p.c. The best sample gave 30·3, ·17, and ·65 p.c. respectively.—*P.J.* (3) xv. 230.Instead of the 2 of Chalk, 1½, with ½ of Milk Sugar, is recommended.—*P.J.* March, 1860, and again *P.J.* (3) vi. 1034.Magnesium Carbonate as a substitute for Chalk is recommended.—*C.D.* '84, 549. U.S., rubs the Mercury with Honey and Water previous to adding the Chalk.**Test.**—The solution formed with Hydrochloric Acid does not yield any white or grey precipitate on the addition of Solution of Stannous Chloride (absence of Mercuric compounds).**HYDRASTIS RHIZOMA.**

HYDRASTIS RHIZOME.

The dried rhizome and roots of *Hydrastis Canadensis*.Hydrastis contains the alkaloids—**Berberine** (about 4 p.c.), **Hydrastine** (about 2 p.c.), and **Canadine**.Hydrastine is distinguished from Berberine by giving *no* red colour with Chlorine Water.**Medicinal Properties.**—Tonic, nervine stimulant, hæmostatic, astringent, stomachic. Useful in chronic catarrhal conditions of the mucous membranes, especially that of the uterus.Recommended in uterine hæmorrhage.—*L.* '85, ii. 733; '87, i. 391; '87, ii. 1287; '88, i. 868; '88, ii. 133; *B.M.J.* '87, ii. 1349; '88, ii. 123. The fluid extract is a sovereign remedy as a preventive in spontaneous epistaxis.—*M.A.* '95, 246. It may be used internally or as a 5 p.c. solution in water as a spray; internally also in

aggravated cases of hyperidrosis.—*M.A.* '95, 322. In dyspepsia.—*L.* '85, ii. 885. Used locally in chronic pharyngitis.—*L.* '89, i. 549.

20 to 30 drops of the fluid extract for controlling night sweats.—*Pr.* iv. 624.

In chronic bronchitis.—*B.M.J.E.* '97, i. 84; '97, ii. 60; *Pr.* ix. 224.

Official Preparations.—Extractum Hydrastis Liquidum and Tinctura Hydrastis.

Foreign Pharmacopœias.—Official in Austr., Dan., Dutch, Fr., Ger., Ital., Mex., Norw., Russ., Swiss and U.S.; not in the others.

Description.—The rhizome is tortuous, simple, or branched, from half an inch to an inch and a half (twelve to thirty-eight millimetres) long and from one-eighth of an inch to half an inch (three to twelve millimetres) in thickness. The upper surface bears short ascending branches, which are usually terminated by cup-shaped scars. From the lower surface and sides numerous thin brittle roots are given off. The rhizome is yellowish-brown, becoming darker by age. It breaks with a clean resinous fracture; the smooth fractured surface is of a brownish-yellow or greenish-yellow colour, and exhibits a ring of bright yellow somewhat distant narrow wood bundles. It has a slight but characteristic odour and a bitter taste.

Preparations.

EXTRACTUM HYDRASTIS LIQUIDUM. LIQUID EXTRACT OF HYDRASTIS. (MODIFIED.)

Hydrastis Rhizome, in No. 60 powder, 20; Alcohol (45 p.c.), a sufficient quantity. Moisten the powdered Hydrastis with about 8 of the Alcohol; pack the damp powder in a percolator; pour on sufficient menstruum to saturate it thoroughly; when the liquid begins to drop, close the lower orifice of the percolator; set aside for forty-eight hours; then allow percolation to proceed, gradually adding menstruum until the Hydrastis is exhausted; reserve the first 17 of the percolate; remove the Alcohol from the remainder by distillation; evaporate the residue to a soft extract; dissolve this in the reserved portion; add sufficient menstruum to produce 20 of the Liquid Extract. =(1 in 1).

Alcohol (45 p.c.) now used instead of a mixture of Rectified Spirit and Distilled Water equal parts.

Dose.—5 to 15 minims.

