GALBANUM.

GALBANUM.

A gum-resin obtained from *Ferula galbaniflua*, and probably from other species.

For information as to geographical and botanical sources, *see P.J.* (3) xxii. 194.

The pure resin is probably a Galbaresinotannylic salt of Umbelliferone.—*J.C.S. Abs.* '94, i. 423.

Medicinal Properties.—Similar to Asafetida, but less energetic; antispasmodic and stimulating expectorant. Chiefly used in chronic affections of the bronchial mucous membrane; externally as a plaster in chronic inflammatory swellings.

Dose.—5 to 15 grains.

Official Preparation.—Pilula Galbani Composita.

Not Official.—Emplastrum Galbani and Unguentum Galbani Compositum.

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

Description.—In tears or in masses of agglutinated tears. The tears are rounded or irregular in form, and vary in size from that of a lentil to that of a hazel nut, although rarely exceeding that of a pea; yellowish-brown or orange-brown externally; often rough and dirty on the surface, usually opaque and yellowish-white internally; sometimes more or less translucent, bluish-green in colour, and mixed with transverse slices of the root. They are hard and brittle in cold weather, but soften in the summer, and by the heat of the hand become ductile and sticky. The masses are irregular in form, and vary in colour from yellowish-brown to translucent bluish-green. The taste is bitter and unpleasant; both taste and odour are characteristic.

Usually heated to 212° F. (100° C.), and strained before using.

Test.—If a small fragment is heated to redness in a dry test-tube, the contents of the tube, after cooling, yield with boiling Water a solution which, when largely diluted and rendered alkaline by Solution of Ammonia, exhibits a blue fluorescence.

For remarks on this test *see* 'Ammoniacum.'

Ash should not exceed 10 p.c. and the proportion insoluble in Alcohol (90 p.c.) should not exceed 50 p.c.—*C.D.* '98, ii. 131.

Preparation.

PILULA GALBANI COMPOSITA. Compound Pill of Galbanum.

B.P.Syn.—Compound Pill of Asafetida. (Modified.)

Asafetida, 2; Galbanum, 2; Myrrh, 2; Syrup of Glucose (by weight), 1 or a sufficient quantity. Heat all together on a water-bath, stirring until the mass is uniform in consistence.

Syrup of Glucose now used in place of Treacle.

Dose.—4 to 8 grains.

The following modification will be found convenient for dispensing: Powder the Myrrh, mix it with the Asafetida and Galbanum melted on a water-bath, allow the mixture to cool, and after chilling it by artificial means reduce it to powder with $\frac{1}{6}$

of its weight of Light Magnesium Carbonate. This powder will keep well and can be made into pills as required with the aid of Alcohol (60 p.c.).

Foreign Pharmacopœias.—Official in Port., similar to Brit.; U.S., Asafetida 20, Soap 6; Swed., has Pilula Fœtida Succinata, but very different from Brit.; not in the others.

Not Official.

EMPLASTRUM GALBANI.—Galbanum, 1; Ammoniacum, 1: melt together and strain, then add them to Yellow Beeswax, 1; Lead Plaster, 8, previously melted together: mix. =(1 in 11).

Foreign Pharmacopœias.—A plaster more or less resembling this is in all except Hung. and U.S. Mex. has Emplasto de Galbano Azafranado.

UNGUENTUM GALBANI COMPOSITUM.—Galbanum Plaster, 4 oz.; Lead Plaster, 4 oz.; White Beeswax, 4 oz.; soft Extract of Opium, 1 drm.; Olive Oil, 20 fl. oz.: melt together.

It is used for boils and carbuncles, and for sore nipples and suppurating breasts.

Not Official.

GALIUM APARINE.

CLEAVERS. GOOSE-GRASS.

This old remedy for scrofula still finds occasional notice. Besides its external application as a poultice to stimulate chronic ulcers, the general form of administration is the juice of the plant in wineglassful doses several times a day, but as the Succus cannot be preserved without 25 p.c. of Alcohol (90 p.c.), the quantity of Alcohol involved would in many cases preclude its use. The most suitable preparation therefore is a **Fluid Extract** prepared from the fresh plant.

GALLA.

GALLS.

Excrescences on *Quercus infectoria*, resulting from the puncture and deposition of an egg or eggs of *Cynips Gallæ tinctoriæ*.

Chiefly from Turkey, Persia and Greece.

Galls contain 60 to 70 p.c. of Tannin or Tannic Acid, and 3 to 5 p.c. of Gallic Acid, to which their therapeutic qualities may be attributed.

Solubility.—All the soluble matter of Galls is taken up by forty times their weight of boiling Water, and the residue is tasteless.

Medicinal Properties.—Astringent. Chiefly used locally in form of lotion or injection to suppress hæmorrhage from the gums, nose, &c.; to lessen the discharge from mucous membranes, as in gleet, leucorrhœa, &c.; both Ointments are useful in painful hæmorrhoids.

Dose.—Not given in B.P.; (of powder) 10 to 20 grains.

Incompatibles.—The mineral Acids, Iron and Lead salts, Copper Sulphate, Silver Nitrate, Potassium and Sodium Carbonates, Lime Water, Tartar Emetic, Ipecacuanha, and Opium; Infusions of Cinchona, Calumba, and Cusparia.

Official Preparations.—Unguentum Gallæ and Unguentum Gallæ cum Opio. Used in the preparation of Acidum Gallicum and Acidum Tannicum.

Not Official.—Decoctum Gallæ, Suppositoria Gallæ, and Tinctura Gallæ.

Foreign Pharmacopœias.—Official in Austr., Belg., Dan., Dutch, Fr. (Galle

de Chêne d'Alep), Ger., Hung., Ital. (Noci di Galla), Jap., Mex. (Agallas de Levante), Norw., Port. (Galha), Russ., Span. (Agalla), Swed., Swiss and U.S.

Description.—Hard, heavy, subglobular, from half an inch to three-quarters of an inch (twelve to eighteen millimetres) or more in diameter, tuberculated on the surface, the tubercules and intervening spaces being smooth; dark bluish-green or dark olive-green externally, yellowish or brownish-white within, with a small central cavity. No odour; taste intensely astringent.

Preparations.

ACIDUM GALLICUM.—*See* ACIDUM GALLICUM.

ACIDUM TANNICUM.—*See* ACIDUM TANNICUM.

UNGUENTUM GALLÆ. GALL OINTMENT. (ALTERED.)

Galls, in very fine powder, 1; Benzoated Lard, 4 oz.: mix by trituration. =(1 in 5).

Now 1 in 5 instead of 1 in 6½.

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

UNGUENTUM GALLÆ CUM OPIO.—GALL AND OPIUM OINTMENT. (ALTERED.)

Gall Ointment, 925; Opium, in very fine powder, 75; mix by trituration. =(Opium, 1 in 13⅓).

Opium slightly stronger. Galls now 1 in 5 instead of 1 in 6½.

100 parts of this Ointment contain 7½ parts of Opium.

The Ointment might be made direct by mixing 15 grains of Opium and 37 grains of Galls with 148 grains of Benzoated Lard.

(Not in the other Pharmacopœias.)

Not Official.

DECOCTUM GALLÆ.—Bruised Galls, 2½; Distilled Water, 40: boil to 20 and strain. =(1 in 8).

An astringent **lotion** to suppress hæmorrhage from the gums or nose, and to lessen discharges from mucous surfaces.

SUPPOSITORIA GALLÆ.—5 grains powdered Galls and 1 grain Opium in each, with a basis of Cocoa-nut Stearin.

TINCTURA GALLÆ.—Galls, in No. 40 powder, 1; Alcohol (60 p.c.), 8: macerate for forty-eight hours with 6 of the Alcohol, agitating occasionally; pack in a percolator, let it drain, and then pour on the remaining Alcohol; when it ceases to drop, press the marc and add Alcohol (90 p.c.) to make 8.

Dose.—½ to 2 fl. drm.

