

**Not Official.**

**EXTRACTUM LUPULI.**—Hop, 8; Alcohol (90 p.c.), 15; Distilled Water, 80; macerate the Hop in the Alcohol for seven days, press out the tincture, filter, and distil off the Alcohol, leaving a soft extract; boil the residual Hop with the Water for one hour, then press out the liquor, strain, and evaporate by a water-bath to the consistence of a soft extract; mix the two extracts, and evaporate at a temperature not exceeding 140° F. (60° C), to a pill consistence.

16 oz. Hops yield 4 to 5 oz. Extract.

**Dose.**—5 to 15 grains.

**Foreign Pharmacopœias.**—Belg., Fr., Mex., Port. and Span. have alcoholic Extracts, but not made the same way; U.S. has a **Fluid Extract** from Lupulin.

**Not Official.****LYCOPodium.**

The spores of *Lycopodium clavatum* and other species of *Lycopodium*; a fine powder, pale yellowish, very mobile, inodorous, tasteless, floating upon Water and not wetted by it, but sinking on being boiled with it, and burning quickly when thrown into a flame.

It has been used in dispensing chiefly as powder to envelop hygroscopic pills.

Recommended in this country for incontinence of urine, and irritability of bladder, in the form of **Tincture**. **Dose**, 15 to 60 minims.—*L.* '87 ii. 605; *B.M.J.*, '90, ii. 1246; and '95, i. 1019. As a dusting powder for eczema, and to prevent chafing of skin.

**Foreign Pharmacopœias.**—Official in Austr., Belg., Dan., Dutch, Fr., Ger., Hung., Ital., Jap., Mex. (*Licopodio*), Norw., Port., Russ., Span., Swed. Swiss and U.S.

Lycopodium should be free from pollen, starch, sand, and other impurities, any of which are easily detected by the microscope.

When ignited with free access of air, it should not leave more than 5 p.c. of ash.

**Not Official.****LYSIDINE.**

## ETHYLENE-ETHENYL-DIAMINE.

A reddish-white crystalline substance, very hygroscopic, with a peculiar odour. Commercially it is sold in the form of a 50 p.c. solution.

A diuretic recommended in the treatment of gout and as a solvent of Uric Acid deposits.—*B.M.J.* '96, ii. 901.

It has an influence in increasing the solvent power of serum for Sodium Biurate and of urine for uratic deposit.—*L.* '98, ii. 203.

**Dose** (of the liquid).—30 to 60 minims, well diluted with Water or Aërated Water.

**Lysidine Acid Tartrate**, a white powder soluble in Water.

**Not Official.****MAGNESIUM.**

## MAGNESIUM.

Mg, eq. 24.18.

Magnesium, the metallic base of Magnesian salts, does not exist native. It may be obtained artificially. When set on fire it produces a powerful actinic light, and is used by photographers on this account.



It is a brilliant grey metal (sp. gr. 1.750), slightly resembling Silver, malleable, fusible at a low temperature, and convertible into Magnesia by the combined action of air and moisture.

It is preferable to Zinc for Marsh's test, and particularly when Arsenic-free Zinc is not obtainable.

Magnesium Sulphate was first artificially obtained in England by Dr. Crew in 1675, by evaporation from the water of Epsom spring (whence the name of Epsom Salts). The chief source of the Magnesia now sold is Magnesian Limestone, Magnesium Calcium Carbonate, called Dolomite, and is obtained by a process discovered by Dr. Henry, of Manchester. Magnesia was first chemically distinguished from Lime by Dr. Black, in 1755, who also showed the difference between Magnesia and its Carbonate. From the mode of procuring it, it is frequently termed Calcined Magnesia.

There are two kinds of Magnesia admitted into the B.P., the Heavy and the Light. The former is that which is commonly used in pharmacy, it being smoother, more readily miscible with Water, and more compact. It is probably from these causes that it is preferred in medicine, and in the B.P. it is clearly meant to be used, unless the Light is expressly ordered.

The forms in which Magnesia is used are:—Magnesia Levis, Magnesia Ponderosa, Magnesii Carbonas Levis, Magnesii Carbonas Ponderosus, and Magnesii Sulphas.

### **MAGNESIA LEVIS.**

LIGHT MAGNESIA.

*B.P. Syn.*—LIGHT CALCINED MAGNESIA; LIGHT MAGNESIUM OXIDE.

**MgO**, eq. 40.06.

Light Magnesium Oxide is prepared by exposing Light Magnesium Carbonate to a dull red heat.

**Medicinal Properties.**—Same as Magnesia Ponderosa.

**Dose.**—5 to 30 grains, for repeated administration; for a single administration, 30 to 60 grains.

**Prescribing Notes.**—In **cachets** or **mixtures**, also taken in Milk. Frequently given in the form of *Mistura Alba*.

**Official Preparation.**—Contained in *Pulvis Rhei Compositus*.

**Foreign Pharmacopœias.**—Official in Austr., Belg., Dan., Dutch, Fr., Ger., Hung., Ital., Jap., Mex., Norw., Port., Russ., Span. Swed., Swiss and U.S.

**Description.**—A bulky white powder, differing from Heavy Magnesia only in its greater lightness, the volumes corresponding to the same weight being to each other in the ratio of  $3\frac{1}{2}$  to 1.

### **MAGNESIA PONDEROSA.**

HEAVY MAGNESIA.

*B.P. Syn.*—HEAVY CALCINED MAGNESIA; HEAVY MAGNESIUM OXIDE.

**MgO**, eq. 40.06.

Heavy Magnesium Oxide is prepared by exposing heavy Magnesium Carbonate to a dull red heat.

**Solubility.**—1 in about 6000 of cold Water, 1 in about 36000 of hot Water; like Lime, it is more soluble in cold than in hot Water.



**Medicinal Properties.**—Antacid, laxative, diuretic, and antilitic. Much used in dyspepsia, and to relieve vomiting, heartburn, sick headache, rheumatic, and gouty conditions, and other complaints attended with acidity, and in larger doses for constipation. As a laxative, it may often be used with advantage when other medicines occasion nausea; generally combined with other purgatives. It is an excellent and mild purgative for children.

**Prescribing Notes.**—It frequently becomes aggregated into a solid mass when prescribed in mixtures, especially with the Sulphate.

Although the heavy powder is preferred by many for its smoothness, the light powder is said to be quicker in its action.

**Dose.**—5 to 30 grains, for repeated administration; for a single administration, 30 to 60 grains.

**Incompatibles.**—All acids.

**Official Preparation.**—Permitted in Pulvis Rhei Compositus.

**Foreign Pharmacopœias.**—Official in Norw. and Swed., Oxydum Magnesium ponderosum; U.S.; not in the others.

**Description.**—A white powder, insoluble in Water, but readily dissolved by Acids, the solution affording the reactions characteristic of Magnesium.

**Tests.**—It should yield no characteristic reaction with the tests for Iron, Aluminium, Calcium, or Carbonates; and only the slightest reactions with the tests for Chlorides or Sulphates. When heated to dull redness it should lose little or no weight.

### MAGNESII CARBONAS LEVIS.

LIGHT MAGNESIUM CARBONATE.

$3(\text{MgCO}_3), \text{Mg}(\text{HO})_2, 4\text{H}_2\text{O}$ , eq. 380.65.

**O.M.P.**—Magnesium Sulphate 10; Sodium Carbonate 12; Distilled Water a sufficient quantity. Dissolve the Magnesium Sulphate and the Sodium Carbonate each in 80 of cold Distilled Water; mix the two solutions; boil the mixture for fifteen minutes; transfer the precipitate to a calico filter; pour upon it boiling Distilled Water until the washings are free from Sulphates; dry at a temperature not exceeding  $212^\circ \text{F.}$  ( $100^\circ \text{C.}$ ).

**Solubility.**—1 in 2500 of cold Water, 1 in 9000 of hot Water.

**Medicinal Properties.**—Same as Magnesia Ponderosa.

**Dose.**—5 to 30 grains, for repeated administration; for a single administration, 30 to 60 grains.

**Official Preparation.**—Used to prepare Magnesia Levis.

**Foreign Pharmacopœias.**—Official in Austr., Belg., Dan., Dutch, Fr., Ger., Hung., Ital., Jap., Mex., Port., Russ., Span., Swed., Swiss and U.S.

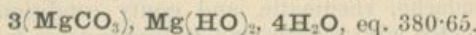
**Description.**—A very light powder, which, when examined under the microscope, is found to consist of amorphous particles, with numerous slender prisms intermixed. The other characters and tests are the same as those of Heavy Magnesium Carbonate.

One ounce occupies about the space of 6 fluid ounces of Water.



**MAGNESII CARBONAS PONDEROSUS.**

HEAVY MAGNESIUM CARBONATE.



**O.M.P.**—Magnesium Sulphate 10; Sodium Carbonate 12; Distilled Water, boiling, a sufficient quantity. Dissolve the Magnesium Sulphate and the Sodium Carbonate each in 20 of the Distilled Water; mix the solutions, and evaporate to dryness; digest the residue for half an hour with 40 of the Distilled Water, and having collected the insoluble matter on a calico filter, wash it repeatedly with the Distilled Water, until the washings are free from Sulphates; dry the product at a temperature not exceeding 212° F. (100° C.).

**Medicinal Properties.**—Same as Magnesia Ponderosa.

**Dose.**—5 to 30 grains, for repeated administration; for a single administration, 30 to 60 grains.

**Prescribing Notes.**—In **cachets, lozenges or mixture**, or as Liquor Magnesii Carbonatis.

**Official Preparations.**—Liquor Magnesii Carbonatis. Used in the preparation of Magnesia Ponderosa and Trochiscus Bismuthi Compositus.

**Not Official.**—Liquor Magnesii Bromidi. Liquor Magnesii Citratis. Mistura Alba, and Mistura Magnesia c. Rheo.

(Not in the other Pharmacopœias.)

**Description.**—A white granular powder.

**Tests.**—Dissolves readily, with effervescence, in the diluted mineral Acids, the solutions affording the reactions characteristic of Magnesium. 5 grammes calcined at a red heat should be reduced to 2.1 grammes. It should yield no characteristic reaction with the tests for Iron, Aluminium, or Calcium, and only the slightest reactions with the tests for Chlorides or Sulphates.

Commercial samples sometimes contain a considerable proportion of Chloride.

**Preparation.**

**LIQUOR MAGNESII CARBONATIS.** SOLUTION OF MAGNESIUM CARBONATE. *B.P. Syn.*—FLUID MAGNESIA.

Magnesium Sulphate, 2; Sodium Carbonate, 2½; Distilled Water, a sufficient quantity. Dissolve the two salts separately, each in 10 of the Distilled Water; heat the solution of Magnesium Sulphate to the boiling point; add to it the solution of Sodium Carbonate; boil them together until Carbonic Anhydride ceases to be evolved; collect the precipitated Magnesium Carbonate on a calico filter; wash it with Distilled Water until the filtrate is free from Sulphate. Mix the washed precipitate with 20 of Distilled Water; place the mixture in a suitable apparatus; force into it pure washed Carbonic Anhydride; let the mixture remain in contact with excess of Carbonic Anhydride, retained under a pressure of about three atmospheres, for twenty-four hours or longer; decant the solution, into which again pass Carbonic Anhydride. Keep the Solution in bottles of convenient sizes, securely closed to prevent the escape of Carbonic Anhydride.