Foreign Pharmacopœias.—Official in Dan., Dutch, Ger., Ital., Russ., Swiss and U.S., all 1 in 1; Austr., 2 in 3; Mex. and Norw.; Fr. and Mex. have a solid extract; not in the others.

Shoemaker has used the fluid extract as a stimulant and astringent application in skin diseases.—*L.* '85, ii. 87.

TINCTURA HYDRASTIS. TINCTURE OF HYDRASTIS. (MODIFIED.)

Hydrastis Rhizome in No. 60 powder, 2; Alcohol (60 p.c.), a sufficient quantity. Moisten the powder with 2 of the Alcohol, and complete the percolation process. The resulting Tincture should measure 20. =(1 in 10).

Now made with Alcohol (60 p.c.) in place of Proof Spirit.

Dose.— $\frac{1}{3}$ to 1 fl. drm.

Foreign Pharmacopœias.—Official in Fr., 1 and 5; U.S., 1 in 5; not in the others.

Not Official.

HYDRASTIN.—An eclectic remedy has been sold under this name for many years. It is said to consist principally of Berberine Hydrochloride, with some Hydrastine. *It is a moderately powerful stimulant of the liver and a feeble stimulant of the intestines.*—*Dr. Rutherford.*

Dose.—2 to 6 grains.

HYDRASTINA.—An alkaloid ($C_{21}H_{21}NO_6$) crystallising in white prisms. Taste bitter and pungent. 'Hydrastine Cryst.' melts at $132^\circ C$.

Solubility.—1 in 120 of Alcohol, 1 in 83 of Ether, 1 in 2 of Chloroform, and 1 in 16 of Petroleum Spirit, which last three solvents do not dissolve Berberine; nearly insoluble in Water.

Dose.— $\frac{1}{4}$ to $\frac{1}{2}$ grain.

Hydrastine with Mono-calcium Phosphate forms a soluble compound which can be made to contain 71 p.c. of Hydrastine.—*A.J.P.* '97, 604; *P.J.* '98, i. 24.

HYDRASTINÆ HYDROCHLORIDUM.—Hydrastine Hydrochloride. Faintly yellow semi-crystalline powder.

Solubility.—Readily in Water and in Alcohol (90 p.c.) (about 1 in 1 of either).

Dose.— $\frac{1}{2}$ to 1 grain.

NOTES.—*P.J.* (3) xv. 297; (3) xvii. 427.
Has been used as an ecboic to induce premature labour; maximum daily dose, $7\frac{1}{2}$ grains internally, 5 grains by hypodermic injection.—*L.* '86, i. 990; its physiological action.—*B.M.J.* '98, ii. 1052.

HYDRASTININE.—An oxidation product ($C_{11}H_{11}NO_2$) of the natural alkaloid Hydrastine. It is crystalline, and has a melting point 116° — $117^\circ C$. Not readily soluble in Water.

HYDRASTININÆ HYDROCHLORIDUM.—A pale yellow crystalline powder. Soluble in its own weight of Water, 1 in 3 of Alcohol (90 p.c.).

Medicinal Properties.—Useful in endometritis, and uterine fibroid, in which excessive bleeding is a prominent symptom.—*L.* '90, i. 712; *T.G.* '90, 86; '92, 539, 699; *Pr.* xlv. 373. Valuable in menorrhagia.—*L.* '92, ii. 1350; *L.* '94, i. 1521.

Checks uterine hæmorrhage, ameliorates night sweats in phthisis. During labour it undoubtedly strengthens feeble contractions and revives an inert uterus.—*B.M.J.E.* '98, i. 63.

Dose.— $\frac{3}{4}$ to $1\frac{1}{2}$ grains, used hypodermically in a 10 p.c. aqueous solution.

Not Official.

HYDROGENII PEROXIDUM.