Foreign Pharmacopœias.—Official in Austr., Dan., Dutch., Fr., Ger., Hung., Jap., Mex., Norw., Russ., Swiss, and U.S., 1 in 5; all by weight, except U.S.; not in the others.

Not Official.

GARCINIA PURPUREA.

KOKUM BUTTER TREE.

Grows in the forests of Malabar, the Concans, and other parts of the Madras Peninsula.

The oil of the seeds (*Kokum Butter*) is obtained by first exposing the seeds for

some days to the action of the sun to dry; they are then bruised and boiled in water; the oil collects on the surface and on cooling contracts into a solid cake. It melts at 98° F. The seeds yield about 10 p.c. of oil.

It is used in India in the preparation of ointments, suppositories, &c.

Not Official.

GAULTHERIÆ OLEUM.

OIL OF WINTERGREEN.

Three nearly allied substances are sold as Oil of Wintergreen, and they are all official in U.S.P.

Oil of Gaultheria (Wintergreen).—A volatile oil distilled from the leaves of *Gaultheria procumbens*, consisting almost entirely of Methyl Salicylate, and nearly identical with Volatile Oil of Betula. It deviates polarised light slightly to the left. Sp. gr. 1·175 to 1·185.

Volatile Oil of Betula (Sweet Birch). A Volatile Oil obtained by distillation from the bark of *Betula lenta*. It is identical with Methyl Salicylate, and nearly identical with Oil of Gaultheria. It has the same properties and conforms to the same reactions and tests as Methyl Salicylate.

Methyl Salicylas, produced synthetically. A large proportion of the oil in commerce is now synthetic Methyl Salicylate or Artificial Oil of Wintergreen. Gaultheria Oil contains 99 p.c. and Birch Oil about 99·8 p.c. of Methyl Salicylate. Sp. gr. of both oils is between 1·180 and 1·187 at 15° C. Like synthetic Methyl Salicylate they form with 5 parts of Alcohol (70 p.c.), a perfectly clear solution at about 20° C.—*P.J.* '95, ii. 329.

Solubility.—Readily Soluble in Alcohol (90 p.c.), Ether, Chloroform, and Glacial Acetic Acid.

Medicinal Properties.—A valuable remedy in acute rheumatism, internally; also externally, applied directly to the skin and covered with oiled silk or gutta percha tissue, to prevent evaporation; also mixed with equal parts of Olive Oil. Used largely as a flavouring agent in America, more particularly in dentifrices. It is a good antiseptic. Methyl Salicylate is better for application to rheumatic patients than the Essence of Wintergreen. In all cases it was applied according to the process, become classic, of 50 to 100 drops poured upon a double fold of aseptic gauze, and covered by an impermeable material, applied for some hours, either to the forearm or to the leg, and renewed twice every twenty-four hours. The part treated with natural essence of Wintergreen was more or less red, painful, and covered sometimes with a rubeoliformic eruption; pure Methyl Salicylate produced no such reaction.—*L.* '98, i. 52.

Dose.—10 to 15 minims every four hours, when given as a substitute for Sodium Salicylate, but the taste is rather pungent.

Prescribing Notes.—When required to be made into an emulsion or pills, the same general rules would apply as for other Essential Oils, *see* 'Mucilago Acaciæ' and 'Pilulæ.'

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

METHYL SALICYLATE. (*U.S.*).—A colourless or slightly yellowish liquid having the characteristic, strongly aromatic odour, and the sweetish, warm, and aromatic taste of Oil of Gaultheria, with the essential constituent of which it is identical. It is wholly identical with Volatile Oil of Betula.

Tests.—Sp. gr. 1·183 to 1·185 at 15° C. (59° F.). Boiling point, 219° to 221° C.

It is optically inactive. The alcoholic solution is neutral or slightly acid to Litmus paper. If a drop of Methyl Salicylate be shaken with a little water, and a drop of Ferric Chloride (10 p.c.) solution subsequently added, a deep violet colour will be produced. When heated on a water bath, in a flask provided with a suitable condenser, it should yield no distillate having the characteristics of Alcohol or Chloroform. If to 1 c.c. of Methyl Salicylate, contained in a capacious test-tube, 10 c.c. of Sodium Hydrate T.S. (5 p.c.) be added, and the mixture agitated, a bulky, white, crystalline precipitate will be produced; then, if the test-tube, loosely corked, be allowed to stand in boiling water for about five minutes, with occasional agitation, the precipitate should dissolve, and form a clear, colourless or faintly yellowish solution, without the separation of any oily drops, either on the surface or at the bottom of the liquid (absence of other Volatile Oils, or of Petroleum). If the alkaline liquid thus obtained be subsequently diluted with about three times its volume of water, and a slight excess of Hydrochloric Acid added, a white crystalline precipitate will be produced, which, when collected on a filter, washed with a little water, and recrystallised from hot water, should respond to the tests of identity and purity described under Acidum Salicylicum (absence of Methyl Benzoate, etc.).

Note on the production of artificial Oil of Wintergreen.—*A.J.P.* '95, 243.

Note on the Oils of Wintergreen and Birch.—*A.J.P.* '95, 560.

The leaves of the two plants yield a glucoside **Gaultherin**, which decomposes and forms Methyl Salicylate.—*A.J.P.* '95, 14.

SANOFORM (Diiodomethylsalicylate).—Is prepared by the action of Iodine on Methyl Salicylate.

A white crystalline powder almost odourless and tasteless, melting at 110° C. It contains 62·7 p.c. Iodine.

Solubility.—Insoluble in Water and Glycerin; slightly soluble in cold Alcohol (90 p.c.) and readily in Ether.

Introduced as a substitute for Iodoform in the treatment of wounds and ulcers.

SPIRITUS GAULTHERIÆ (*U.S.*).—Oil of Gaultheria 5; Alcohol 95: both by measure: mix.

GELATINUM.

GELATIN.

The air-dried product of the action of boiling Water on such animal tissues as skin, tendons, ligaments, and bones.

Official Preparations.—Used in the preparation of the Lamellæ and Suppositoria Glycerini, p. 320.

Not Official.—Gelatin Basis for Pessaries and Suppositories, Glyco-gelatin and Gelato-glycerin.

Foreign Pharmacopœias.—Official in Austr., Dan., Fr., Hung., Mex., Port., Russ., Swed. and Swiss; not in the others.

Description.—In translucent, almost colourless, sheets or shreds. A solution in 50 parts of hot Water is inodorous, and solidifies to a jelly on cooling. Gelatin is insoluble in Alcohol (90 p.c.) and Ether. It dissolves in Acetic Acid.

These characters apply more particularly to 'French Gelatin,' which is less coloured than that made in this country, although from the point of odour some French samples of fine appearance and great tenacity leave much to be desired.

Commercial Gelatin varies considerably in its gelatinising power, and the following test was given in our last edition.

Place 5 grains of Gelatin in a test-tube (¾ in. diameter) with 250 grains of Water for half an hour, warm gently until dissolved, then place the test tube in water at 60° F., and leave it undisturbed for 30 minutes, by which time a jelly should be formed of such consistence that it will remain in position if the test-tube be inverted.

There is no difficulty in obtaining Gelatin answering this test.

Tests.—Its aqueous solution yields a precipitate with Solution of Tannic Acid, but not with solutions of other acids, nor with Solution of Alum, Solution of Lead Acetate, or test solution of Ferric Chloride.

Not Official.

GELATIN BASIS FOR PESSARIES AND SUPPOSITORIES.—Soften 1 oz. of Gelatin by allowing it to soak in 1 fl. oz. of Water until it is absorbed, then dissolve in 3½ fl. oz. of Glycerin by the heat of a water-bath, and allow it to cool and solidify.

It can be medicated by melting it over a water bath and suspending or dissolving in it substances in fine powder, and then pouring the mixture into moulds.

This formula has appeared in each edition of the *Companion* since 1877.