**Dose.**—1 to 2 fl. oz.



This solution contains nearly 10 grains of the official Magnesium Carbonate in 1 fl. oz., or about 2 grammes in 100 c.c.

**Foreign Pharmacopœias.**—Official in Belg., Aqua Magnesiæ Aerata; Fr., Eau Magnésienne; not in the others.

**Description.**—Effervesces slightly, or not at all, when the containing vessel is first opened.

**Tests.**—It should yield no characteristic reaction with the test for Sulphates. 20 c.c. evaporated to dryness afford a white residue of pure Hydrous Magnesium Carbonate, which after being calcined weighs between .16 and .19 gramme. This residue is insoluble in Water, and when dissolved in dilute Acid responds to the tests for Magnesium.

The following volumetric test is suggested (*P.J.* (3) xxiii. 620)—100 c. c. should require not less than 45.5 c. c. of the volumetric solution of Oxalic Acid, which is equal to .914 MgO p.c., the equivalent of 4 grains of Oxide to the ounce. Litmus is used as the indicator.

**Not Official.**

**MISTURA ALBA.**—Magnesium Carbonate, 10 grains; Magnesium Sulphate, 1 drm.; Peppermint Water, to 1 fl. oz.—*King's College Hospital.*

**MISTURA MAGNESIÆ C. RHEO.**—Rhubarb, 7½ grains; Magnesium Carbonate, 15 grains; Peppermint Water, 1 fl. oz.

**LIQUOR MAGNESII BROMIDI.**—Neutralise 20 fl. oz. of Dilute Hydrobromic Acid, (10 p.c.), with about 1 oz. of Magnesium Carbonate: filter. Each teaspoonful contains nearly 7 grains of Anhydrous Magnesium Bromide.

**Dose.**—1 to 2 fl. drm.

Has been used as a sedative in treatment of the insane.—*A.J.P.* '86, 531.

**MAGNESII CITRATIS LIQUOR.**—SOLUTION OF MAGNESIUM CITRATE. *Syn.*—LIMONADE PURGATIVE. Magnesium Carbonate, 100 grains; Citric Acid, 200 grains; Syrup of Lemons, ½ fl. oz.; Potassium Bicarbonate, in crystals, 40 grains; Water, a sufficiency.

Dissolve the Citric Acid in 2 fluid ounces of the Water, and having added the Magnesium Carbonate, stir until it is dissolved. Filter the solution into a strong half-pint bottle, add the Syrup and sufficient Water to nearly fill the bottle, then introduce the Potassium Bicarbonate, and immediately close the bottle with a cork, which should be secured with string or wire; afterwards shake the bottle until the Potassium Bicarbonate is dissolved.

**Medicinal Properties.**—A pleasant saline aperient and refrigerant draught.

**Dose.**—5 to 10 fl. oz.

**Foreign Pharmacopœias.**—Official in the U.S. formula modified. Austr. and Hung., Potio Magnesiæ Citricæ Effervescens; Belg., Limonada Citratis Magnesiæ; Fr., Limonade Purgative; Ital., Limonata Magnesiaca; Mex., Solucion de Citrato de Magnesia; Port., Limonada Citro-Magnesiaca; Russ., Potio Magnesii Citrici Aërophora; Span., Poción de Citrato Magnésico Gaseosa; Swiss, Magnesium Citricum effervescens; not in the others.

## MAGNESII SULPHAS.

MAGNESIUM SULPHATE.

*B.P.Syn.*—EPSOM SALT.

$\text{MgSO}_4 \cdot 7\text{H}_2\text{O}$ , eq. 244.68.

Magnesium Sulphate may be prepared by the interaction of the



native Magnesium Carbonates and diluted Sulphuric Acid; or by purifying the native Sulphate.

**Solubility.**—10 in 13 of Water, measures 18; 20 in 3 of boiling Water.

**Medicinal Properties.**—A mild and safe hydragogue purgative, operating with little pain or nausea. Used in portal congestion and chronic constipation and that of lead poisoning, in inflammatory affections in robust people and in congestion of brain; by reducing blood pressure, it wards off apoplectic attacks; along with Ferrous Sulphate it is given in anæmia.

When given in conjunction with Diluted Sulphuric Acid the dose may be reduced, since the acid increases peristalsis; it also helps to cover the nauseous taste.

Injected subcutaneously in cases in which consciousness has been lost and swallowing is impossible; in gastritis when a purgative is required and the stomach rebels.—*M.A.* '95, 34.

Treatment of tropical dysentery by 60 grain doses of saturated solution of Epsom Salts in conjunction with 10 minims of Diluted Sulphuric Acid, every hour.—*L.* '90, ii. 711; *B.M.J.* '98, i. 554; ii. 877, 887; *T.G.* '98, 534; also  $\frac{1}{2}$  fl. oz. doses of saturated solution of Magnesium Sulphate with 15 minims of Diluted Sulphuric Acid every two hours.—*B.M.J.* '98, i. 298; *T.G.* '98, 534.

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

**Dose.**—30 to 120 grains, for repeated administration; for a single administration,  $\frac{1}{4}$  to  $\frac{1}{2}$  an oz.

**Prescribing Notes.**—Usually given in solution (*see* Mistura Alba) or the Effervescent Granules.

**Incompatibles.**—Potassium and Sodium Carbonates and Bicarbonates, Lime Water, Lead Acetate. Magnesium Sulphate should not be prescribed with Tartarated Soda, for after some time Magnesium Tartrate will precipitate. The following prescription is an example:—*R Sodæ Tartaratae, ʒj; Magnes. Sulph., ʒij; Aquæ ad fl. ʒiiss.*

**Official Preparation.**—Magnesii Sulphas Effervescens. Contained in Mistura Sennæ Composita. Used in the preparation of Magnesii Carbonas Levis, Magnesii Carbonas Ponderosa and Liquor Magnesii Carbonatis.

**Not Official.**—Magnesii Salicylas and Magnesii Sulphis.

**Foreign Pharmacopœias.**—Official in Austr., Belg., Dan., Dutch, Fr., Ger., Hung., Ital., Jap., Mex., Norw., Port., Russ., Span., Swed., Swiss and U.S.

**Description.**—In small, colourless, transparent, rhombic prisms, soluble in 1 part of cold Water, and possessing a bitter taste.

**Tests.**—It affords the reactions characteristic of Magnesium and of Sulphates. .5 gramme dissolved in 250 c.c. of Water, when set aside for twelve hours with a mixture of Solution of Ammonia, Solution of Ammonium Chloride, and Solution of Sodium Phosphate, yields a precipitate which, when thoroughly washed, dried, and heated to redness, weighs .22 gramme. Magnesium Sulphate should yield no characteristic reaction with the tests for Iron, Aluminium, Zinc, Calcium, Sodium, Potassium, Ammonium, or Nitrates, and only the slightest reactions with the tests for Chlorides.



## Preparation.

**MAGNESII SULPHAS EFFERVESCENS.**—EFFERVESCENT MAGNESIUM SULPHATE. *B.P.Syn.*—EFFERVESCENT EPSOM SALT.

Magnesium Sulphate, in crystals, 50; Sodium Bicarbonate, in powder, 36; Tartaric Acid, in powder, 19; Citric Acid, in powder, 12½; Refined Sugar, in powder, 10½. Dry the Magnesium Sulphate at about 130° F. (54·4° C.) until it has lost 23 p.c. of its weight; powder the product; mix it with the Refined Sugar, and then with the other ingredients. Place the mixture in a dish or pan of suitable form, heated to between 200° and 220° F. (93·3° and 104·4° C.). When the mixture, by aid of careful manipulation, has assumed a granular character, separate it into granules of uniform and convenient size by means of suitable sieves. Dry the granules at a temperature not exceeding 130° F. (54·4° C.). = (About 1 in 2½).

The product should weigh about 100 oz. (or 1000 grammes).

**Dose.**—60 to 240 grains, for repeated administration; for a single administration, ½ to 1 oz.

## Not Official.

**MAGNESII SALICYLAS.**—Colourless hygroscopic needles. Readily soluble in Water and Alcohol (90 p.c.).

**Dose.**—50 to 100 grains daily have been given with advantage in typhoid fever.—*L.M.R.* '88, 62; *P.J.* (3) xviii. 823; *T.G.* '88, 390.

Frequently of a pink colour due to trace of Iron which may be removed by the previous treatment of the Magnesium Sulphate as described.—*P.J.* '95, ii. 178; *C.D.* '95, ii. 356.

**MAGNESII SULPHIS.**—A white crystalline powder, which gradually oxidises to Sulphate on exposure to the air.

**Solubility.**—1 in 20 of Water; insoluble in Alcohol (90 p.c.). Given in the place of Sodium Sulphite.

Recommended in diphtheria as a **gargle**, 1 in 16 of Water, or by the application of the powder to the fauces by means of a damp brush, leaving as much of the powder on the throat as possible. Successful treatment of diphtheria by insufflations and tabloids of pure Magnesium Sulphite.—*L.* '94, ii. 474; '95, i. 344, 523, 587. The comparatively low solubility of the salt is an advantage in prolonging the action.—*L.* '87, i. 404.

**Dose.**—20 to 30 grains.

## Not Official.

**MANGANESII OXIDUM PRÆPARATUM.**

Digest finely-powdered commercial Black Oxide in Diluted Hydrochloric Acid for twenty-four hours, frequently shaking the bottle containing them; then pour off the Acid; wash the Oxide thoroughly with Water, pouring off the lighter portions each time for use, and rejecting the heavier and coarser particles; finally dry on a water-bath.

A remedy for gastrodynia, pyrosis, etc. Has been recommended as an emmenagogue.

**Dose.**—10 to 30 grains.



Not Official.

**MANGANESII SULPHAS.**

Colourless or pale rose-coloured, right rhombic prisms.

**Solubility.**—7 in 10 of Water; insoluble in Alcohol (90 p.c.).**Medicinal Properties.**—Purgative; it is, however, little used, being uncertain in its action, and apt to cause vomiting; its taste is disagreeably styptic.**Dose.**—1 to 5 grains as a tonic; 30 to 60 grains as a purgative.*Does not excite the liver, but is a powerful stimulant to the intestines.*—Dr. Rutherford.**Foreign Pharmacopœias.**—Official in Dutch, Fr., Mex., Port., Russ., Span. and U.S.; not in the others.**MANGANESII HYPOPHOSPHIS** ( $MnP_2H_4O_4$ ).—A pale pink granular powder, soluble 1 in 7 of Water.

Used in the preparation of Syrupus Hypophosphitum Compositus B.P.C.

**MANGANESII PHOSPHAS** ( $Mn_3P_2O_8 \cdot 7H_2O$ ).—A whitish powder, prepared by precipitating a Manganous salt with Sodium Phosphate. When freshly precipitated, and dried without heat, it has the above formula, corresponding to 26 p.c. of Water, but commercial samples seldom lose on ignition more than 20 p.c.