In its purest condition this is a colourless liquid. Sp. gr. 1.452, evolving when heated 475 times its volume of oxygen gas. It is obtained by decomposing Barium Peroxide with Sulphuric Acid, and concentrating the filtered liquid in vacuo over Sulphuric Acid. Commercially it is sold containing 10 or 20 volumes of available oxygen. It is one of the most powerful oxidising agents known, and is used for bleaching hair, and delicate fabrics which might be injured by Chlorine.

Official Preparation.

LIQUOR HYDROGENII PEROXIDI. SOLUTION OF HYDROGEN PEROXIDE.
(N.L.W.)

An aqueous solution of Hydrogen Peroxide, H_2O_2 , eq. 33.76, pre-

pared by the interaction of Water, Barium Peroxide, and a dilute mineral acid, at a temperature below 50° F. (10° C.).

Medicinal Properties.—Antiseptic, alterative, recommended in chronic bronchitis, enteric fever, diabetes, and glandular swellings. Used locally as a surgical dressing and for purulent discharges, and as a spray or swab in diphtheria.

B. W. Richardson recommended its use in 5 volume solution as a deodorising gargle in scarlet fever, and the following mixture in whooping-cough:—Hydrogen Peroxide (10 vols.), 6 fl. drm.; Glycerin, 4 fl. drm.; Water to 3 fl. oz. Dose: Half a fluid ounce in a wineglassful of Water 5 or 6 times a day.—*Aselepiad* '87, 53.

Rapid healing of chancres by spray.—*M.A.* '95, 168. A spray of 10 volume strength is a good application to the throat in scarlet fever.

A bandage soaked with solution of Hydrogen Peroxide and allowed to dry on the wrist gave rise to spontaneous combustion. This is more likely to occur with a solution containing 1 p.c. of Sulphuric Acid, than with a solution previously neutralised.—*A.J.P.* '98, 291; *T.G.* '98, 618.

Dose.— $\frac{1}{2}$ to 2 fl. drm.

Should be well diluted.

Foreign Pharmacopœias.—Official in Ital., Acqua Ossigenata, 12 volumes; Fr., Soluté Officiel d'Eau Oxygénée au dixième, 10 volumes; Mex., Agua Oxigenada, sp. gr. 1.452; U.S., Aqua Hydrogenii Dioxidii, 10 volumes; not in the others.

Description.—A colourless and odourless liquid. It has a slightly acid taste, and renders the saliva frothy.

Tests.—When heated it is decomposed into Water and Oxygen. On adding a few drops to 8 or 10 c.c. of Water containing a drop of Solution of Potassium Chromate, 10 drops of Diluted Sulphuric Acid, and 2 or 3 c.c. of Ether, a blue layer will appear between the ethereal and aqueous liquids, and, after agitation, the Ether will also become blue. 1 volume, treated in a brine-charged nitrometer with 10 or 12 times its bulk of a mixture of 1 volume of Sulphuric Acid, 2 volumes of a 5 p.c. solution of Potassium Permanganate, and 7 volumes of Water, should afford, at normal temperature and pressure, not less than 18 and not more than 22 volumes of Oxygen, indicating a yield of 9 to 11 volumes from the Solution of Hydrogen Peroxide. It should give no characteristic reaction with the tests for Barium. Evaporated to dryness on a water-bath, not more than .5 p.c. of solid residue should remain.

Determination of Hydrogen Peroxide in the presence of various preservative agents. Applied gasometrically, the permanganate method is unreliable in all cases. Kingsett's* thiosulphate method is simple, rapid and accurate, and its accuracy is not lessened by the presence of the usual preservative agents, nor by large quantities of Glycerin. It is applicable in all cases, so far as known.—*A.J.P.* '98, 233.

* Mix 10 c.c. Hydrogen Peroxide with 40 c.c. of a diluted Sulphuric Acid (1.3) and make up to 100 c.c. with Distilled Water. 10 c.c. of this solution is then run into 10 c.c. of a 10 p.c. Potassium Iodide solution; allow the mixture to stand for five minutes and then titrate with $\frac{8}{10}$ Thiosulphate solution. Each 1 c.c. $\frac{8}{10}$ Thiosulphate solution = 1.118 c.c. Oxygen, but this figure must be divided by two to ascertain the volumes of available Oxygen.