GLYCO-GELATIN (*T.H.*).—Refined Gelatin, 1 oz.; Glycerin (by weight), 2½ oz.; Ammoniacal Solution of Carmine, a sufficiency; Orange-flower Water, 2½ fl. oz. Soak the Gelatin in the Water for 2 hours, then heat in a water-bath till dissolved; add the Glycerin and stir well together. Let the mixture cool, and when nearly cold add the Carmine Solution; mix till uniformly coloured, and set aside to solidify.

This mass is used for making the various medicated **Pastils**; the various substances are rubbed with an equal quantity of Glycerin, and added to the mass when melted over a water-bath.

GELATO-GLYCERIN (*T.H.*).—Refined Gelatin (by weight), 5 oz.; Glycerin (by weight), 6 oz.; Water (by weight), 6 oz. Soak the Gelatin in the Water for 12 hours, with occasional stirring, add the Glycerin, dissolve in a water-bath, and evaporate to produce 15 oz. by weight of the Gelato-glycerin.

(For preparing Nasal Bougies.)

GELSEMII RADIX.

GELSEMIUM ROOT.

The dried rhizome and roots of *Gelsemium nitidum*.

The plant, Carolina Jasmine, grows in the Southern States of North America.

Medicinal Properties.—Antispasmodic and analgesic. Has been used in dental neuralgia, migraine, and especially in tic douloureux (neuralgia of fifth nerve); also in uterine and ovarian pain; spasmodic and asthmatic cough, and in chorea.

This drug should be used with care, and in the event of toxic symptoms presenting themselves, artificial respiration should be carried on.—*Pr.* li. 50.

Dose.—Not given in B.P.; 5 to 30 grains.

Official Preparation.—Tinctura Gelsemii.

Antidotes.—Emetic of Mustard and Water, Atropine, Morphine, Aromatic Spirit of Ammonia, Brandy, and Digitalis. Artificial respiration should be kept up very steadily for at least three hours.

Foreign Pharmacopœias.—Official in Belg., Dutch, Mex., Span., Swiss and U.S.; not in the others.

Description.—In nearly cylindrical pieces of about six inches (fifteen centimetres) or more in length, and varying usually from one quarter to three-quarters of an inch (six to eighteen millimetres) in thickness; occasionally with fibrous roots attached to them. The fracture is splintery; the transverse section exhibits a thin cortex and a porous yellowish wood which is rendered distinctly radiate by the presence of numerous, conspicuous, straight medullary rays. The rhizome has usually a brown or dark brownish-violet cork often much fissured, is nearly straight, and exhibits silky fibres in the bast; the root is yellowish-brown, finely wrinkled, and somewhat tortuous. Taste bitter; odour slightly aromatic.

The principles upon which the drug depends for its activity are absent, or present only in small quantities, in the stem, so that the admixture of any appreciable amount of stem must correspondingly reduce the value of the drug as a medicine.—*A.J.P.*, '97, 235.

The following constituents of Gelsemium have been described.

Gelsemic Acid is not known to have any medicinal properties, but affords reactions, which to some extent serve as a test for Gelsemium preparations, particularly the blue fluorescence which it produces in alkaline solutions.

Gelsemin.—A name given to a resinoid and eclectic remedy. Dose.—$\frac{1}{2}$ to 2 grains.

Gelsemine.—The crystallisable alkaloid forming crystalline salts, described by Gerrard (*P.J.* (3) xiii. 641) and most unfortunately listed by Merck under the name '**Crystallised Gelseminine.**' Dose.—$\frac{1}{120}$ to $\frac{1}{32}$ grain.

When quite free from Gelseminine, with which all early specimens were probably mixed, **Gelsemine** is stated (*Pr.* li. 38) to be without action on *mammals*, even when injected intravenously up to $\frac{1}{2}$ gramme. Gelseminine, on the other hand, is intensely poisonous, causing a descending paralysis of the central nervous system, $\frac{1}{2}$ grain being the calculated lethal dose for an adult. Applied locally it produces dilatation of the pupil, and it is to the action of this alkaloid, modified by the various acid resins, that the action of Gelsemium Tincture is mainly due.

Gelseminine.—An amorphous alkaloid forming amorphous salts, intensely bitter and poisonous.

Preparations.

TINCTURA GELSEMII. Tincture of Gelsemium. (Altered.)

Gelsemium Root, in No. 40 powder, 1; Alcohol (60 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 10).

For an investigation on alkaloidal estimations of this tincture, *see C.D.* '92, ii. 263. The percentage of alkaloids in the tincture may vary between ·02 and ·076; standardisation, however, according to total alkaloid, without the ratio of the two alkaloids, is not likely to be of much value.

Now 1 in 10 instead of 1 in 8, and Alcohol (60 p.c.) used in place of Proof Spirit.

Dose.—5 to 15 minims.

Foreign Pharmacopœias.—Official in Belg. and Mex., 1 in 5; Dutch and Swiss, 1 in 10; U.S., 15 in 100: all by weight except U.S.; not in the others.

A girl 9 years old was killed in 2 hours by two fl. drm. of the tincture.

GENTIANÆ RADIX.

GENTIAN ROOT.

The dried rhizome and roots of *Gentiana lutea.*

Collected in the mountainous districts of Central and Southern Europe.

The active principle **Gentiopicrin** is a neutral crystalline body, soluble in Water and diluted Alcohol, insoluble in Ether.

Medicinal Properties.—Bitter tonic; used in cases of atonic dyspepsia; the infusion is recommended in the vomiting of pregnancy, along with a mineral acid, or when a general tonic is required, as in convalescence from acute diseases or in nervous debility.

The Extract has been largely used as an excipient to form powders into pills.

Official Preparations. — Extractum Gentianæ, Infusum Gentianæ Compositum, and Tinctura Gentianæ Composita.

Not Official.—Mistura Gentianæ.

Incompatibles.—Ferrous Sulphate, Silver Nitrate, and Lead salts.

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

Description.—In nearly cylindrical pieces, entire or longitudinally split, varying in length, but seldom exceeding an inch (two and a-half centimetres) in thickness, yellowish-brown externally, and longitudinally wrinkled. The rhizome bears in addition closely approximated encircling leaf scars, and is frequently terminated by a bud. Gentian Root is tough when slightly moist, but brittle when dried. The fractured surface is of a nearly uniform reddish-yellow colour. The central portion consists principally of parenchymatous tissue, is soft and is not distinctly radiate. The odour is characteristic, the taste is at first slightly sweet but afterwards bitter.

An extensive paper on the Gentians.—*C.D.* '97, ii. 198.

Test.—Gentian Root should not yield any definite reactions with the tests for Starch.

Preparations.

EXTRACTUM GENTIANÆ. EXTRACT OF GENTIAN.

Infuse Gentian Root in ten times its weight of Distilled Water for two hours; boil for fifteen minutes; pour off; press; strain; evaporate the liquid to the consistence of a soft extract.

The yield of Extract may be reckoned as 40 p.c. of the Root.

Dose.—2 to 8 grains.

Foreign Pharmacopœias.—Official in Austr., Belg., Dan., Dutch, Fr., Ger., Ital., Jap., Mex., Norw., Port., Russ., Span., Swed. and U.S., with cold water; Hung., with hot water; Swiss, with cold water, and purified with Alcohol; U.S., also **Fluid Extract,** 1 in 1.

INFUSUM GENTIANÆ COMPOSITUM. COMPOUND INFUSION OF GENTIAN.

Gentian Root, thinly sliced, ¼; Dried Bitter Orange Peel, cut small,

¼; Fresh Lemon Peel, cut small, ½; Distilled Water, boiling, 20. Infuse in a covered vessel for fifteen minutes; strain. =(1 in 80).

Time reduced from 30 to 15 minutes.

Dose.—½ to 1 fl. oz.

Foreign Pharmacopœias.—Official in Fr. (Tisane) Gentian Root 1, cold Water, 200; Swed., similar to Brit.; not in the others.

TINCTURA GENTIANÆ COMPOSITA. Compound Tincture of Gentian. (Altered.)

Gentian Root, cut small and well bruised, 2; Dried Bitter Orange Peel, well bruised, ¾; Cardamom Seeds, bruised, ¼; Alcohol (45 p.c.), 20. Prepare by the maceration process. =(1 in 10).