Used to replace part of the Iron in Ferrous Syrups.

Not Official.

**MANNA.**A concrete saccharine exudation, obtained by transverse incision from the stems of *Fraxinus Ornus*.

It is cultivated for the purpose chiefly in Calabria and Sicily.

**Solubility.**—1 in 5 of Water; 1 in 150 of Alcohol (90 p.c.).**Medicinal Properties.**—A mild laxative; in large doses apt to cause flatulence and griping pain; useful for children and delicate females, given in hot milk or in combination with other purgatives, such as Senna.**Dose.**—As a laxative, 60 grains to 1 oz.**Foreign Pharmacopœias.**—Official in Austr., Belg., Dan., Fr., Ger., Hung., Ital., Jap., Mex. (Mana), Norw., Port., Russ., Span., Swed., Swiss and U.S.; not in Dutch.The larger and better kinds are called Flake Manna, and consist principally (60 to 80 p.c.) of Mannite,  $C_6H_8(OH)_6$ , eq. 180.74; together with common Sugar and extractive matter. Contains about 10 p.c. of moisture.

Pure Mannite is easily crystallised from an alcoholic solution. It cannot be fermented by Yeast. It does not reduce Fehling's Solution, and gives no brown colour with boiling Solution of Potash.

**Preparations.****MANNA DEPURATA.**—Dissolve Manna, 10, in sufficient Water; strain, and evaporate to 10. It is convenient for dispensing, and keeps good for a long time.**MANNITOL HEXANITRATE.**—The nitrate of the Hexatomic Alcohol Mannitol (mannitol). In needles, almost insoluble in Water, soluble in Alcohol (90 p.c.). Has been suggested as a vaso-dilator. The crystals explode violently on being struck with a hammer, or on the application of sudden heat.—*B.M.J.*, '95, ii. 1213; '98, i. 529; 893.**Dose.**— $1\frac{1}{2}$  to 2 fl. drm. of a 1 p.c. Alcoholic solution.



Not Official.

**MARANTA.**

ARROW-ROOT.

The Starch obtained from the roots of *Maranta arundinacea*, a native of the tropical parts of America and the West Indies.

That which comes from Bermuda is considered the best.

**Medicinal Properties.**—Nutrient and demulcent, frequently taken with milk. It should be first made into a thin paste with cold milk, and boiling milk added to make a thick mucilage.

**Foreign Pharmacopœias.**—Official in Austr., Belg., Dan., Fr., Mex. (Arrow), Norw., Port. (Araruta), Span. and Swed.; not in the others.

A light white powder, or small pulverulent masses.

**Test.**—Free from unpleasant odour and taste.

Not Official.

**MASTICHE.**

MASTICH.

A concrete resinous exudation obtained by incisions in the bark of the stem and large branches of *Pistacia Lentiscus*.

Produced in the island of Scio.

**Solubility.**—Insoluble in Water; partly soluble in Alcohol (90 p.c.) and Oil of Turpentine; 2 in 1 of Ether; 2 in 1 of Chloroform.

**Medicinal Properties.**—Stimulant. Rarely used now except in solution as a temporary stopping for teeth.

**Foreign Pharmacopœias.**—Official in Austr., Belg., Dan., Norw., Swed. (Resina Mastix), Dutch, Fr., Hung., Port., Mex. and Span. (Almaciga) and U.S.; not in Ger., Ital., Jap., Russ. or Swiss.

**Description.**—Small irregular pale-yellow tears, brittle and either opaque or far more frequently transparent. Sp. gr. 1.06—1.07.

**Preparations.**

**MASTIC DENTAIRE** (Fr.).—Mastic 2, Ether 1: dissolve.

Cotton saturated in this solution is a good stopping for decayed teeth.

**MASTIC AND CHLOROFORM.**—Mastic 2, Chloroform 1: dissolve. Used for the same purpose as above.

Not Official.

**MATICO.**

The dried leaves of *Piper angustifolium*. Imported from Peru.

**Medicinal Properties.**—An agreeable aromatic astringent, tonic and stimulant, used in all forms of inflammation of the urinary passages. The Volatile Oil has a powerful styptic property, and is applied to leech bites and other small bleeding wounds.

**Dose.**—Of the powder, 30 to 120 grains three times daily.

**Foreign Pharmacopœias.**—Official in Belg., Fr., Mex., Port., and U.S. not in the others.



## Preparations.

**INFUSUM MATICO.**—Matico leaves, cut small, 1; boiling Distilled Water, 20: infuse half an hour, and strain.

Dose.—1 to 4 fl. oz.

(Not in the other Pharmacopœias.)

**EXTRACTUM MATICO FLUIDUM (U.S.)**—Prepared with a mixture of Alcohol (sp. gr. .820) 3, Water 1, so that 1 fl. oz. equals 1 oz. of Matico.

**TINCTURA MATICO.**—Matico leaves, in coarse powder, 1; Alcohol (60 p.c.), 5: macerate fourteen days, strain, express, and filter. = (1 in 5).

Astringent. Useful in catarrh of the bladder of the aged.

Dose.—1 to 2 fl. drm.

**Foreign Pharmacopœias.**—Official in Fr., 1 and 5; Mex., 1 in 5; U.S., 1 in 10; not in the others.

Not Official.

**MEDULLA RUBRA.**

RED BONE-MARROW.

The marrow of ox bones, being a seat of formation of blood corpuscles, has been introduced in the treatment of pernicious anæmia, chlorosis, and hæmoglobinuria. It may be given fresh or raw, spread as a sandwich, also in the form of 'Glycerin Extract,' or in Gelatin capsules.

Some points in pernicious anæmia with special reference to treatment with Bone Marrow. 'The conclusion to be drawn seems to be that Bone Marrow should not be given unless a thorough course of Arsenic has been given and has failed.' 'It is difficult to explain in what way any good effect could be produced by the administration of Bone Marrow in pernicious anæmia.'—*L.* '96, i. 285.

**MEL DEPURATUM.**

CLARIFIED HONEY.

Honey of commerce, melted in a water-bath, and strained, while hot, through flannel previously moistened with warm Water.

**Medicinal Properties.**—Demulcent, laxative, and nutritive, but apt to gripe and occasion flatulence when given in large doses. In the form of **Oxymel** it is a useful addition to gargles and cough mixtures, as it relieves the pain and dryness of the throat and also dysphagia.

**Official Preparations.**—Mel Boracis, Oxymel, Oxymel Scillæ. Contained in *Confectio Piperis*.

**Foreign Pharmacopœias.**—Official in all except Fr. and Mex.; Port., Mellito Simples; Span., Miel Depurado.

**Description.**—A viscid translucent liquid of a light-yellowish or brownish-yellow colour, gradually becoming partially crystalline and opaque. It has a characteristic odour and very sweet taste.

**Tests.**—Incinerated it should not yield more than .25 p.c. of ash, the solution of which in Water acidulated with Nitric Acid should not afford more than a slight turbidity with Solution of Barium Chloride (absence of more than traces of Sulphates). It should yield no characteristic reaction with the Iodine test for Starch.

Analysis of four samples of Australian honey.—*P.J.* '96, i. 165. Detection of 'Starch Syrup' and commercial dextrin in honey.—*Analyst* '96, 287.



## Preparation.

**OXYMEL.** OXYMEL. (MODIFIED).

Clarified Honey, liquefied (by weight), 40; Acetic Acid, 5; Distilled Water, a sufficient quantity. Mix the Clarified Honey with the Acetic Acid and about 5 of Distilled Water, or sufficient to produce Oxymel having the sp. gr. 1.320.

No sp. gr. was given in B.P. '85. Now must be 1.320.

Dose.—1 to 2 fl. drm.

**Foreign Pharmacopœias.**—Official in Austr., Honey 2, Common Vinegar 1; Fr., Honey 4, White Vinegar 1; Dutch, Honey 19, Acetic Acid (30 p. c.) 1; Hung., Honey 50, Acetic Acid (96 p. c.) 1; Port., Honey 197, Acetic Acid (98 p. c.) 3; Russ., Honey 49, Acetic Acid (95 p. c.) 1; Span., Honey 23, Vinegar 8; Swed., Honey 100, Acetic Acid (29 p. c.) 8; Mex., Honey 100, Acetic Acid 6; not in the others.

**MENTHÆ PIPERITÆ OLEUM.**

## OIL OF PEPPERMINT.

The Oil distilled from fresh flowering Peppermint, *Mentha piperita*.

**Solubility.**—In all proportions of Absolute Alcohol; 2 in 1 (or less) of Alcohol (90 p. c.), becomes turbid on adding more Alcohol.

**Medicinal Properties.**—A grateful aromatic, stimulant, and carminative. Allays nausea, relieves spasmodic pains in the stomach. Useful in the flatulent colic of children. Covers the taste of nauseous medicines, such as Rhubarb, and mitigates the griping effect of purgatives. Externally applied it acts as a local anæsthetic and relieves neuralgic pain; see also Menthol.

Recommended as an antiseptic.—L. '88, i. 512.

Dose.— $\frac{1}{2}$  to 3 minims.

**Prescribing Notes.**—The oil is taken on sugar, or in pill. See page 484.

**Official Preparations.**—Aqua Menthæ Piperitæ and Spiritus Menthæ Piperitæ. Contained in Pilula Rhei Composita and Tinctura Chloroformi et Morphine Composita.

**Foreign Pharmacopœias.**—Official in Austr., Belg., Dan., Dutch, Fr., Ger., Hung., Ital. (Essenza di Menta), Jap. (Oleum Menthæ), Mex. (Aceite Volatil de Menta Piperita), Norw., Port. (Essencia de Hortela Pimenta), Russ., Span., Swed., Swiss and U.S.

**Description.**—Colourless, pale yellow, or greenish-yellow when recently distilled but gradually becoming darker by age. It has the odour of the herb, and a strong penetrating aromatic taste, followed by a sensation of coldness in the mouth.

The variations in quality of the English Oils depend, (1) upon whether they have been obtained from 'Black Mint' (the ordinary plant), or from 'White Mint'; (2) upon the subsequent rectification. So that from the finest double-rectified White Mint to the first crude distillate from the Black Mint, there are all manner of gradations, each of them 'Ol. Menth. Pip. Ang.'

The principal constituent of this Oil is Menthol. It also contains a small proportion of lower boiling constituents, regarding the composition of which there exists



a difference of opinion; some regard them as unoxygenated terpenes, others as allied to Menthol in the same relation as Laurel Camphor to Borneol and capable of conversion into it by the addition of Hydrogen.

Dementholised Oil of Peppermint is commonly known as 'Menthene' and is used for purposes of adulteration.

A pure Peppermint Oil cooled in a mixture of Ice and Salt should on the addition of one or two Menthol crystals set to a more or less solid crystalline mass.

In America the oil is distilled from the *dried* rather than the *fresh* herb, the yield being practically the same, and it is much more convenient for the distiller. About 350 lbs. fresh plant yield 1 lb. of Oil, and the plant loses about 50 p.c. of its weight in drying.—*J.S.C.I.* '88, 550.