Bach's reagent for Hydrogen Peroxide consists of the following: (A) .03 gramme of Potassium Bichromate and 5 drops of Aniline in 1 litre of Water; (B) 5 p.c. Oxalic Acid solution. On shaking 5 c.c. of the solution to be tested with 5 c.c. of solution (A) and 1 drop of solution (B), a violet-red coloration is produced when Hydrogen Peroxide is present.—*J.C.S. Abs.* '95, ii. 239, 526; *Analyst* '96, 80; *J.S.C.I.* '96, 216; *P.J.* '97, i. 492.

Samples containing Sodium Silicofluoride.—*C.D.* '96, i. 85.

The addition of 2 p.c. of Alcohol or Ether is effective in retarding the decomposition of Hydrogen Peroxide solutions.—*J.C.S.I.* '97, 461.

Not Official.

GUTTE HYDROGENII PEROXIDI (T.H.).—Hydrogen Peroxide 10 volumes. Two or three drops to be poured into the ear from a warm spoon. Use, for fetid discharges.

HYOSCYAMI FOLIA.

HYOSCYAMUS LEAVES.

B.P.Syn.—HENBANE LEAVES.

The fresh leaves and flowers, with the branches to which they are attached, of *Hyoscyamus niger*; also the leaves and the flowering tops, separated from the branches and carefully dried. Collected from the flowering biennial plants.

Medicinal Properties.—Hypnotic, mild diuretic, antispasmodic. Similar in action to Belladonna and Stramonium, but milder. Used in insomnia of whatever origin, when Opium, from its constipating and other objectionable properties, is not advisable. It is employed to diminish pain and allay irritability of the bladder, and to prevent the griping of purgative medicines; in visceral neuralgias and in asthma and all spasmodic affections; to allay the irritation of teething and prevent convulsions. Children bear Hyoscyamus well, the aged not so. In large doses it dilates the pupil of the eye. **Hyoscine** is much employed in maniacal delirium.

Incompatibles.—Vegetable Acids, Silver Nitrate, Lead Acetate, Liquor Potassæ or Sodæ.

Official Preparations.—Extractum Hyoscyami Viride, Succus Hyoscyami, and Tinctura Hyoscyami; used in the preparation of Hyoscine Hydrobromidum, and Hyoscyamine Sulphas. The **extract** is contained in Pilula Colocynthidis et Hyoscyami.

Not Official.—Hyoscyami Radix, Chloroformum Hyoscyami, Linimentum Hyoscyami, Linimentum Hyoscyami Comp., Tinctura Hyoscyami Radicis, Hyoscyamina, and Hyoscina (Scopolamine).

Antidotes.—The same as for Belladonna.

Foreign Pharmacopœias.—Official in Austr., Dutch, Ger., Hung., Ital. (Giusquiamo), Swed., Swiss and U.S., **Leaves**; Jap. **Herb**; Belg., Dan., Fr., (Jusquame noire), Norw., Port. (Meimandro), Mex. (Beleno Negro), Russ. and Span. (Beleno), **Leaves and Seeds**.

Description.—The leaves vary in length, but seldom exceed ten inches (twenty-five centimetres), and are mostly sessile; they are alternate, exstipulate, triangular-ovate or ovate-oblong, acute, undulated, irregularly toothed, sinuate, or pinnatifid; they have a conspicuous midrib, and are pale green, and furnished with glandular hairs, par-

ticularly along the veins and on their under surface. The branches are subcylindrical, and also furnished with glandular hairs. The corolla is yellowish with a network of purplish veins. The mesophyll of the leaf contains small prisms of Calcium Oxalate. The fresh herb has a strong characteristic odour, a bitter and slightly acrid taste.