Now 1 in 10, instead of 1 in 13⅓, and Alcohol (45 p.c.) used in place of Proof Spirit.

Dose.—½ to 1 fl. drm.

Foreign Pharmacopœias.—Official in Mex., similar to Brit.; Port., twice as strong as Brit.; U.S., 1 in 10; not in the others; Belg., Dan., Dutch, Fr., Ger., Ital., Jap., Mex., Norw., Port., Russ., Span. and Swiss, have a simple Tincture, 1 in 5; all by weight except U.S.

Not Official.

MISTURA GENTIANÆ.

Gentian Root, sliced, ¼ oz.; Bitter Orange Peel, bruised, 30 grains; Coriander, 30 grains; Alcohol (20 p.c.), 10 fl. oz.; macerate the ingredients in the Alcohol for 24 hours, and strain.

Dose.—½ to 1 fl. oz.

Not Official.

LIQUID GLUCOSE.

As met with in commerce, it is clear, almost colourless, devoid of smell, and resembles in consistence Canada Balsam.

Alone, or mixed with equal parts of Treacle, it forms an excellent excipient for pills.

Official Preparation.

SYRUPUS GLUCOSI. Syrup of Glucose. (New).

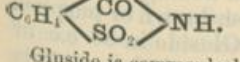
Liquid Glucose, of commerce (by weight), 1; Syrup (by weight), 2; Mix, by the aid of gentle heat.

GLUSIDUM.

GLUSIDE.

B.P.Syn.—Glucusimide.

Gluside, or Benzoyl sulphonimide, is a sweet imide derivable from Toluene. Its constitution is represented by the formula



Gluside is commonly known as 'Saccharin.'

Solubility.—1 in 400 of cold Water; 1 in 28 of boiling Water; 1 in 30 of Alcohol (90 p.c.); 1 in 100 of Ether; 1 in 500 of Chloroform; 1 in 48 of Glycerin.

It is also readily soluble in all alkaline solutions either of Hydrate,

Carbonate, or Bicarbonate, acting the part of an Acid and displacing Carbonic Acid when present. *See* 'Soluble Saccharin.'

Medicinal Properties.—It is used as a substitute for Sugar in diabetes and hepatic diseases and corpulence, and to cover the taste of nauseous drugs; antiseptic in cystitis with decomposing urine. It is eliminated as Saccharin in the urine and saliva.

1 grain sweetens 6 to 8 oz. of fluid.

Dose.—Not given in B.P.; ½ to 2 grains.

Official Preparation.—'Soluble Saccharin.' *See also Not Official.*

Not Official.—Elixir Saccharini and Tabellæ Saccharini, Saccharin Discs.

Foreign Pharmacopœias.—Official in Dan., Fr., Norw. (Saccharinum), Mex. (Sacarina), and Swiss; not in the others.

Description.—A light, white, minutely crystalline powder, having an intensely sweet taste in dilute solutions. When heated it fuses, and then sublimes with partial decomposition.

It is soluble in 400 parts of cold Water, in 24 parts of boiling Water, in 25 parts of Alcohol (90 p.c.), and but slightly in Ether or Chloroform.

It is very soluble in diluted Solution of Ammonia; also in Solution of Sodium Bicarbonate with evolution of Carbonic Anhydride. A warm solution of Sodium Bicarbonate, when neutralised with Gluside and evaporated to dryness, yields 'Soluble Gluside' or 'Soluble Saccharin,' which is very soluble in Water, 100 parts of Gluside yielding nearly 113 parts of neutral 'Soluble Gluside.'

The sweet taste is perceptible in solutions up to 1 in 100,000 of Water.

Although in the *B.P.* the formula $C_6H_4CO.SO_2.NH.$ is attached to the synonym Benzoyl sulphonimide, it is not to be inferred that commercial Saccharin is sufficiently pure to allow of its representation by this or any other formula.

Dr. Fahlberg, the discoverer and patentee, has admitted (*P.J.* (3) xx. 501) that commercial Saccharin is not a pure product, but is 'standardised' to 300 times the sweetening power of Cane Sugar, the pure chemical (Saccharin puriss.) being equal to 500 times its weight of Sugar. Both in this country and on the Continent, however, a considerably lower value is generally assigned to it. The proportion of impurity may be estimated by treatment with Acetone, in which the pure salt is completely soluble.

Tests.—Neither Gluside nor Soluble Gluside is blackened by Sulphuric Acid, even when the mixture is gently warmed for a short time (absence of Sugar, etc.). On evaporating either variety with excess of Solution of Potassium Hydroxide, maintaining the residue in a state of semi-fusion for a few minutes, cooling, dissolving in Water, faintly acidulating with Hydrochloric Acid, and adding a few drops of Test-solution of Ferric Chloride, a reddish-brown or purplish colour is produced. A solution of ·5 gramme of Gluside in 80 c.c. of warm Water, set aside for twelve hours, deposits tabular crystals which melt between 426° F. and 428° F. (218·8° C. and 220° C.), and it should not, even when briskly shaken, deposit crystals melting at a higher temperature (absence of Sulphamido-benzoic Acid).

The melting-point of pure Benzoic Sulphinide is 224° C., and, although that of

commercial Saccharin is generally 8° or 10° lower, commercial samples can be obtained which melt at the former temperature.—*P.J.* '96, ii. 145; *B.M.J.* '95, i. 874.

Fr. Codex Supp. gives the melting-point as 224° C.

Orthobenzoicsulphinide (commercial Saccharin) is put on the market as a white micro-crystalline powder containing a considerable proportion of Parasulphaminebenzoic Acid. It was purified by solution in Acetone, for the purpose of studying its crystallography.—*J.C.S. Trans.* '95, 985.

Not Official.

SACCHARINUM SOLUBILE ('**SOLUBLE GLUSIDE**').—A soluble Sodium Saccharinate, containing about 90 p.c. of Saccharin. It is much more palatable than ordinary Saccharin, which leaves a disagreeable after-taste.

This powder is soluble 1 in 15 of Water.

ELIXIR SACCHARINI (*B.P.C.*).—Saccharin, 480 grains; Sodium Bicarbonate, 240 grains; Alcohol (90 p.c.) 2½ fl. oz.; Distilled Water to make 20 fl. oz. Dissolve the Saccharin and Sodium Bicarbonate in 10 fl. oz. of the Water, add the Alcohol, filter, and wash the filter with Water to make 20 fl. oz. Each fluid drachm contains 3 grains of Saccharin.

Dose.—5 to 20 minims.

TABELLÆ SACCHARINI (**SACCHARIN DISCS**).—Contain ½ grain Saccharin in each. Should be readily soluble in Water and should not contain Starch or Sugar.

GLYCERINUM.

GLYCERIN.

Glycerin, or Glycerol, is a Trihydric Alcohol, $C_3H_5(HO)_3$, eq. 91·37, associated with a small percentage of Water; it is obtained by the interaction of alkalis, or of superheated steam, with fats and fixed oils.

Glycerin is always produced during the alcoholic fermentation of Sugar to the extent of 3 p.c. of the Sugar employed, and consequently is present in all fermented liquids.

Solubility.—Mixes in all proportions with Water and Alcohol, but insoluble in Chloroform, Ether, and Oils.

It possesses great powers as a solvent, and is an excellent excipient for many medicinal substances.

Medicinal Properties.—Undiluted it is an irritant, but when sufficiently diluted with aqueous menstrua it is said to be emollient. It is a mild laxative. Internally it is given in irritating cough, and is recommended as a **rectal injection** for constipation, 1 to 2 drm., or the same diluted with an equal quantity of Water, produces an evacuation very soon after the injection; also combined with Gelatin or Cocoa-nut Stearin to form a **suppository** for the same purpose. It is useful in fermentative dyspepsia, when taken in 1 or 2 drm. doses, and does not hinder digestion.—*L.* '80, ii. 6; '96, ii. 25. It is much employed as a sweetening agent in the place of Syrup, and is largely used in pharmaceutical preparations as a solvent, and being an antiseptic, it also acts as a preservative.