**American Oil of Peppermint** is also the product of *Mentha piperita* but contains less Menthol.

**Japanese Oil of Peppermint** is obtained from *Mentha arvensis* var. *piperascens* and is rich in Menthol.

Japanese contains the largest percentage of Menthol.—*P.J.* (3) xxv, 72, 546.

A comparison of the oils from Black and White Peppermint.—*P.J.* 96, i. 123; *C.D.* '96, i. 250, 290.

The effects of climate and soil on Peppermint Oil.—*P.J.* '96, ii. 103; *C.D.* '96, ii. 199.

**Tests.**—Sp. gr. .900 to .920. It should dissolve in four times its volume of Alcohol (70 p.c.). If a portion of the Oil be cooled to 17° F. (—8.3° C.) and a few crystals of Menthol be added, a considerable separation of Menthol should take place.

**Polarising Rotation** (200 m. m.) from —50° to —70°.

The Oil of *Mentha piperita* is as a rule distinguished from that of *Mentha arvensis* by developing a blue colour and red fluorescence when mixed with 4 vols. of Glacial Acetic Acid. This colour is not developed if air be excluded, and, depending as it does upon some minor constituent destroyed by prolonged exposure to sunlight, it may not be given by some old samples.

Process for the determination of free and combined Menthol.—*A.J.P.* '97, 191; *P.J.* '97, i. 367; '97, ii. 82. The Menthol determination might have been included in the B.P.

Amylic Alcohol and small quantities of Sulphur compounds (Dimethyl Sulphide) have been detected in American Peppermint Oil.—*J.S.C.I.* '96, 925.

#### Preparations.

##### AQUA MENTHÆ PIPERITÆ. PEPPERMINT WATER.

Oil of Peppermint, 77 minims; Water, 1½ galls.: distil two-thirds.  
=(Oil about 1 in 1000).

Dose.—Not given in B.P.; 1 to 2 fl. oz.

**Foreign Pharmacopœias.**—Official in Belg., 3 in 1000; Dan. and Russ., 1 in 2000; Dutch, 1 in 1000; U.S. and Jap., 1 in 500; Austr., Fr., Ger., Hung., Ital., Port., Span., Swed. and Swiss, distilled from the **leaves**; Mex., distilled from the **plant**; not in Norw.

##### SPIRITUS MENTHÆ PIPERITÆ. SPIRIT OF PEPPERMINT. (ALTERED.)

Oil of Peppermint, 1; Alcohol (90 p.c.), a sufficient quantity. To the Oil of Peppermint add enough of the Alcohol to form 10 of the Spirit of Peppermint.  
=(1 in 10).

Now 1 in 10 instead of 1 in 50; Alcohol (90 p.c.) used in place of Rectified Spirit.  
Dose.—5 to 20 minims.



This Spirit of Peppermint contains five times the proportion of Oil of Peppermint present in the Spirit of Peppermint, and half the proportion of Oil in the Essence of Peppermint, of the British Pharmacopœia of 1885.

An agreeable **Peppermint Syrup** is made by adding 60 minims of the Spirit to 1 fl. oz. of Simple Syrup.

**Foreign Pharmacopœias.**—Official in Belg. (Spiritus Menthæ) Oil 1, Alcohol 99; Fr. (Teinture d'Essence de Menthe), Oil 2, Alcohol 98; Ger., and Jap. (Spiritus Menthæ), 1 in 10; Swiss, 3 Oil in 100; U.S., from the **leaves and oil**, about 1 in 10; Austr. and Span., from **leaves**; not in the others.

## MENTHÆ VIRIDIS OLEUM.

OIL OF SPEARMINT.

*N.O. Syn.*—MENTHÆ CRISPÆ OLEUM.

The Oil distilled from fresh flowering Spearmint, *Mentha viridis*.

**Solubility.**—In all proportions of Absolute Alcohol; 1 in 1 (*or less*) of Alcohol (90 p.c.), becomes milky on adding more Alcohol.

**Medicinal Properties.**—Similar to those of Oleum Menthæ Piperitæ.

**Dose.**— $\frac{1}{2}$  to 3 minims.

**Prescribing Notes.**—The oil is given on **sugar**, or made into **pills** with Liquorice powder and Soap. See p. 484.

**Official Preparation.**—Aqua Menthæ Viridis.

**Foreign Pharmacopœias.**—Official in Belg., Hung., Norw., Port. (Essencia de Hortela), Russ., Span. and U.S. (sp. gr. '930—'940); not in the others.

**Description.**—Colourless, pale yellow or greenish-yellow when recently distilled, but becoming darker by age. It has the odour and taste of the herb.

**Tests.**—Sp. gr. '920 to '940. The Oil forms a clear solution with its own volume of a mixture of equal parts of Absolute Alcohol and Alcohol (90 p.c.)

### Preparation.

**AQUA MENTHÆ VIRIDIS.** SPEARMINT WATER.

Oil of Spearmint, 77 minims; Water, 1 $\frac{1}{2}$  galls.: distil two-thirds.  
=(Oil about 1 in 1000).

**Dose.**—Not given in B.P.; 1 to 2 fl. oz.

**Foreign Pharmacopœias.**—Official in Belg., '3 in 1000; Russ., 1 in 3000; U.S., 1 in 500; Port. (Agua de Hortela); Span. and Swed., from **leaves**; not in the others.

## MENTHOL.

MENTHOL.

$C_6H_9 \cdot OH \cdot CH_3 \cdot C_3H_7$ , eq. 154.98.

A crystalline substance obtained by cooling the Oil distilled from the fresh herb of *Mentha arvensis*, vars. *piperascens* et *glabrata*, and of *Mentha piperita*.

**Solubility.**—Almost insoluble in Water and Glycerin; soluble



5 in 1 of Alcohol (90 p.c.); 4 in 1 (nearly) of Chloroform; 8 in 3 of Ether; 10 in 7 of Petroleum Spirit; 1 in 4 of Olive Oil.

**Medicinal Properties.**—Antiseptic, stimulant, carminative, local anæsthetic. Applied in some forms of neuralgia and headache, also in rheumatism, in pruritus and in pleurodynia and toothache; in parasitic cutaneous diseases; a 10 p.c. alcoholic solution as a paint in diphtheria (*B.M.J.E.* '94, ii. 63); a 20 p.c. solution in Olive Oil (with 3 p.c. Guaiacol) as an intralaryngeal injection (20 to 30 minims) in phthisis and bronchiectasis (*Pr.* liii, 276); a good remedy in painful enteritis with mucous diarrhœa.—*M.A.* '95, 239.

Used as a snuff, along with Boric Acid 2 parts, and Ammonium Chloride 3 parts; also dissolved in oil as a spray for influenza, hay fever, coryza and ozæna.

An ethereal or alcoholic solution (20 to 30 p. c.) forms a useful local anæsthetic for the mucous membrane, but its effects are transient.—*L.* '85, ii. 128; *B.M.J.* '87, i. 800.

**Spray** containing 5 to 20 p. c. of Menthol recommended in tubercular laryngitis.—*T.G.* '87, 762.

Menthol and Iodoform equal parts as a **surgical dressing**.—*B.M.J.* '88, i. 933.

**Dose.**— $\frac{1}{2}$  to 2 grains.

**Prescribing Notes.**—It is best made into pills by the addition of Soap and Dispensing Syrup. Usually employed externally. Largely used in the form of **cones and pencils**; also as an **ointment**.

**Official Preparation.**—Emplastrum Menthol.

**Not Official.**—Mentholeate, Validol and Unguentum Menthol.

**Foreign Pharmacopœias.**—Official in Austr., Dan., Fr., Ger., Jap. and Norw. (Mentholum), Ital. (Mentolo), Mex. (Mentol), Russ., Swiss and U.S.; not in the others.

**Description.**—In colourless acicular crystals usually more or less moist from adhering Oil, or in crystalline masses. Melting point 107.6° F. (42° C.); it should not exceed 109.4° F. (43° C.). It has the odour and flavour of peppermint, producing a sensation of warmth on the tongue, and, if air is inhaled, a sensation of coolness. It is very slightly soluble in Water, but readily soluble in Alcohol (90 p.c.), the solutions having a neutral reaction.

**Tests.**—Boiled with Sulphuric Acid diluted with half its volume of Water, Menthol acquires an indigo-blue or ultramarine colour, the Acid becoming brown. It should be entirely volatilised by the heat of a water-bath.

#### Preparation.

#### EMPLASTRUM MENTHOL. MENTHOL PLASTER. (ALTERED.)

Menthol,  $1\frac{1}{2}$ ; Yellow Beeswax, 1; Resin,  $7\frac{1}{2}$ ; melt the Beeswax and Resin together; when the mixture approaches the temperature of 160° or 170° F. (71.1° or 76.7° C.), stir in the Menthol until dissolved.

The quantity of Menthol is reduced and the Resin slightly increased.

#### Not Official.

**MENTHOLEATE.**—A name given to a solution of Menthol in Oleic Acid. Menthol



200 grains, Oleic Acid  $\frac{1}{2}$  fl. oz.; heat gently in a test-tube till dissolved. It is recommended as the best form for external application.—*T.G.* '87, 36.

**Validol**, is stated to be a solution of Menthol in Methyl Valerianate. Has been found useful in the depression of hysteria and neurasthenia.—*C.D.* '98, i. 91; *P.J.* '98, ii. 661.

**UNGUENTUM MENTHOL** (*T.H.*).—Menthol 5 grains, Vaseline 1 oz.

Not Official.

### MENYANTHES.

BUCKBEAN.

The leaves of *Menyanthes trifoliata*, a gentianaceous plant.

**Medicinal Properties.**—A bitter tonic and cathartic.

Recommended in functional amenorrhœa.—*L.* '85, i. 132, 235.

**Foreign Pharmacopœias.**—Official in Austr., Dutch, Ger., Hung., and Swiss, *Trifolium Fibrinum*; Dan., Fr., Norw., Russ., and Swed., *Menyanthes*; Ital., *Trifoglio Fibrino*; Port., *Trifolio Fibrino*; Span., *Trebol Acuatico*. Not in the others.

**Preparation.**

**EXTRACTUM MENYANTHIS.**—Buckbean exhausted with boiling Water, and the liquor evaporated to an Extract.

**Foreign Pharmacopœias.**—Official in Austr., Dan., Dutch, Ger., Ital., Port., Russ., Swed. and Swiss; not in the others.

Not Official.

### METHYL CHLORIDUM.

$\text{CH}_3\text{Cl}$ , eq. 50·10.

Methyl Chloride is a colourless gas of an ethereal odour and a sweet taste, soluble in Water to the extent of 2·8 volumes. When beet-root molasses are fermented and distilled for their alcohol, the residues yield on destructive distillation compounds of Trimethylamine. When Trimethylamine Hydrochloride is heated to 260° C. it decomposes into Trimethylamine, Ammonia, and Methyl Chloride. The mixed gases are passed through acid to absorb the alkaline vapours, and the Methyl Chloride which passes over is washed and liquefied by cold and pressure.