The biennial plant in the first year presents only a tuft of leaves, which perish in the autumn, and leave not a trace of the plant above ground in the winter; about April the plant grows and produces a stem, the leaves and branches of which are used in medicine.

It has been shewn by Gerrard (*P.J.* (3) xxi. 212) that carefully dried leaves from either—(1) Annual Henbane; (2) Biennial Henbane, first year's growth; (3) Biennial Henbane, second year's growth; scarcely differ in their alkaloidal strength.—*See also P.J.* (3) xxi. 312.

'Annual' Henbane is not much grown in this country, but considerable quantities of dried leaves are imported from abroad.

There is some evidence that dried leaves deteriorate on keeping, but this has not been satisfactorily demonstrated.

The percentage of total alkaloid in Henbane leaf dried at 212° F. is .06 to .07, or about $\frac{1}{2}$ that contained in Belladonna.

Its properties are completely extracted by Alcohol. The leaves yield by destructive distillation a very poisonous Oil. From the plant are obtained the crystallisable alkaloids **Hyoscyamine** and **Hyoscine** (Scopolamine); the latter until lately has been regarded as uncrystallisable.

Preparations.

EXTRACTUM HYOSCYAMI VIRIDE. GREEN EXTRACT OF HYOSCYAMUS.

Bruise fresh leaves, flowering tops, and young branches of *Hyoscyamus niger*; press out the juice and heat it gradually to 130° F. (54.4° C.); separate the green colouring matter by a calico filter; heat the strained liquid to 200° F. (93.3° C.); filter. Evaporate the filtrate to the consistence of a thin syrup; add to it the green colouring matter previously separated and passed through a hair sieve; stir the whole together, and evaporate at a temperature not exceeding 140° F. (60° C.), to the consistence of a soft extract.

Dose—2 to 8 grains.

It is generally used in smaller doses in pills to prevent the griping action of aperients.

100 lbs. Leaves produced 50 lbs. juice = 5 lbs. Extract.

100 lbs. Leaves, dried, weighed 15½ lbs.

100 lbs. freshly-picked Leaves, when dried, yielded only 11 lbs.

Foreign Pharmacopœias.—Official in Austr., alcoholic from **dried Leaves**; Belg., juice from **fresh Leaves**, evaporated and mixed with an equal quantity of alcohol, filtered and evaporated; Dan., Norw., and Swed., made from **Leaves** with weak Spirit; Dutch, alcoholic from **fresh herb**; Fr., clarified juice from **fresh Leaves** evaporated, also alcoholic extract from the **Seeds**; Ger. and Jap., made with Water and Spirit from **fresh herb**; Hung., juice from **fresh Leaves**, freed from Albumen and evaporated to a thick fluid, equal parts of Spirit added, filtered and again evaporated; Ital., from **dried Leaves** with dilute Alcohol; Mex., from **dried Leaves** and dilute Alcohol, also **Fluid Extract**; Port., Aqueous from **dried Leaves**, also from **fresh Leaves** with Alcohol; Russ., made from **Leaves** with Water and Spirit; Span., clarified juice from **fresh Leaves**, also aqueous from **dried Leaves**, also alcoholic from **dried Leaves**; Swiss, from **dried Leaves** with dilute Spirit,

1 = 2 of Leaves, also **Fluid Extract**, 1 in 1; U.S., alcoholic extract from the dried Leaves, also **Fluid Extract** from the same.

SUCCUS HYOSCYAMI. JUICE OF HYOSCYAMUS. (MODIFIED.)

Bruise the fresh leaves, flowering tops, and young branches of *Hyoscyamus niger*; press out the juice; to every three volumes of juice add 1 of Alcohol (90 p.c.); set aside for seven days; filter.

Now made with Alcohol (90 p.c.) in place of Rectified Spirit.

Dose.— $\frac{1}{2}$ to 1 fl. drm.

TINCTURA HYOSCYAMI. TINCTURE OF HYOSCYAMUS. (ALTERED.)