Externally in skin diseases, as pityriasis, eczema, psoriasis, prurigo, and lichen. Used for chilblains and chapped hands, and dryness of the skin or mucous membranes, but it should be diluted with three

parts of water for these purposes. Used in poultices ($\frac{1}{14}$ or $\frac{1}{16}$), it keeps them soft for a long time.

Dose.—1 to 2 fl. drm.

Smaller doses are usually prescribed.

Official Preparation.—Suppositoria Glycerini. Used in the preparation of Extractum Cinchonæ Liquidum, Extractum Sarsæ Liquidum, of all the Glycerina and Lamellæ, Linimentum Potasii Iodidi cum Sapone, Mel Boracis, Pilula Ferri, Pilula Quininæ Sulphatis, Tinctura Kino, Unguentum Iodi, and Unguentum Sulphuris Iodidi.

Not Official.—Dispensing Syrup, Glycerin and Rose Water, Suppositoria Glycerini cum Stearino.

Foreign Pharmacopœias.—Official in Austr. and U.S., sp. gr. 1·250; Belg., sp. gr. 1·240; Dan., Ger., Hung., Norw. and Russ., sp. gr. 1·225—1·235; Dutch, Norw. and Swed., sp. gr. 1·230 to 1·250; Fr., sp. gr. 1·242; Ital., sp. gr. 1·269, also 1·234; Jap., 1·230—1·260; Mex., Port., and Span., sp. gr. 1·260; Swiss, sp. gr. 1·230—1·235.

Description.—A clear, colourless, syrupy liquid, of a sweet taste; inodorous, miscible with Water and Alcohol (90 p.c.); neutral to Litmus; insoluble in Ether, Chloroform, and Fixed Oils. It absorbs moisture when exposed to the air. When decomposed by heat it evolves intensely irritating vapours.

Glycerin is scarcely volatile at the temperature of a water-bath, and cannot be distilled without decomposition except in a current of steam.

Crystallised Glycerin.—*Analyst* '95, 131.

Occurrence of Trimethylene Glycol in Glycerin.—*A.J.P.* '95, 633; *Analyst* '96, 45.

Tests.—Sp. gr. 1·260. It should yield no characteristic reaction with the tests for Lead, Copper, Arsenium, Iron, Calcium, Potassium, Sodium, Ammonium, Chlorides, or Sulphates; and no red precipitate with excess of Solution of Potassio-cupric Tartrate on boiling, even when previously acidified and boiled (absence of grape and cane sugars). It should undergo no darkening in colour at ordinary temperatures when mixed with an equal volume of Solution of Ammonia and a few drops of Solution of Silver Nitrate; and when shaken with an equal volume of Sulphuric Acid, the mixture being kept cool, no colouration, or only a very slight straw colouration, should result (absence of foreign organic matter). When gently heated with a mixture, in equal volumes, of Alcohol (90 p.c.) and Diluted Sulphuric Acid, a fruity odour should not be produced (absence of Butyric Acid). 2 c.c. diluted with 5 c.c. of a mixture of 1 part of Hydrochloric Acid and 7 parts of Water, 1 gramme of pure Zinc being added, and the whole placed in a long test-tube, the mouth of which is covered by a piece of filter paper moistened with a drop or two of Test-solution of Mercuric Chloride and dried, should not afford a yellow stain on the paper even after 15 minutes (limit of Arsenium). When heated in an open capsule it yields acrid vapours, and is finally dissipated, leaving no ash (absence of fixed mineral matter).

Preparations.

SUPPOSITORIA GLYCERINI. Glycerin Suppositories.

Gelatin, cut small, ½; Glycerin (by weight), 2½; Distilled Water, a

sufficient quantity. Place the Gelatin in a weighed evaporating dish with sufficient Distilled Water to cover it; let it stand for two minutes; pour off the excess of Distilled Water; set aside until the Gelatin is quite soft; add the Glycerin. Dissolve over a Water Bath; evaporate until the mixture weighs 1563 grains. Pour the product into suppository moulds having capacities equal to 30, 60, or 120 grains of the Suppository, or of such other capacities as may be required.

Each suppository contains 70 p.c. of Glycerin.

A similar preparation has been in use for many years (*Companion*, 1877) as a basis for medicated Pessaries and Suppositories. The formula in the *Companion* arrives at the same result (70 p.c.) *without* evaporation. It is easy by evaporation to obtain a product containing 80 p.c. of Glycerin. The consistency of the mass will vary somewhat with the quality of the Gelatin, *see* p. 314.

Glycerin Suppositories are much more convenient to use when made with **Cocoa-nut Stearin**, *see below*.

GLYCERINUM ACIDI BORICI.
GLYCERINUM ACIDI CARBOLICI.
GLYCERINUM ACIDI TANNICI.
GLYCERINUM ALUMINIS.
GLYCERINUM AMYLI.
GLYCERINUM BORACIS.
GLYCERINUM PEPSINI.
GLYCERINUM PLUMBI SUBACETATIS.
GLYCERINUM TRAGACANTHÆ.

The formulas for these are given under the several names quoted.

Not Official.

DISPENSING SYRUP.—Glycerin, Syrup, Alcohol (90 p.c.), and Mucilage of Acacia, equal volumes.

An **excipient for pills.** Glycerin by itself is too hygroscopic.

GLYCERIN WITH ROSE WATER.—Glycerin, 1; Rose Water, 3: mix.

SUPPOSITORIA GLYCERINI C. STEARINO.—Glycerin, 20 grains; Cocoa-nut Stearin, 40 grains; melt the Stearin, and when just fluid stir in the Glycerin and continue the stirring until the mixture becomes solid. Melt the mass with the least possible heat, and pour into moulds.

They can be used without any lubricant.

UNGUENTUM GLYCERINI.—*See* GLYCERINUM AMYLI.

GLYCYRRHIZÆ RADIX.

LIQUORICE ROOT.

The peeled root and peeled subterranean stem of *Glycyrrhiza glabra*, and other species.

The principle **Glycyrrhizin** is comparatively tasteless, the characteristic sweetness being only developed by combination with alkali. It exists in the drug as a combination with Ammonium.—*P.J.* (3) vi. 54.

Medicinal Properties.—A demulcent and expectorant in bronchial catarrh and cough. The **liquid extract** helps to disguise the taste of nauseous medicines. In the form of **extract** and its solution

it is a domestic remedy for cough. The **compound powder** is chiefly valuable on account of the senna and sulphur it contains, and is an agreeable and mild purgative, well adapted for weak persons and in cases of hæmorrhoids.

Official Preparations of Liquorice.—Of the **Root**, Extractum Glycyrrhizæ, Extractum Glycyrrhizæ Liquidum, Liquor Sarsæ Compositus Concentratus, Pilula Hydrargyri and Pulvis Glycyrrhizæ Compositus; of the **Extract**, Confectio Sennæ and Decoctum Aloes Compositum; of the **Liquid Extract**, Mistura Sennæ Composita, and Tinctura Aloes.

Not Official.—Elixir e Succo Glycyrrhizæ, *seu* Elixir Pectorale and Glycyrrhizinum Ammoniatum.

Foreign Pharmacopœias.—Official in all the Pharmacopœias; Belg., Dutch, Fr. (Réglisse), Ital. (Liquirizia), Jap. (Liquiritia), Mex. (Orozuz), Port. (Alcaçus), Span. (Regaliz), Swiss, and U.S., *G. glabra;* Russ., *G. echinata;* Austr., Dan., Ger., Hung., Norw. and Swed., both.

Description.—In long, nearly cylindrical pieces, before being peeled, dark brown in colour and longitudinally wrinkled, but not scaly; when peeled, yellow, with a nearly smooth fibrous surface. The fracture is coarsely fibrous. A transverse section exhibits a porous distinctly radiate yellow wood and a thick cortex with groups of bast fibres arranged in radial lines. It has a faint odour and a characteristic sweet taste, free from bitterness.