This liquid is prepared in Paris, and supplied in metal cylinders, some of which are fitted with a valve and a tube for producing a jet; also with a nozzle for running the liquid into a specially designed glass tube for use with tampons.

**Medicinal Properties.**—It is used as a local anaesthetic for surgical procedures of short duration, producing intense cold by its evaporation. If used incautiously, it may produce blisters or eschars.—*B.M.J.* '85, i. 813; '88, ii. 243; *L.* '89, i. 190.

Used in lumbago, sciatica and neuralgia by stypage, *i.e.*, laying on the painful part a pledget of Cotton Wool or Lint soaked in the remedy.

Not Official.

### METHYLAL.

$\text{C}_3\text{H}_5\text{O}_2$ .

A colourless volatile liquid (sp. gr. '855). Boils at 107° F. Readily soluble in Water and Alcohol (90 p.c.).



**Medicinal Properties.**—Hypnotic. Given in delirium, mania and insomnia; mixed with Oil or Glycerin it is used as a local anaesthetic.

Toleration of the drug is soon established, when the dose must either be increased or discontinued for two or three days.—*B.M.J.* '87, ii. 894; '88, i. 481; '88, ii. 1454; *L.* '90, i. 718.

**Dose.**—30 to 120 minims in water.

Not Official.

### METHYLENE BLUE.

TETRAMETHYLTHIONINE HYDROCHLORIDE.

For medicinal purposes it is prepared chemically pure and free from Zinc.

An analgesic, dose 1 to 5 grains.—*T.G.* '90, 529; *L.* '91, i. 99; its ill-effects and dangers.—*B.M.J.* '98, ii. 1055.

In malaria, dose  $1\frac{1}{2}$  grains five times a day.—*T.G.* '91, 859; '92, 471, '94, 163, 843; '93, 50; *L.* '92, i. 817, '93, i. 545, '94, i. 1462; *B.M.J.E.* '93, ii. 107.

In rheumatoid arthritis, 2 grains twice daily after food.—*B.M.J.* '97, i. 781, 1064; *P.J.* '97, i. 426.

Internally, 3 grains three times a day, in gonorrhœa, cuts short the acute stage of the disease before any damage is done to the urethral tissues.—*B.M.J.* '97, i. 140; *P.J.* '97, i. 405.

Methylene Blue must not be confounded with Methyl Blue which gave rise to purging and vomiting.—*P.J.* '98, i. 186.

In malarial fever. In some cases a slight amount of cystitis was observed, but this inconvenience was slight in comparison with radical cure obtained.—*L.* '98, i. 611.

In diabetes mellitus.—*T.G.* '98, 404.

Under the fancy name **Pyocctanin** (blue), Methyl-Violet (another coal-tar colour), has been recommended in the internal and local treatment of malignant tumours.—*T.G.* '94, 706; *B.M.J.E.* '94, ii. 12.

As a local application (10 p.c. sol.) in diphtheria.—*L.* '94, ii. 792; *B.M.J.E.* '93, ii. 12; '94, i. 3; *Y.B.T.* '94, 194; *T.G.* '93, 118.

Locally in corneal ulceration.—*T.G.* '93, 55.

### MEZEREI CORTEX.

MEZEREON BARK.

The dried bark of *Daphne Mezereum*, or of *Daphne Laureola*, or of *Daphne Gnidium*.

**Medicinal Properties.**—A stimulant, alterative, diaphoretic, and vesicant. An ointment of the bark is used as an irritant to keep up discharge. Rarely given alone internally, but it appears as an ingredient in *Liquor Sarsæ Compositus Concentratus*. It was formerly used in the treatment of syphilis.

**Official Preparation.**—Used in the preparation of *Liquor Sarsæ Compositus Concentratus*.

Not Official.—*Extractum Mezerei Æthereum* and *Unguentum Mezerei*.

**Foreign Pharmacopœias.**—Official in Belg., Dutch, Fr. (*Mézéréon* ou *Bois gentil*) Ital. (*Mezereo*), Mex. (*Mezereón*), Port. (*Trovisco*), Span. (*Mecereon*), Swed., Swiss and U.S.; not in the others.



**Description.**—In long, thin, more or less flattened strips, or in quills of various lengths; flexible, very tough and fibrous. The outer surface varies in colour from olive-brown or reddish-brown to deep purplish-brown; the inner surface is nearly white, and silky. The transverse section exhibits numerous groups of bast fibres in the secondary bast. The Bark readily separates into two layers. It has no marked odour, but an acrid burning taste.

**Not Official.**

**EXTRACTUM MEZEREI ETHEREUM.**—Mezereon Bark, cut small, 4; Alcohol (90 p.c.), 40; Ether, 5; macerate the Mezereon in three-quarters of the Alcohol for three days with frequent agitation; strain and press. To the residue of the Mezereon add the remainder of the Alcohol, and again macerate for three days, with frequent agitation, strain and press, mix and filter the strained liquors; recover the greater part of the Alcohol by distillation, evaporate what remains to the consistence of a soft extract, put this into a stoppered bottle with the Ether, and macerate for twenty-four hours, shaking them frequently, decant the ethereal solution, recover part of the Ether by distillation, and evaporate what remains to the consistence of a soft extract.

**Foreign Pharmacopœias.**—Official in Belg. (Ext. Mezerei), Ital. (Estratto di Mezereo Eteres), Fr. (Extrait de Garou, from the *Daphne Gnidium*), and Port. (Extracto de Trovisco) with Alcohol only; Swiss and U.S., **Fluid Extract** with Alcohol 1 in 1; not in the others.

**UNGUENTUM MEZEREI.**

- Belg.—Ext. Mezerei, 39; Lard, 865; Yellow Wax, 96; Alcohol (92°), 90.
- Dutch.—Ext. Mezerei, 1; Simple Ointment, 10.
- Fr.—Ext. Garou, 4; Lard, 90; White Wax, 10; Alcohol, 9.
- Ital.—Extract, 1; Alcohol, 1; Benzoated Lard, 27; Wax, 3.
- Swiss.—Fluid Extract, 4; Alcohol, 10; White Wax, 10; Lard, 86.

**MISTURÆ.**

**MIXTURES.**

The following are the mixtures of the British Pharmacopœia:—

Dose.		Proportions.
to 1 oz.	MISTURA AMMONIACI . . . . .	about 13½ grains in 1 oz.
to 1 oz.	MISTURA AMYGDALÆ . . . . .	compound powder 1 to 8.
to 1 oz.	MISTURA CREOSOTI . . . . .	1 minim in 1 oz.
to 1 oz.	MISTURA CRETÆ . . . . .	about 13½ grains in 1 oz.
to 1 oz.	MISTURA FERRI COMPOSITA . . . . .	.2½ grains in 1 oz.
to 1 oz.	MISTURA GUAIACI . . . . .	about 11 grains in 1 oz.
1 to 2 oz.	MISTURA OLEI RICINI . . . . .	3 fl. drm. in 1 oz.
1 to 2 oz.	MISTURA SENNÆ COMPOSITA . . . . .	1 oz. Magn. Sulph. in 4 oz.
1 to 2 oz.	MISTURA SPIRITUS VINI GALLICI . . . . .	about 1 Brandy in 2½.

**Not Official.**

**MORI SUCCUS.**

**MULBERRY JUICE.**

The deep purple juice of the ripe fruit of *Morus nigra*. Sp. gr. about 1.060.



**Medicinal Properties.**—Refrigerant and laxative; serves to prepare a grateful drink well adapted to febrile cases, and as a flavouring and colouring agent.

**Foreign Pharmacopœias.**—Official in Fr., Suc de Mûre; Port., Amoras; Span., Zumo de Moras.

**Preparation.**

**SYRUPUS MORI.**—Mulberry Juice, 20; Refined Sugar, 36; Alcohol (90 p.c.), 2½; heat the Juice to the boiling-point, and when it has cooled filter it; dissolve the Sugar in the filtered liquid by a gentle heat, and add the Alcohol; the product should weigh 54. Sp. gr. 1.330.

**Dose.**—1 fl. drm.

**Foreign Pharmacopœias.**—Official in Austr., Belg., Fr. (Sirop de Mûres), Hung., Ital., Mex. (Jugo de Moras), Span. and Swiss; not in the others.

**Not Official.**

**MORPHINA.**

$C_{17}H_{19}NO_3$ .  $H_2O$ , eq. 300.93.

When dried at 250° F. (110° C.) the  $H_2O$  is driven off, the equivalent is then 283.05. The principal alkaloid obtained from Opium.

**Solubility.**—1 in 1000 of Cold Water; 1 in 100 of Alcohol (90 p.c.); 1 in 10 of Oleic Acid; 1 in 125 of Glycerin; but the solubilities depend very largely on the physical condition of the alkaloid. Insoluble in Ether (thus differing from Narcotin). Aqueous Alkalis, even Lime Water, dissolve it readily when freshly precipitated; Ammonia, however, but sparingly; where a very strong solution is required Hypophosphorous Acid has been suggested as a solvent.

**Medicinal Properties.**—Similar to the salts of Morphine, but owing to its slight solubility in Water it is rarely given in its purely alkaloidal form. On the Morphine chiefly depends the action of Opium.

**Dose.**— $\frac{1}{6}$  to  $\frac{1}{2}$  grain.

**Foreign Pharmacopœias.**—Official in Belg., Fr., Hung., Ital., Mex. (Morfina), Port., Span., Swed. and U.S.; not in the others.

**Description.**—A white crystalline powder, bitter in taste, alkaline in reaction. It forms crystallisable salts with Acids.

**Tests.**—When dissolved in Sulphuric Acid, and a few drops of Water added to make the mixture hot, the addition of a drop of Nitric Acid produces a red colour. Ferric Chloride gives a blue colour, which, however, is not permanent, and which is interfered with by excess of Acid, heat, or Alcohol.

**Preparation.**

**HEROIN** (Di-acetyl ester of Morphine).—A fine white powder, insoluble in Water. Introduced as a substitute for Morphine.—*L.* '98, ii. 1486, 1511; *B.M.J.E.* '98, ii. 63, 92.

**Dose.**— $\frac{1}{4}$  to  $\frac{1}{2}$  grain in pill or powder.

**PERONINE** (Hydrochloride of Benzylic Ester of Morphine).—A white powder, soluble in Water and weak Alcohol; insoluble in Chloroform and Ether.

Introduced as a narcotic, producing sound sleep without previous excitement and has been found useful in allaying the cough of phthisis, chronic bronchitis, and whooping cough.—*P.J.* '97, i. 217; *B.M.J.E.* '98, ii. 43.

**Dose.**— $\frac{1}{66}$  to  $\frac{1}{33}$  grain two or three times a day in pills.



**MORPHINÆ ACETAS.**

MORPHINE ACETATE.

 $C_{17}H_{19}NO_3, C_2H_4O_2, 3H_2O$ , eq. 396.27.

The carefully dried salt, obtained by neutralising Morphine with Acetic Acid.

**Solubility.**—Theoretically 1 in  $2\frac{1}{2}$  of Water, but most samples will require the addition of Acid; 1 in 100 of Alcohol (90 p.c.); 1 in 5 of Glycerin.