Hyoscyamus Leaves and flowering tops in No. 20 powder, 1; Alcohol (45 p.c.), a sufficient quantity. Moisten the powder with 1 of the Alcohol, and complete the percolation process. The resulting Tincture should measure 10. = (1 in 8).

Now 1 in 10 instead of 1 in 8 and Alcohol (45 p.c.) used in place of Proof Spirit.

Dose.—30 to 60 minims.

Much larger doses, 4 fl. drm., have been given in insomnia.

Foreign Pharmacopœias.—Official in Belg. and Port., 1 and 5, also fresh herb and Alcohol equal weights; Fr., 1 and 5, also Ethereal, 1 and 5 of Ether, sp. gr. 758, and Alcoholature with fresh Leaves and Spirit, equal weights; Mex., 1 in 5, also Ethereal 1 in 5; Span., 1 and 5; U.S., by percolation, 15 in 100; all by weight except U.S.; not in the others.

HYOSCINÆ HYDROBROMIDUM and HYOSCYAMINÆ SULPHAS.—See separate headings.

Not Official.

HYOSCYAMI RADIX.—The dried root of *Hyoscyamus Niger* (biennial) collected in the spring. Introduced by the late Author in 1878.

Contain on the average, about 15 p.c. of total alkaloid.

CHLOROFORMUM HYOSCYAMI.—Hyoscyamus Root, in powder, 20; Chloroform sufficient to percolate, 20.

LINIMENTUM HYOSCYAMI.—Hyoscyamus Root, in powder, 30; Alcohol (90 p.c.), 20; digest 4 days, and pack in a percolator; add Alcohol (90 p.c.), sufficient, with 1 of Camphor, to percolate 30.

LINIMENTUM HYOSCYAMI COMP.—Liniment. Hyoscyami, 7; Chloroform-Hyoscyami, 1: mix.

The Compound Liniment has been found most useful in relieving rheumatism. It is applied on piline as directed for Lin. Bellad. Comp., but is a much weaker preparation.

TINCTURA HYOSCYAMI RADICIS.—Hyoscyamus Root, in powder, 5; Alcohol (60 p.c.), 40; digest 7 days.

Dose.—20 to 60 minims.

HYOSCYAMINA ($C_{17}H_{23}NO_3$).—An Alkaloid obtained from the seeds of *Hyoscyamus niger*, the root of *Scopola carniolica*, and probably other allied plants, isomeric with Atropine but not identical with it.

It **crystallises** in silky needles. Melts at 103.5° C. Only slightly soluble in Water, but freely in Alcohol (90 p.c.), Chloroform, and Ether. Probably constitutes the greater portion of the alkaloid naturally existing in all the mydriatic drugs, and

best obtained from the root of *Scopola* or *Belladonna*. Most of the commercial 'Atropine' consists principally of *Hyoscyamine*.

Dose.— $\frac{1}{20}$ to $\frac{1}{40}$ grain.

An **amorphous Hyoscyamine** also occurs in commerce as a thick syrupy liquid. There is not much difference in price between the pure Amorphous *Hyoscyamine* and *Hyoscyamine* in crystals.

Hyoscyamine is converted into *Atropine* under the influence of a fixed alkali at the ordinary temperature; Ammonia also affects the alteration, but only very slowly.—*P.J.* (3) xviii. 1048.

The same change takes place tolerably easily by simply heating to 110° C.

Conversely *Atropine* is re-convertible into *Hyoscyamine*.

As it is only slightly soluble in Water the Sulphate should be ordered when required in aqueous solution.

Foreign Pharmacopœias.—Official in Fr.; not in the others.