An exhaustive analysis of Anatolian Liquorice Root.—*A.J.P.* '95, 307.

Preparations.

EXTRACTUM GLYCYRRHIZÆ. Extract of Liquorice.

Liquorice Root, in No. 20 powder, 16; Distilled Water, 80: mix the Liquorice Root with 40 of the Distilled Water; set aside for twenty-four hours; strain; press; to the pressed marc add the remainder of the Distilled Water and set aside the mixture for six hours; strain; press; mix the strained liquors; heat to 212° F. (100° C.), strain through flannel, evaporate to the consistence of a soft extract.

Dose.—Not given in B.P.; 5 to 30 grains.

Foreign Pharmacopœias.—Official in Austr., Belg., Fr. (Ext. Réglisse), Hung., Ital., Jap., Mex., Port., Russ. and Span., from root with cold water; Dutch and U.S., from root with Water and Ammonia. The **Crude Extract** in sticks (*Succus Liquiritiæ*) is Official in Austr., Dan., Dutch, Fr., Ger., Hung., Ital., Norw., Russ., Swed., Swiss and U.S.; **Depuratum** from Crude Extract is Official in Austr., Belg., Dan., Ger., Hung., Norw., Swed. and Swiss.

An examination of some commercial Extracts.—*Analyst* '97, 220; *A.J.P.* '98, 23.

EXTRACTUM GLYCYRRHIZÆ LIQUIDUM. Liquid Extract of Liquorice. (Altered.)

Liquorice Root, in No. 20 powder, 20; Distilled Water, 100; Alcohol (90 p.c.), a sufficient quantity. Mix the Liquorice Root with 50 of the Distilled Water; set aside for twenty-four hours; strain; press; to the pressed marc add the remainder of the Distilled Water and set aside for six hours; strain; press; mix the strained liquids; heat to 212° F. (100° C.); strain through flannel; evaporate until the fluid

has acquired, when cold, a sp. gr. of 1·200; add to this one-fourth of its volume of the Alcohol; let the mixture stand for twelve hours; filter.

Alcohol (90 p.c.) now used in place of Rectified Spirit, which has been increased from $\frac{1}{6}$ to $\frac{1}{4}$.

Dose.—$\frac{1}{2}$ to 1 fl. drm.

The finished product is usually acid. Ammonia may be used for preserving the sweet principle, but not for extracting it. So long as the alkalinity is maintained there is no falling of the dirty-looking deposit which is often seen at the bottom of the fluid extract of Liquorice bottle.—*P.J.* '98, i. 188.

Foreign Pharmacopœias.—Mex., Ammonia and Alcohol; U.S., Liquorice Root percolated with a mixture of Ammonia Water and diluted Alcohol.

PULVIS GLYCYRRHIZÆ COMPOSITUS. Compound Powder of Liquorice.

N.O.Syn.—Pulvis Liquiritiæ Compositus, Pulvis Pectoralis Kurellæ.

Senna, in fine powder, Liquorice Root, in fine powder, of each 2; Fennel Fruit in fine powder, Sublimed Sulphur, of each 1; Refined Sugar, in powder, 6. Mix.

Dose.—60 to 120 grains.

A teaspoonful or more for adults, less in proportion for children, as a mild aperient.

Foreign Pharmacopœias.—Official in Austr., Dan., Dutch, Ger., Mex., Russ., and Swiss, formula the same; Belg., Norw. and U.S., almost the same; not in the others.

This preparation made with exhausted Liquorice.—*C.D.* '95, ii. 797.

Not Official.

ELIXIR E SUCCO GLYCYRRHIZÆ, *seu* **ELIXIR PECTORALE,** Dan., Ger., Russ. and Swiss.—Purified Extract of Liquorice, 1; Fennel Water, 3; Anisated Liquid Ammonia (p. 86), 1 (all by weight): mix.

GLYCYRRHIZINUM AMMONIATUM, Fr. and U.S.—A scale preparation made by treating Liquorice Root with Water and Water of Ammonia, and adding Sulphuric Acid to the liquor so long as a precipitate is produced; collect this and wash it with cold Water; redissolve in Dilute Ammonia and spread on glass plates to dry.

An elegant substitute for Liquorice in mixtures which are neither acid nor alkaline.

GOA POWDER.—*See* Araroba.

GOSSYPIUM.

COTTON.

B.P.Syn.—Cotton-wool.

The hairs of the seed of *Gossypium Barbadense*, and of other species of Gossypium, freed from fatty matter.

Cotton wool is medicated with Carbolic Acid, Salicylic Acid, Boric Acid, Eucalyptol, Thymol, Arnica, Glycerin, Iron salts, Mercuric Chloride, Sal Alembroth, Iodine, Iodoform and other substances.

Official Preparation.—Used in the preparation of Pyroxylin.

Foreign Pharmacopœias.—Dutch, Ger., Jap., and Russ., Gossypium Depuratum; Ital., Cotone Assorbente; Mex., Algodon and Algodon hydrofilo; Port., Algo-

doeiro; Span., Algodon; U.S.; Fr., Coton, not washed; not in the others. Medicated Cottons have been inserted in Dutch and Mex.

Description.—In long white soft filaments, each consisting of an elongated cell, appearing, when seen under the microscope, as a flattened twisted band with slightly thickened rounded edges; inodorous and tasteless.

Tests.—It should readily be wetted by Water, to which it should not impart either an alkaline or an acid reaction. On incineration in air it burns leaving less than 1 p.c. of ash. It dissolves in concentrated Solution of Copper Ammonio-Sulphate.

Mouth and Nose Protector.—For use in poisonous and injurious trades. We exhibited this respirator at the International Health Exhibition (1884), and obtained for it a bronze medal. It consists of layers of washed and sterilised cotton wool placed between perforated zinc and perforated cardboard, formed into a pliable respirator which covers the mouth and nose.

Not Official.

GOSSYPII RADICIS CORTEX.

The bark of the root of *Gossypium herbaceum*, and of other species of Gossypium.

Medicinal Properties.—The Tincture and Fluid Extract have been used in America and occasionally in Europe as a substitute for Ergot in labour and to check metrorrhagia.—*L.* '94, ii. 1298.

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

Preparations.

TINCTURA GOSSYPII.—Dried bark of the root of the cotton plant in powder, 1; percolate with sufficient Alcohol (60 p.c.) to produce 4.

Dose.—1 fl. drm.

EXTRACTUM GOSSYPII FLUIDUM (U.S.), 1 in 1, made with Glycerin and Alcohol.

GRANATI CORTEX.

POMEGRANATE BARK.

The dried bark of the stem and root of *Punica Granatum*.

Medicinal Properties.—Astringent and anthelmintic. It is considered effective in expelling tapeworm; the dose should be preceded by a purgative. The Pelletierine salts are used for the same purpose.

Incompatibles.—Alkalis, Lime Water, Metallic salts, Gelatin.

Official Preparation.—Decoctum Granati Corticis.

Not Official.—Extractum Granati, Pelletierinæ Sulphas, and Pelletierinæ Tannas.

Foreign Pharmacopœias.—Official in Austr., Belg., Dan., Dutch, Jap., Fr. (Grenadier), Ger., Hung., Ital. (Melograna to), Port. (Romeira), Mex., Russ. and Span. (Granado), Swiss and U.S. Not in Norw. or Swed.

Description.—Usually in irregular curved or channelled pieces varying from two to four inches (half to one decimetre) in length, and from half an inch to one inch (twelve to twenty-five millimetres) in

width. The outer surface of the root-bark is rough, yellowish-grey, and marked with irregular conchoidal depressions, the stem-bark being smoother and frequently bearing minute lichens; the inner surface is yellow, more or less tinged with brown. The fracture is short, the fractured surface pale in colour. The transverse section exhibits numerous fine radial and tangential lines. The bark has an astringent, very slightly bitter taste, but no odour.