**Medicinal Properties.**—Similar to those of Opium.

The Injectio Morphinae Hypodermica formerly (*B.P.* 1885) contained one grain of Morphine Acetate in ten minims, now (*B.P.* 1898) it contains one grain of Morphine Tartrate in twenty-two minims.

Recommended in the treatment of diabetes.—*Fr.* xxxviii. 20; *B.M.J.* '89, i. 118.

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

**Incompatibles.**—Alkalis and alkaline earths, astringent vegetable infusions and decoctions.

**Official Preparation.**—Liquor Morphinae Acetatis.

**Not Official.**—Injectio Morphinae et Atropinae Hypodermica.

**Antidotes.**—*See* Morphine Hydrochloride.

**Foreign Pharmacopœias.**—Official in Belg., Mex., Norw., Port., Span., Swed. and U.S.; not in the others.

**Description.**—A white crystalline or amorphous powder, almost entirely soluble in  $2\frac{1}{2}$  parts of Water and in about 100 parts of Alcohol (90 p.c.). It loses Acetic Acid when exposed to the air.

As it is practically impossible to dry the salt without a slight loss of Acetic Acid, the commercial Acetate generally requires a little added Acetic Acid to make a clear solution.

Aqueous solutions have a strong tendency to deposit basic salts, and to become acid.

**Tests.**—It affords the reactions for Morphine mentioned under 'Morphinae Hydrochloridum,' and the reactions characteristic of Acetates. 2 grammes of the salt form with 6 c.c. of warm Morphinated Water a slightly turbid solution, which is rendered clear by the addition of 1 c.c. of Acetic Acid; and this solution, when mixed with Solution of Ammonia in slight excess yields a precipitate which, after washing and drying as described under 'Morphinae Hydrochloridum,' weighs 1.42 gramme.

If the salt yield a larger proportion of Morphine than this, it should be re-crystallised from hot Water acidulated with Acetic Acid. Heated to redness with free access of air, it leaves no residue (absence of mineral impurities).

**Preparation.**

**LIQUOR MORPHINÆ ACETATIS.** SOLUTION OF MORPHINE ACETATE.  
(MODIFIED.)

Morphine Acetate,  $17\frac{1}{2}$  grains; Diluted Acetic Acid, 38 minims; Alcohol (90 p.c.), 1 fl. oz.; Distilled Water, a sufficient quantity. Mix the



Alcohol with an equal volume of Distilled Water, adding the Diluted Acetic Acid; dissolve the Morphine Acetate in the mixture; dilute with sufficient Distilled Water to produce 4 fl. oz. of the Solution of Morphine Acetate. = (1 in 100).

Alcohol (90 p.c.) now used instead of Rectified Spirit.

**Dose.**—10 to 60 minims.

110 minims contain 1 grain of Morphine Acetate; 100 c.c. contain 1 gramme.

**Not Official.**

**INJECTIO MORPHINÆ ET ATROPINÆ HYPODERMICA.**—Morphine Acetate, 10 grains; Atropine Sulphate,  $\frac{1}{4}$  grain; Water, 120 minims: dissolve.

$\frac{1}{2}$  grain of Morphine Acetate and  $\frac{1}{10}$  grain of Atropine Sulphate in every 6 minims.

**Dose.**—1 to 6 minims for each injection.

Atropine combined with Morphine increases its analgesic and hypnotic effects, whilst it lessens its depressing and constipating effects.

## MORPHINÆ HYDROCHLORIDUM.

MORPHINE HYDROCHLORIDE.

HYDROCHLORATE OF MORPHINE.—*B.P.*, '85.

$C_{17}H_{19}NO_3, HCl, 3H_2O$ , eq. 372.88.

The Hydrochloride of an alkaloid obtained from Opium.

**Solubility.**—1 in 24 of Water; about 1 in 50 of Alcohol (90 p.c.); 1 in 8 of Glycerin; insoluble in Ether.

**Medicinal Properties.**—This and the other salts of Morphine possess the anodyne, soporific and other actions of Opium. They vary in their solubility in Water, Morphine Acetate being the most soluble, but its solutions are not stable. In *B.P.* '98, the Tartrate has been selected for making the **hypodermic injection**.

*Has no appreciable effect on the secretion of bile, and does not prevent the stimulating effect of such a substance as the Sodium Salicylate.*—*Dr. Rutherford.*

**Dose.**— $\frac{1}{8}$  to  $\frac{1}{2}$  grain.

**Incompatibles.**—Alkalis and alkaline earths, astringent vegetable infusions and decoctions.

**Official Preparations.**—Liquor Morphine Hydrochloridi, Suppositoria Morphine, Trochiscus Morphine and Trochiscus Morphine et Ipecacuanhe. Contained in Tinctura Chloroformi et Morphine Composita.

**Antidotes.**—If taken by the mouth, induce vomiting, and wash out the stomach. Keep the patient walking about, and rouse him in every way. Ammonia or Spirit of Sal Volatile to the nose, inject a pint of strong Coffee into the bowel. Hypodermic injection of Atropine Sulphate  $\frac{1}{10}$  grain, repeating in quarter hour if necessary. Tincture of Belladonna, Amyl Nitrite inhalation, artificial respiration.—*Murrell, on Poisons.*  $\frac{1}{2}$  grain Strychnine acts as an antidote to  $\frac{1}{2}$  grain of Morphine.—*L.* '71, ii. 840, 907; Picrotoxine,  $\frac{1}{10}$  grain, *L.* '89, i. 497. Potassium Permanganate is used to wash out the stomach; a solution of 120 minims of Liq. Pot. Permang. in a pint of water is suitable. If quantity of Opium or Morphine taken is unknown 8 to 10 grains Potassium Permanganate in from 4 to 8 fl. oz. of water should be administered at once. The solution may be acidulated with Acid Sulphuricum



Dilutum with advantage.—*B.M.J.* '95, i. 1369; '95, ii. 55, 76; '96, i. 1194; *T.G.* '98, 97.

Value of Oxygen in poisoning by Morphine.—*L.* '98, ii. 545.

**Foreign Pharmacopœias.**—Official in Austr., Belg., Dan., Dutch, Fr., Ger., Hung., Ital., Jap., Mex., Norw., Port., Russ., Span., Swed., Swiss and U.S.

**Description.**—Acicular prisms of a silky lustre, or a white powder consisting of minute cubical crystals, unchanged by exposure to the air.

**Tests.**—It should be without action on Litmus. Solution of Ammonia causes a white precipitate in the aqueous solution, with difficulty soluble in excess; Solution of Potassium Hydroxide a similar precipitate readily soluble in excess. This precipitate yields mere traces to Benzol (absence of other alkaloids). Moistened with Nitric Acid the salt yields an orange-red coloration; with Test-solution of Ferric Chloride a dull greenish-blue coloration. Heated on a water-bath for ten or fifteen minutes with a few drops of Sulphuric Acid, cooled, and treated with a few drops of Diluted Nitric Acid, it gives a violet colour rapidly passing to blood-red. It dissolves without coloration in strong Sulphuric Acid; the addition of a small quantity of Sodium Arsenate to a portion of this solution causes a bluish-green coloration, and a small quantity of Bismuth Oxynitrate added to another portion gives a purplish-brown coloration. It affords the reactions characteristic of Hydrochlorides. 2 grammes of Morphine Hydrochloride dissolved in 250 c.c. of warm Morphinated Water, with Solution of Ammonia added in the slightest possible excess, will give on cooling a crystalline precipitate which, when washed with a little cold Morphinated Water and dried, should weigh 1.51 grammes. The drying should be accomplished, first by pressing the precipitate between sheets of bibulous paper, then by exposing it to a temperature between 131° and 140° F. (55° and 60° C.), and finally to a temperature of 230° F. (110° C.) for twenty minutes. Heated to redness with free access of air, it burns, leaving no residue (absence of mineral impurities).

#### Preparations.

**LIQUOR MORPHINÆ HYDROCHLORIDI.** SOLUTION OF MORPHINE HYDROCHLORIDE. *B.P.Syn.*—SOLUTION OF HYDROCHLORATE OF MORPHINE. (MODIFIED.)

Morphine Hydrochloride, 17½ grains; Diluted Hydrochloric Acid, 38 minims; Alcohol (90 p.c.), 1 fl. oz.; Distilled Water, a sufficient quantity. Mix the Alcohol with an equal volume of Distilled Water, adding the Diluted Hydrochloric Acid; dissolve the Morphine Hydrochloride in the mixture; dilute with sufficient Distilled Water to produce 4 fl. oz. of the Solution of Morphine Hydrochloride.

=(about 1 in 100).

Alcohol (90 p.c.) now used instead of Rectified Spirit.

**Dose.**—10 to 60 minims.

110 minims contain 1 grain of Morphine Hydrochloride; 100 c.c. contain 1 gramme.

**Foreign Pharmacopœias.**—Official in Port. (Solutio de Chlorhydrato de Morphina), 1 in 20, for hypodermic injection; not in the others.



**SUPPOSITORIA MORPHINÆ.** MORPHINE SUPPOSITORIES. (ALTERED.)

Morphine Hydrochloride, 3 grains; Oil of Theobroma, a sufficient quantity for 12 Suppositories. Proceed as directed for Tannic Acid Suppositories.

Each of these Suppositories contains  $\frac{1}{2}$  grain (or .017 gramme) of Morphine Hydrochloride instead of  $\frac{1}{4}$  grain as formerly.

(Not in the other Pharmacopœias.)

**TINCTURA CHLORIFORMI ET MORPHINÆ COMPOSITA.**

The formula is given under Chloroform. The proportion of Morphine has been much increased, and is now more than four times what it was in B.P. 1885. 10 minims now contain  $\frac{3}{4}$  minim of Chloroform,  $\frac{1}{2}$  minim of Diluted Hydrocyanic Acid, and  $\frac{1}{11}$  grain of Morphine Hydrochloride.

**TROCHISCUS MORPHINÆ.** MORPHINE LOZENGE.

Morphine Hydrochloride,  $\frac{3}{8}$  grain (.0018 gramme). Mix with the Tolu Basis to form a Lozenge.

Dose.—Not given in B.P.; 1 to 6 lozenges. One or two occasionally for cough.

**TROCHISCUS MORPHINÆ ET IPECACUANHÆ.** MORPHINE AND IPECACUANHA LOZENGE.

Morphine Hydrochloride,  $\frac{3}{8}$  grain (.0018 gramme); Ipecacuanha Root, in powder,  $\frac{1}{2}$  grain (.0054 gramme). Mix with the Tolu Basis to form a Lozenge.

Dose.—Not given in B.P.; 1 to 6 lozenges. One or two occasionally for cough.

Foreign Pharmacopœias.—Official in U.S. contains  $\frac{1}{5}$  grain of Morphine Sulphate, and  $\frac{3}{25}$  grain of Ipecacuanha in each; Swiss (Pastilli Ipecacuanhæ cum Opio), contains about  $\frac{1}{2}$  grain of each, Ipecac. and Opium.

Not Official.

**MORPHINÆ LACTAS.**

$C_{17}H_{19}NO_5C_6H_{12}O_6$ , eq. 372.42.