HYOSCINA (SCOPOLAMINE).—This name was first applied by Ladenberg to a decomposition product of *Hyoscyamine*, but when this was found to be identical with *Tropine* obtained from *Atropine*, he transferred the name to an amorphous alkaloid contained in the mother liquors from *Hyoscyamine*, and which he also stated to be isomeric with *Atropine*. Schmidt, however, has discovered that this alkaloid is really identical with a crystalline alkaloid isolated from a species of *Scopola*, and to which the name *Scopolamine* has been given. It is not an isomer of *Atropine*, having the formula $C_{17}H_{21}NO_4.H_2O$, and Schmidt suggests that the commercial salts of the base which have been used under the name of *Hyoscine*, should be henceforth known as *Scopolamine* (*P.J.* (3) xxii. 1021); but Hesse, while corroborating the change in formula, strongly advocates the retention of the old name of *Hyoscine* (*P.J.* (3) xxiii. 223). It is usually employed medicinally in the form of **Hydrobromide**, which is readily soluble in Water, as is also the **Hydrochloride** and **Hydriodide**.

HYOSCINÆ HYDROBROMIDUM.

HYOSCINE HYDROBROMIDE.

B.P. Syn.—HYDROBROMATE OF HYOSCINE: SCOPOLAMINE HYDROBROMIDE.

[NEW.]

$C_{17}H_{21}NO_4, HBr, 3H_2O$, eq. 434.92.

The Hydrobromide of an alkaloid contained in *Hyoscyamus* Leaves, different species of *Scopola* and possibly other solanaceous plants.

Solubility.—1 in 4 of Water; 1 in 14 of Alcohol (90 p.c.); very slightly soluble in Chloroform or Ether.

Medicinal Properties.—Highly recommended in all forms of violent mania and cerebral excitement.—*L.* '90, i. 718; '90, ii. 414; '91, ii. 433; *B.M.J.* '91, ii. 694; *T.G.* '94, 449; *M.A.* '95, 332; *Y.B.T.* '95, 88.

In epileptic attacks of an hysterical form.—*M.A.* '95, 244.

As a mydriatic (1 grain to 1 oz.) in cases where *Atropine* is undesirable.—*B.M.J.* '94, ii. 598.

Dose.— $\frac{1}{20}$ to $\frac{1}{30}$ grain.

Carefully increased to $\frac{1}{3}$ grain, by hypodermic injection or by the mouth.

Not Official.—Guttæ Hyoscine and Injectio Hyoscine Hypodermica.

Antidotes.—Pilocarpine Nitrate, half a grain hypodermically, or $\frac{1}{4}$ grain Morphine; then stomach pump or emetics, followed by stimulants and artificial respiration.

Foreign Pharmacopœias.—Official in Ger., Russ., Swiss and U. S.; not in the others.

Description.—In colourless, transparent rhombic crystals, permanent in the air. It has an acrid, slightly bitter taste, and is odourless.

B.P. states it is 'soluble in 1 part of cold water,' which is incorrect, 1 in 4 is more nearly so.—*P.J.* '98, ii. 196.

Tests.—When heated to 212° F. (100° C.) it loses rather more than 12 p.c. of its weight and fuses to a viscid mass which becomes liquid at a temperature of 379.4° to 381.2° F. (193° to 194° C.). An aqueous solution yields a precipitate with Test-solution of Mercuric Chloride, Solution of Iodine, or Solution of Potassium Hydroxide, but not with Solution of Ammonia or Solution of Potassium Bichromate. It forms with Auric Chloride a crystalline salt having a melting point of 388.4° F. (198° C.). It affords the reactions characteristic of Hydrobromides. Its aqueous solution slightly reddens Litmus. Heated to redness with access of air it leaves no residue.

The melting points given for the dehydrated salt and the Auric Chloride require modification. The pure product as it appears in commerce is a mixture of the stereoisomers, melting at 181° C. It would be interesting to know if the compilers of this test have met with a salt in commerce of the melting point given (193° to 194°). As regards the Auric Chloride, under the conditions described in B.P., an additive compound is formed which melts at 215° C. There is no reason why the salt should not be neutral to Litmus.—*P.J.* '98, ii. 196; *J.C.S. Trans.* '97, 679.