Recent examination has shown that alkaloids in stem bark do not often exceed ·5 p.c. (*P.J.* (3) xviii. 822); but that the root-bark may vary from 1·7 in the black-flowered variety to 2·4 in the red-flowered, and 3·7 in the white.—*P.J.* (3) xxi. 379.

It is said to lose active properties and become inert on keeping, but this is contradicted by De Vrij, who made a very efficient extract from a root-bark eleven years old.—*Y.B.P.* '74, 505; *P.J.* (3) xxi. 758.

The Pomegranate-root alkaloids are Pelletierine (Punicine), Isopelletierine (Isopunicine), Methylpelletierine (Methylpunicine), and Pseudopelletierine (Pseudopunicine). The first two constitute the **Pelletierine** of medicine, the last two are inactive.—*Merck.*

Pelletierine is a volatile liquid, but forms stable salts.

Preparation.

DECOCTUM GRANATI CORTICIS. Decoction of Pomegranate Bark. (Altered.)

Pomegranate Bark, in No. 10 powder, 4; Distilled Water, a sufficient quantity. Boil the Pomegranate Bark with 24 of Distilled Water in a suitable vessel for ten minutes; strain; pour enough Distilled Water over the contents of the strainer to make 20 of the strained Decoction. =(1 in 10).

Twice the strength of B.P. 1885.

Dose.—½ to 2 fl. oz.

Foreign Pharmacopœias.—Official in Belg., 1 and 6, boil to 4; Fr. (Apozème), 1 and 12½, boil to 9; Port. 1, and 7½, boil to 5; Span., 1 in 8; not in the others.

Not Official.

An excellent remedy for tapeworm is as follows:—

Bruised Root-bark of Pomegranate, 2 oz; Boiling Water, 24 fl. oz.: macerate for 24 hours, and then boil till reduced to 18 fl. oz. A third part early in the morning, a third part again in half an hour, and the remainder in another half-hour. A dose of Castor Oil should have been taken the previous morning, and solid food abstained from on that day. This rarely fails to bring away the entire worm in two hours, and the head at the thinnest end should be diligently sought for.

EXTRACTUM GRANATI.—Exhaust Pomegranate Root-bark with Alcohol (60 p.c.), distil off the Alcohol and evaporate to the consistence of an Extract.

10 of Root Bark yield 3½ of Extract.

Foreign Pharmacopœias.—Official in Austr., Belg., Dutch, Fr., Hung., Port., Russ. and Span.; not in the others.

PELLETIERINÆ SULPHAS.—A viscid liquid.

Dose.—6 grains prescribed with 7 grains of Tannic Acid.

PELLETIERINÆ TANNAS.—A yellowish amorphous powder prepared from Pomegranate Bark. Soluble 1 in about 700 of Water, 1 in 80 of Alcohol.

It is given as a remedy for tapeworm.

Dose.—5 to 8 grains followed by Castor Oil.

Not Official.

GRINDELIA.

The leaves and flowering tops of *Grindelia robusta* and *Grindelia squarrosa* from California.

The drug as imported into this country is not *G. robusta*, but *G. squarrosa*, but it is quite equal to that species in the amount of resin it contains, and indeed appears to be one of the richest in medicinal properties of the whole genus.—*P. J.*, (3) viii. 787.

There is no evidence connecting any one of the chemical constituents with the medicinal action of the drug.

Medicinal Properties.—Antispasmodic, expectorant, slightly diuretic. Has been recommended in asthma, hay fever, bronchitis, whooping-cough, laryngismus stridulus, and cystitis.—*M.A.* '95, 30.

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

Preparations.

EXTRACTUM GRINDELIÆ.—An Alcohol (90 p.c.) percolate, distilled and evaporated to an Extract. 100 of Grindelia yield 15 of Extract.

Dose.—3 grains three times a day.

EXTRACTUM GRINDELIÆ LIQUIDUM (*B.P.C.*).—Grindelia, in No. 20 powder, 20; percolate with Rectified Spirit, reserve the first 17, distil off the Spirit from the remainder, and evaporate to a soft extract, dissolve this in the reserved portion, and add enough Rectified Spirit to make 20.

This is the U.S. P. process, which, however, uses a somewhat stronger Alcohol.

Dose.—10 to 20 minims every half-hour until relief is obtained.

GUAIACI LIGNUM.

GUAIACUM WOOD.

The heart-wood of *Guaiacum officinale*, or of *Guaiacum sanctum*.

Imported from St. Domingo and Jamaica.

Medicinal Properties.—*See* 'Guaiaci Resina.'

Foreign Pharmacopœias.—Official in all except Dan., Dutch and Hung.

Description.—Guaiacum Wood is dark greenish-brown in colour, dense, hard, and heavier than Water. Its taste when chewed is acrid, and when heated its odour is somewhat aromatic.

Yields about 26 p.c. of resin.

Test.—The alcoholic tincture assumes a blue colour on the addition of diluted Test-solution of Ferric Chloride.

GUAIACI RESINA.

GUAIACUM RESIN.

The resin obtained from the stem of *Guaiacum officinale*, or of *Guaiacum sanctum*.

On dry distillation it yields **Guaiacol** similar to that found in Creosote.

Solubility.—About 90 p.c. is soluble in Absolute Alcohol, Ether, Chloroform, Aromatic Spirit of Ammonia, and Alkaline solutions; almost insoluble in Petroleum Spirit.

Medicinal Properties.—Stimulant, diaphoretic, and alterative. It is employed in chronic forms of rheumatism and gout, especially in old people. It is useful in acute tonsillitis, also in dysmenorrhœa, amenorrhœa, and syphilitic affections.

Generally prescribed in combination with other medicines.

Guaiacum is innocuous, and might be taken for an indefinite period of time, and looked upon as a condiment rather than as a drug, as harmless as Ginger or any other condiment. Guaiacum possesses a considerable power, but less than Colchicum, in directly relieving patients suffering from gouty inflammation of any part; it might be given whenever there was but little fever. Guaiacum taken in the intervals of gouty attacks has a considerable power of averting their recurrence; in fact, it is a very powerful prophylactic. Guaiacum does not appear to lose its prophylactic power by long continued use.—*L.* '96, i. 1494; *B.M.J.* '96, ii. 1325.

Dose.—5 to 15 grains.

Prescribing Notes.—Tragacanth is better for Guaiacum in powder, Mucilage of Acacia is best for the Ammoniated Tincture. Mucilage of Acacia, ½ fl. oz.; Ammoniated Tincture, 6 fl. drm.; Water to 6 fl. oz.

Incompatibles.—Mineral Acids, Spirit of Nitrous Ether.

Official Preparations.—Of the **Wood**, used in the preparation of Liquor Sarsæ Compositus Concentratus; of the **Resin**, Mistura Guaiaci, Tinctura Guaiaci Ammoniata, Trochiscus Guaiaci Resinæ; used in the preparation of Pilula Hydrargyri Subchloridi Composita.

Not Official.—Tinctura Guaiaci, and Trochiscus Guaiaci.—*T.H.*

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

Description.—Usually in large masses, but sometimes in more or less rounded tears. It is brittle, breaking with a clean glassy fracture; thin splinters are transparent, and vary in colour from yellowish-green to reddish-brown. The powder is greyish, but by exposure to light and air becomes green.

Impurities in good block Resin, insoluble in Alcohol, amount to 2·9 to 10 p.c.—*P.J.* '98, i. 508.

Tests.—When warmed the odour is somewhat balsamic, the taste slightly acrid. A solution in Alcohol (90 p.c.) assumes a blue colour on the addition of diluted Test-solution of Ferric Chloride.

When paper moistened with the solution is exposed to the fumes of Nitric Acid it becomes blue.

The blue colour produced by the addition of Ferric Chloride to a solution or mixture containing Guaiacum may be shaken out with Chloroform. This test is very delicate.

An inclusion of the acid-number is an actual necessity owing to the frequent adulteration of this resin with Colophony. Proposed limits, for crude lump 90 to 95, for alcohol purified resin 90 to 100, natural tears 70 to 75. It should also be free from ash.—*C.D.* '98, ii. 130.