A white crystalline salt.

Solubility.—1 in 8 of Water, 1 in 93 of Alcohol (90 p.c.).

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

Not Official.

**MORPHINÆ SULPHAS.**

MORPHINE SULPHATE.

$(C_{17}H_{19}NO_3)_2, H_2SO_4, 5H_2O$ , eq. 752.84.

Colourless acicular crystals.

Solubility.—1 in 21 of Water, freely in hot Water; sparingly in Alcohol (90 p.c.).

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

Foreign Pharmacopœias.—Official in Belg., Dutch, Fr., Jap., Mex., Norw., Port., Russ., Span., Swiss and U.S.; not in the others.

Tests.—Its aqueous solution gives a white precipitate (Morphine) with Solution of Potash, soluble in excess; and with Barium Chloride a white precipitate (Sulphate), insoluble in hot Hydrochloric Acid.



**MORPHINÆ TARTRAS.**

MORPHINE TARTRATE.

[NEW.]

 $(C_{17}H_{19}NO_3)_2C_4H_6O_6 \cdot 3H_2O$ . eq. 768.66.

Morphine Tartrate may be prepared by the combination of Morphine and Tartaric Acid in molecular proportions.

**Solubility.**—1 in 10 of Water; sparingly in Alcohol (90 p.c.).

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

**Official Preparations**—*Injectio Morphinæ Hypodermica* and *Liquor Morphinæ Tartratis*.

**Description.**—A white powder consisting of fine nodular tufts of minute acicular crystals. Efflorescent at 68° F. (20° C.). Soluble in 11 parts of cold Water, almost insoluble in Alcohol (90 p.c.).

**Tests.**—It affords the reactions characteristic of Morphine and of Tartrates. 2 grammes dissolved in 20 c.c. of warm Morphinated Water, with Solution of Ammonia added in the slightest possible excess, will give, on cooling, a crystalline precipitate, which, after washing and drying as described under '*Morphinæ Hydrochloridum*,' should weigh 1.47 grammes. Heated to redness, with free access of air, it burns without leaving any residue (absence of mineral impurities).

**Preparations.****INJECTIO MORPHINÆ HYPODERMICA.** HYPODERMIC INJECTION OF MORPHINE. (ALTERED.)

Morphine Tartrate, 50 grains; Distilled Water, a sufficient quantity. Dissolve the Morphine Tartrate in sufficient recently boiled and cooled Distilled Water to produce 1100 minims of the Injection.

Now made with Morphine Tartras instead of Morphine Acetas.

**Dose.**—By *subcutaneous injection*, 2 to 5 minims.

The Morphine strength of this Injection is slightly less than one-half that of the Hypodermic Injection of Morphine of the British Pharmacopœia of 1885. 110 minims contain 5 grains of Morphine Tartrate; 100 c.c. contain 5 grammes.

Atropine salts are frequently added to Morphine Injection to increase its analgesic and hypnotic effects, and to lessen its depressing and constipating effects.

**LIQUOR MORPHINÆ TARTRATIS.** SOLUTION OF MORPHINE TARTRATE. (NEW.)

Morphine Tartrate, 17 $\frac{1}{2}$  grains; Alcohol (90 p.c.), 1 fl. oz.; Distilled Water, a sufficient quantity. Mix the Alcohol with an equal volume of Distilled Water; dissolve the Morphine Tartrate in the mixture; add sufficient Distilled Water to produce 4 fl. oz. of the Solution.

**Dose.**—10 to 60 minims.

110 minims of this Solution contain 1 grain of Morphine Tartrate; 100 c.c. contain 1 gramme.



**MORRHUÆ OLEUM.**

## COD-LIVER OIL.

*N.O.Syn.*—OLEUM JECORIS ASELLI.

The Oil extracted from the fresh liver of the Cod, *Gadus Morrhua*, by the application of a temperature not exceeding 180° F. (82·2° C.); and from which solid fat has been separated by filtration at about 23° F. (—5° C.).

**Solubility.**—Sparingly in Absolute Alcohol; 1 in 2 of Ether; 1 in 3½ to 4 of Acetic Ether.

A solvent of pure Quinine. 1 fl. oz. at 140° F. will dissolve 4 grains readily.

**Medicinal Properties.**—Nutritive; nervine and hæmatinic tonic. Most efficient in scrofulous diseases, glandular swellings, tubercular diseases of the joints and bones, tabes mesenterica, rickets, chronic rheumatism and tertiary syphilis; chronic bronchitis and neuralgias; and generally in all cases of impaired nutrition and nervous debility due to over-work, exhaustion and under-feeding. In pulmonary consumption it deservedly possesses a high reputation: sometimes given in emulsion with Malt Extract. It is contra-indicated in hæmoptysis and diarrhœa. It is easily assimilated, and is best given after meals; sometimes administered by inunction.

**Dose.**—1 to 4 fl. drm.

**Prescribing Notes.**—Given on Orange Juice, Water, or a mixture of Tincture of Orange with Diluted Nitric Acid and Syrup; sometimes given in flexible capsules, also prescribed in the form of Emulsion or with Malt Extract.

**Not Official.**—Emulsio Olei Morrhueæ and Morrhuel.

**Foreign Pharmacopœias.**—Official in Austr., Belg., Dan., Dutch, Ger., Hung., Norw., Russ., Swed. and Swiss, Ol. Jecoris Aselli; Fr., Huile de Foie de Morue; Ital., Olio di Fegato di Merluzzo; Jap., Ol. Jecoris; Port., Oleo de Bacalhau; Mex. and Span., Aceite de Hígado de Bacalao; U.S., Oleum Morrhueæ.

**Description.**—Pale yellow, with a slight fishy, but not rancid, odour.

**Tests.**—Sp. gr. ·920 to ·930. Readily soluble in Ether and Chloroform, and slightly soluble in Alcohol (90 p.c.). A drop of Sulphuric Acid added to a few drops of the Oil on a porcelain slab develops a violet coloration. When Nitric Acid is carefully poured into some of the Oil contained in a test-tube, a precipitate of coagulated albumen should be formed at the surface of contact of the two liquids. No solid fat should separate on exposure of the Oil for two hours to a temperature of 32° F. (0° C.).

The alkaloids Morrhueine and Aselline have been isolated from the oil.—*P.J.* (3) xxv. 585; *C.D.* '94, ii. 247; *Allen*.

The result of the analysis of ten samples of Cod Liver Oil of undoubted purity showed a sp. gr. ranging from ·922 to ·929, free acid from ·34 to ·6 p.c., and an Iodine absorption of from 153·5 to 168·4 p.c.—*P.J.* '95, ii. 119; *C.D.* '95, ii. 201. Five samples examined in our laboratory gave sp. gr. ·926 to ·928. Iodine absorption from 159 to 168·2 p.c. This latter test might with advantage have been included in the B.P.

Probably the most important character is the acidity, varying from 0 in a very fine colourless Oil to 9 p.c. in dark coloured samples altered by heat and long keeping.



Upon the acidity also depends the presence or absence of Albumens; fine Oils with little acid show an Albumen ring on being floated upon Nitric Acid, sp. gr. 1.400.

**Not Official.**

**EMULSIO OLEI MORRHUÆ** (*B.P.C.*).—Cod-Liver Oil, 8 fl. oz.; the yolks of 2 Eggs; Tragacanth in powder, 16 grains; Elixir of Saccharin, 60 minims; Simple Tincture of Benzoin, 60 minims; Spirit of Chloroform,  $\frac{1}{2}$  fl. oz.; Essential Oil of Bitter Almonds, 8 minims; Distilled Water to produce 16 fl. oz. Measure 5 fl. oz. of the Water; place the Tragacanth in a dry mortar and triturate with a little of the Cod-Liver Oil; then add the yolks of Eggs, and stir briskly, adding Water as the mixture thickens. When of a suitable consistence, add the remainder of the Oil and Water alternately, with constant stirring, avoiding frothing. Transfer to a pint bottle, add the Elixir of Saccharin, Tincture of Benzoin, Spirit of Chloroform, and Oil of Almonds, previously mixed; shake well, and add Distilled Water if necessary to make the product measure 16 fl. oz.

**Dose.**—2 to 8 fl. drm.

Pancreatised Cod-Liver Oil is prescribed under the impression that it is more easily digested than Cod-Liver Oil alone.

**MORRHUOL.**—Cod-Liver Oil treated first with aqueous solution of Sodium Bicarbonate to remove the acids, then agitated with Rectified Spirit, which on evaporation yields Morrhual. Brown Oil yields  $4\frac{1}{2}$  to 6 p.c., the straw coloured  $2\frac{1}{2}$  to 3 p. c.—*Y.B.P.* '86, 234; *P.J.* '97, ii. 458.

Proposed as a substitute for Cod-Liver Oil, but without the Carbo-hydrates, and owing to its small bulk is adapted for administration in capsules.

**Dose.**—3 grains.

## MOSCHUS.

### MUSK.

The dried secretion from the preputial follicles of *Moschus moschiferus*.

The Musk-deer is a native of the mountainous regions of Central Asia. Musk is imported from China and India.

**Medicinal Properties.**—Stimulant and antispasmodic. Useful in hysteria and epilepsy and spasmodic asthma, and as a stimulant in pneumonia and febrile diseases.

**Dose.**—5 to 10 grains.

**Prescribing Notes.**—Usually prescribed in a mixture or in pills. See formulas given below.

**Not Official.**—Mistura Moschi, Moschus Exsiccatus, Tinctura Moschi, and Pilula Moschi.

**Foreign Pharmacopœias.**—Official in all except Austr.; Fr., Musc; Port., Almiscar; Mex. and Span., Almizcle.

**Description.**—In irregular somewhat unctuous grains which have a dark reddish-brown or reddish-black colour, a characteristic penetrating persistent odour, and a somewhat bitter taste. The grains are contained in an oval sac, from about one and a half to two inches (three and a half to five centimetres) in diameter, which is nearly smooth on one side, and covered on the other or outer side by



brownish-yellow or greyish appressed bristle-like hairs, concentrically arranged around a nearly central orifice.

**Test.**—Musk should be free from earthy impurities and should on incineration yield not more than 8 p.c. of ash.

Sample of Musk adulterated with Cinnabar.—*P.J.* '96. ii. 474.

There may be considerable moisture in Musk, amounting to about 30 p. c.

Dan. and Ger. specify that it should be practically free from moisture and yield not more than 8 p.c. of ash; Ital., 6 p.c. of ash; U.S., 8 p.c. of ash.

**Not Official.**

**MISTURA MOSCHI.**—Musk, 3; Acacia, 3; Sugar, 3; Rose Water, 160; triturate the Musk with the Sugar, then with the Acacia; add the Rose Water gradually.

**Dose.**—1 to 2 fl. oz.

**MOSCHUS EXSICCATUS.**—Musk which has been dried over Strong Sulphuric Acid. It keeps better than that which is usually supplied as 'grained Musk.' It is easily made into pills by the addition of Dispensing Syrup.