Two chemically equal basic substances, which so far can be distinguished from one another only by their optical activities, are contained in the ordinary Scopolamine Hydrobromide; quite possibly, they exist already formed in the Scopola Root. No difference whatever could be shown between the physiological effects of these two salts. We have been unable so far to discover a feebly rotating preparation obtained from Hyoscyamus seeds (L. Merck).—*J.S.C.I.* '97, 516; *P.J.* '97, ii. 41; *A.J.P.* '97, 593.

Not Official.

GUTTÆ HYOSCINÆ (L.O.H.).—Hyoscine Hydrobromide, 2 grains; Distilled Water, 1 fl. oz. Dissolve.

A rapid, powerful, and unirritating dilator of the pupil. Its use is not accompanied by the dryness of the throat that so commonly follows the use of Atropine.—*L.* '86, ii. 1065.

INJECTIO HYOSCINÆ HYPODERMICA.—A convenient solution is made by dissolving Hyoscine Hydrobromide, 1 grain, in Distilled Water, 500 minims, but the strength should always be indicated by the prescriber.

Dose.—2 to 5 minims as a sedative in nervous diseases, especially where there is much violence and excitement. When given by the mouth at least double the dose is required to produce the same effect.—*L.* '89, ii. 736.

HYOSCYAMINÆ SULPHAS.

HYOSCYAMINE SULPHATE.

[NEW.]

 $(C_{17}H_{23}NO_3)_2 \cdot H_2SO_4 \cdot 2H_2O$, eq. 707.20.

The Sulphate of an alkaloid contained in Hyoscyamus Leaves, and possibly other solanaceous plants.

Solubility.—2 in 1 of Water; 1 in $4\frac{1}{2}$ of Alcohol (90 p.c.); very slightly soluble in Chloroform or Ether.

Medicinal Properties.—In small doses it is a sedative for mental excitement and insomnia, and in large doses it has been used for calming the excitement of delirium tremens and acute mania, but for this purpose it is superseded by the salts of Hyoscine.

Dose.— $\frac{1}{200}$ to $\frac{1}{100}$ of a grain.

Foreign Pharmacopœias.—Official in U.S.; not in the others.

Description.—A crystalline powder, deliquescent, odourless, having a bitter acrid taste.

Tests.—Melting point 402.8° F. (206° C.). It affords the reactions characteristic of Sulphates. A solution in Water acidulated with Hydrochloric Acid yields no precipitate with Solution of Platinic Chloride, but affords with Solution of Auric Chloride a yellow precipitate soluble in boiling Water acidulated with Hydrochloric Acid, and again deposited, as the solution cools, in brilliant, golden-yellow scales (distinction from Atropine). Heated to redness with access of air it leaves no residue.

Commercial Hyoscyamine Sulphate melts at about 200° C. Jowett found the pure salt to melt at 204° C. It is suggested that an official melting point should be given 'not lower than 200° C.' It is distinguished from Atropine by its optical activity and by the melting point of the Auric Chloride (160° C.).—*P.J.* '98, ii. 196.

Not Official.

ICHTHYCOLLA.

ISINGLASS.

The swimming bladder or sound of various species of *Acipenser*, prepared and cut into fine shreds.

This is included among the Tests of the B.P., its solution being used for Tannic Acid, with which it forms an insoluble compound.

This well-known substance was in the early London Pharmacopœias, and called Ichthyocolla or Fish glue; it was used in medicine as a nutrient. It is still to be found in most of the Continental Pharmacopœias. It is used for fining Wine, for which purpose Gelatin does not answer. Russian Isinglass is reckoned the best quality. Isinglass is used for Court Plaster and gold-beater's skin.

Isinglass 15 grains to the fl. oz. of Glycerin is useful in some skin diseases.

Foreign Pharmacopœias.—Official in Austr., Belg., Fr., Hung. and U.S.; Dan., Ital., Jap., Norw. and Russ., Colla Piscium; Mex., Cola de Pescada; Port., Gelatina de Peixe; Span., Ictiocolla; not in the others.

Test.—Isinglass is not soluble in cold water; Gelatin is.