**PILULA MOSCHI.**—Musk, 12; Powdered Acacia, 3; Powdered Liquorice, 3; Mix.

**TINCTURA MOSCHI.**—Musk, 60 grains; Alcohol (90 p.c.), 10 fl. oz.: digest seven days, and strain.

Belg., Fr., Ital., Mex., and Port.—Musk, 1; Spirit, 10.

Dan., Dutch, Ger., Russ., and Swiss.—Musk, 1; Spirit, 25; Water, 25.

Span.—Musk, 1; Spirit, 25.

U.S.—Musk, 5; Water, 45; Alcohol, 45; Diluted Alcohol to measure 100.

All by weight except U.S.

**MUCILAGINES.**

MUCILAGES.

Mucilages are employed more as vehicles than as remedies. Mucilage of Acacia is sometimes given to relieve irritating cough, but more generally to render Oils and solutions of Resins miscible with Water; see ACACIA. Mucilage of Tragacanth is also used for suspending heavy powders in mixtures. The following Mucilages are Official:—

MUCILAGO ACACIÆ.

MUCILAGO TRAGACANTHÆ.

**MYRISTICA.**

NUTMEG.

The dried seed of *Myristica fragrans*, divested of its testa.

It is cultivated in the Banda Islands of the Malayan Archipelago and imported from Sumatra and the Molucca Islands, and occasionally from the West Indies and the Seychelles.

Nutmegs yield about 5 p. c. of ash.

**Medicinal Properties.**—Aromatic, stimulant, and carminative. Frequently used to cover the taste of Rhubarb and other medicines. The expressed and Volatile Oils have been much used in chronic rheumatic pains and in lotions for the hair. In large doses it acts as a narcotic poison.

**Dose.**—Not given in B.P.; usually 5 to 15 grains.



**Prescribing Notes.**—The **Oil** may be given on Sugar, or in **pill** with Liquorice powder and Soap.

**Official Preparation.**—Oleum Myristicæ. Used in the preparation of Pulvis Catechu Compositus, Pulvis Crete Aromaticus, Spiritus Armoraciæ Compositus and Tinctura Lavandulæ Composita: of the **oil**, Spiritus Myristicæ. Used in the Preparation of Spiritus Ammoniac Aromaticus, Tinctura Guaiaci Ammoniata, Tinctura Valerianæ Ammoniata and Pilula Aloes Socotrina. Of the **Spirit**, contained in Mistura Ferri Composita.

**Not Official.**—Oleum Myristicæ Expressum.

**Foreign Pharmacopœias.**—Official in Austr., Dutch, Ger., Russ., Swed., and Swiss, Semen Myristicæ; Belg. and Hung., Nux Moschata; Fr., Muscade; Ital., Noce Moscata; Port., Noz Moschada; Mex. and Span., Nuez Moscada; U.S., Myristica; not in Dan., Jap. or Norw.

**Description.**—Oval or rounded, varying in length, but rarely exceeding an inch (twenty-five millimetres); greyish-brown externally, and marked with reticulated furrows; internally greyish-red with darker brownish-red veins, so that the transverse section has a marbled appearance. Odour strong and pleasantly aromatic; taste agreeably aromatic, warm, and somewhat bitter.

#### Preparations.

#### OLEUM MYRISTICÆ. OIL OF NUTMEG.

The Oil distilled from Nutmeg.

**Solubility.**—In all proportions of Absolute Alcohol; 1 in  $4\frac{1}{2}$  of Alcohol (90 p.c.); sparingly in Alcohol (60 p.c.).

**Dose.**— $\frac{1}{2}$  to 3 minims.

**Foreign Pharmacopœias.**—Official in Austr., Dutch, Ger., Hung., Russ., and Swiss, Oleum Macidis; Belg., Essentia Macidis; Dan., Norw., and Swed., Ætheroleum Macidis; Port., Essencia de Noz Moschada; U.S., Oleum Myristicæ; not in Fr., Ital., Jap., Mex. or Span.

**Description.**—Colourless or pale yellow, having the odour and taste of Nutmeg.

**Tests.**—Sp. gr. .870 to .910. The Oil forms a clear solution with its own volume of a mixture of equal parts of Absolute Alcohol and Alcohol (90 p.c.). A little evaporated on a water-bath should not leave a residue which crystallises on cooling (absence of the concrete oil of Nutmeg).

Sp. gr. varies considerably; we have seen it as low as .880, and as high as .930.

#### SPIRITUS MYRISTICÆ. SPIRIT OF NUTMEG. (ALTEBED.)

Oil of Nutmeg, 1; Alcohol (90 p.c.), a sufficient quantity. To the Oil of Nutmeg add enough of the Alcohol to form 10 of the Spirit of Nutmeg. If the solution be not clear, agitate with a little Powdered Tale, and filter.  
=(1 in 10).

Now 1 in 10 instead of 1 in 50; Alcohol (90 p.c.) used in place of Rectified Spirit.

**Dose.**—5 to 20 minims.

This Spirit of Nutmeg contains five times the proportion of Oil of Nutmeg present in the Spirit of Nutmeg of the British Pharmacopœia of 1885.

**Foreign Pharmacopœias.**—Official in U.S., 5 in 100; not in the others.



## Not Official.

**OLEUM MYRISTICÆ EXPRESSUM.** *Syn*—Myristicæ Adeps.—A Concrete Oil, of a firm consistence and orange colour, obtained from Nutmeg by expression and heat.

**Foreign Pharmacopœias.**—Official in Austr. and Russ., Ol. Myristicæ Expressum; Belg. and Ger., Ol. Nucistæ; Dutch, Norw., Swed. and Swiss, Oleum Myristicæ; Fr., Beurre de Muscade; Mex., Manteca 'O Aceite concreto de Nuez Moscada; Port, Oleo de Noz Moscada; Span., Aceite de Nuez Moscada; not in the others.

**MYRRHA.**

## MYRRH.

A gum-resin obtained from the stem of *Balsamodendron Myrrha*, and probably other species.

Collected in South-eastern Arabia and Somaliland.

**Solubility.**—Myrrh contains from 40 to 65 p.c. of gum soluble in Water, the remainder consisting of resin is mostly soluble in Alcohol.

**Medicinal Properties.**—Stomachic and carminative; emmenagogue. Locally to aphthæ of mouth and spongy gums.

**Prescribing Notes.**—The tincture mixed with water is used for a gargle, but the addition of Mucilage of Acacia is often necessary; also mixed with Solution of Borax for a mouth wash.

**Official Preparation.**—Tinctura Myrrhæ. Contained in Decoctum Aloes Compositum, Mistura Ferri Composita, Pilula Aloes et Myrrhæ, Pilula Galbani Composita, and Pilula Rhei Composita.

**Not Official.**—Gargarisma Myrrhæ, Tinctura Myrrhæ et Boracis.

**Foreign Pharmacopœias.**—Official in all except Hung.

**Description.**—In rounded or irregular tears, or masses of agglutinated tears, varying very much in size; reddish-brown or reddish-yellow externally, dry, and more or less covered by a fine powder; brittle, the fractured surface irregular, somewhat translucent, of a rich brown colour, oily, and frequently exhibiting whitish marks. Odour agreeable, aromatic. Taste aromatic, bitter, and acrid.

Distinction from Bisabol Myrrh or perfumed Bdelium.—*P.J.* '97, ii. 459.

An exhaustive paper on Myrrh and Bdelium by Holmes.—*P.J.* '98, ii. 547.

**Test.**—When moistened with Nitric Acid it assumes a violet colour (distinction from Bdelium and false Myrrh).

Limit of ash and proportion insoluble in Alcohol might have been stated.—*C.D.* '98, ii. 131.

**Preparation.**

**TINCTURA MYRRHÆ.** TINCTURE OF MYRRH. (ALTERED.)

Myrrh, in coarse powder, 4; Alcohol (90 p.c.), a sufficient quantity. Place the Myrrh with 16 of the Alcohol in a closed vessel set aside for seven days, with frequent agitation; filter; when the liquid ceases to drop, pass sufficient of the Alcohol through the filter to produce 20 of the Tincture. = (1 in 5).

Now 1 in 5 instead of 1 in 8, and Alcohol (90 p.c.) used in place of Rectified Spirit.

**Dose.**— $\frac{1}{2}$  to 1 fl. drm.



**Foreign Pharmacopœias.**—Official in Austr., Belg., Dan., Dutch, Fr., Ger., Ital., Jap., Mex., Norw., Port., Russ., Span., Swed., Swiss and U.S., 1 in 5; all by weight except U.S.; not in Hung.

Not Official.

**GARGARISMA MYRRHÆ.**—Tincture of Myrrh, 1; Honey, 1; Infusion of Roses, 18; mix.

**TINCTURE OF MYRRH AND BORAX.**—See BORAX.

Not Official.

### NAPHTHALINUM.

NAPHTHALENE.

$C_{10}H_8$ , eq. 127.10.

Purified Naphthalene occurs in white micaceous scales, with a characteristic odour, melting at  $98^{\circ}C$ .

**Solubility.**—Insoluble in Water; soluble 1 in 25 of Alcohol (90 p.c.); 1 in  $1\frac{1}{2}$  of Chloroform; 1 in 3 of Ether; 1 in  $7\frac{1}{2}$  of Oil of Turpentine; 1 in 8 of Olive Oil; slightly soluble in Glycerin.

**Medicinal Properties.**—Intestinal antiseptic and parasiticide. Employed locally with success in scabies as a 10 or 20 p.c. solution in oil. In other skin diseases, especially those in which large surfaces are exposed, it is to be avoided.—*L.* '82, ii. 909.

In catarrhal conditions of the intestines, also in vesical catarrh. *Adult dose*, 60 to 75 grains daily.—*A.J.P.*, '84, 645; *L.* '85, ii. 404.

In gastric fermentation.—*M.A.* '95, 68.

As an antiseptic for wounds.—*L.* '85, ii. 821; *B.M.J.*, '86, i. 217.

In dysentery, 7 or 8 grains to 1 fl. oz. of water for an enema.—*L.* '88, i. 1327; *T.G.* '85, 412.

In typhoid fever.—*T.G.* '85, 676; *L.* '89, ii. 659, 720.

In doses of 23 grains per diem.—*L.* '86, ii. 745.

In single doses of 15 grains, or daily doses of 75 grains.—*T. G.* '86, 243.

Usual dose 2 to 5 grains every four or six hours. Larger doses may be given, but are apt to upset digestion.—*M.A.* '95, 69.

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

**Test.**—Should dissolve colourless in warm concentrated Sulphuric Acid if quite pure, but a decided pinkish tint is observed if the sample contains 1 p.c. of impurity, and the coloration becomes deeper pink, or even brown, the greater the proportions of foreign matter present.—*Allen.*

Preparations.

**NAPHTHALINUM PRÆCIP.**—A fine powder, obtained by dissolving the crystals in hot Alcohol and pouring into a quantity of cold Water. Recommended as less irritating than the powdered crystals.

**PULVIS NAPHTHALINI** (*Rosbach*).—Purified Naphthalene, 75 grains; Sagar, 75 grains; Oil of Bergamot,  $\frac{1}{2}$  minim; divide into twenty powders.

In vesical catarrh.—*L.* '85, i. 360.