Preparations.

MISTURA GUAIACI. Guaiacum Mixture. (Altered.)

Guaiacum Resin, ½ oz.; Refined Sugar, ½ oz.; Tragacanth in powder, 35 grains; Cinnamon Water, 20 fl. oz. Triturate the Guaiacum

Resin with the Refined Sugar and the Tragacanth; add gradually the Cinnamon Water. =(1 in 40).

Tragacanth now used instead of Gum Acacia. As stated in previous editions of the *Companion*, not only does Tragacanth give a more diffusib e mixture but the colour does not change so rapidly, nor to the same extent as it does when Acacia is used.

Dose.—½ to 1 fl. oz.

Foreign Pharmacopœias.—Official in Swed. (Emulsio Guaiaci) 1 in 25 with Peppermint Water. Not in the others.

TINCTURA GUAIACI AMMONIATA. Ammoniated Tincture of Guaiacum. (Altered.)

Guaiacum Resin, in powder, 4 oz.; Oil of Nutmeg, 30 minims; Oil of Lemon, 20 minims; Strong Solution of Ammonia, 1½ fl. oz.; Alcohol (90 p.c.) a sufficient quantity. Mix the Strong Solution of Ammonia with 16 fl. oz. of the Alcohol; add the Guaiacum Resin; set aside in a closed vessel for forty-eight hours, shaking frequently; filter; dissolve the Oil of Lemon and Oil of Nutmeg in the filtrate, and pass sufficient Alcohol through the filter to produce 20 fl. oz. of the Tincture. =(1 in 5).

Oils of Nutmeg and Lemon, Strong Solution of Ammonia and Alcohol (90 p.c.) now used in place of Spiritus Ammoniæ Aromaticus.

Dose.—½ to 1 fl. drm.

Foreign Pharmacopœias.—Official in U.S., similar to Brit.; Norw. and Swed., Guaiacum Resin 3, Aqua Ammoniæ (sp. gr. ·960) 5, and Spirit 10; Port., Guaiacum Resin 3, Liquid Ammonia (sp. gr. ·916) 3, Spirit 14; by weight; not in the others.

TROCHISCUS GUAIACI RESINÆ. Guaiacum Resin Lozenge. (New.)

Guaiacum Resin, 3 grains; mix with the Fruit Basis to form a Lozenge.

Not Official.

TINCTURA GUAIACI.—Guaiacum Resin, 1; Alcohol (90 p.c.), 5: digest seven days.

Foreign Pharmacopœias.—Official in Austr., Belg., Dan., Fr., Hung., Russ., Span. and U.S. (Resin) 1 in 5; Belg., Jap., Port., Span. and Swiss (Wood) 1 in 5: all by weight except U.S.; not in the others.

Along with Ozonic Ether it is employed as a test for the presence of blood.

TROCHISCUS GUAIACI (*T.H.*).—Made with Black Currant Paste. Each lozenge contains 2 grains of Guaiacum Resin.

Not Official.

GUAIACOL.

A colourless liquid obtained by fractional distillation of Wood Creosote. It can also be obtained from Guaiacum Resin.

Solubility.—About 1 in 80 of water; mixes in all proportions with Alcohol (90 p.c.), Ether, Glycerin, and the fixed Oils (Almond and Olive).

Medicinal Properties.—Used in febrile diseases, phthisis, erysipelas, neuralgia,

painful rheumatic joint affections, sciatica, orchitis, and pleurisy. Disadvantages from continued use are great exhaustion and profuse diaphoresis. Applied externally is antipyretic and analgesic. It has been used in the place of Creosote in the internal treatment of phthisis, in which it is better tolerated than Creosote. Also given in Olive Oil as an intralaryngeal injection.—*B.M.J.* '95, i. 24; '96, i. 586; '96, ii. 1715; *B.M.J.E.* '95, ii. 27, 36, 56, 103; '97, i. 63; *L.* '95, i. 429, 817, 1452; '97, ii. 1649; '98, i. 993; *T.G.* '96, 333, 337, 365, 390; *P.J.* '95, ii. 134, 168, 363, 471.

Hypodermic injection of Guaiacol (undiluted) in phthisis.—*B.M.J.* '96, i. 586.

External application of Guaiacol (undiluted) for the reduction of temperature in typhoid fever.—*T.G.* '96, 365.

Submucous injections in laryngeal tuberculosis.—*L.* '97, ii. 1649.

Administration of large doses (60 minims) in phthisis without toxic effects.—*L.* '98, i. 993.

Dose.—1 to 5 minims.

Prescribing Notes.—It is generally given (mixed with Almond Oil) in **capsules.**

Foreign Pharmacopœias.—Official in Ital., Fr. (Gaiacol), Russ., and Swiss; not in the others.

Tests.—Sp. gr. 1·116 to 1·120. Distils about 200° C. Should leave no residue on evaporation. The addition of a drop of Test-solution of Ferric Chloride to a 5 p.c. solution of Guaiacol in Alcohol (90 p.c.) produces a blue colour fading to green. When shaken with twice its volume of Petroleum Ether, the mixture separates into two clear liquids on standing.

Determination by demethylation.—*Analyst* '97, 245.

A reaction with Solution of Copper Sulphate and Potassium Cyanide, distinguishing between Creosote and Guaiacol.—*Analyst* '98, 99.

GUAIACOL (synthetic).—A crystalline substance which melts at about 28° C. (82·4° F.), but frequently remains liquid much below this temperature. It is said to yield more uniform results than the ordinary medicinal liquid Guaiacol, which is not so definite in composition. Soluble 1 in 50 of Water.

Dose.—1 to 5 grains.

GUAIACOL CARBONATE (**Duotal**).—A white crystalline powder. Insoluble in water; soluble about 1 in 70 of Alcohol (90 p.c.), inodorous and tasteless. It is not acted upon by caustic alkalis.

Recommended as a non-irritating form of administrating Guaiacol in phthisis.—*B.M.J.E.* '92, i. 8; '92, ii. 83; '95, i. 8; *L.* '96, ii. 1374; '98, i. 222, 960.

Dose.—3 to 10 grains, which may be gradually increased to 60 grains.

GUAIACOL BENZOATE (**Benzosol**).—A white crystalline powder having an aromatic taste and odour. Almost insoluble in water. Melts at 50° to 52° C. A non-irritating form of Guaiacol, which has been recommended in phthisis and in diabetes.—*M.P.* '94, i. 269; *L.* '96, ii. 551; *P.J.* '96, ii. 59.

Dose.—5 to 10 grains; usually given in **cachets.**

GUAIACOL VALERIANATE (**Geosote**).—A yellowish, oily liquid. Almost insoluble in water. Has been used in the treatment of tuberculosis, of bronchial affections, and in diarrhœa.—*L.* '97, ii. 932; *B.M.J.E.* '98, i. 75; *P.J.* '97, i. 425.

Dose.—2 to 3 minims or more.

Not Official.

GUARANA.

The Seeds of *Paullinia Cupana* dried in the sun, and then roasted and reduced to a fine powder; this is moistened with a little Water, exposed to the night dew, and when it has become a hard paste is rolled into cylinders; these are further dried in the sun or in the chimneys of the huts. It is exported from Brazil.

True Guarana is very hard, heavy, and, when powdered, is reddish-grey, whilst the sophisticated is much lighter in colour; it contains about 4 p.c. of an alkaloid generally considered to be identical with Caffeine, but producing modified physiological effects.

Medicinal Properties.—Nervine tonic. It is used chiefly for curing sick headache, but is also useful in diarrhœa, dysentery, and as a tonic and stomachic in convalescence.

Dose.—30 to 60 grains infused in boiling water and sweetened, and repeated if necessary in 2 hours.

Foreign Pharmacopœias.—Official in Austr., Belg., Fr., Hung., Ital., Mex., Port., Span., Swiss and U.S.; not in the others.

Preparations.

ELIXIR GUARANÆ (*B.P.C.*).—Guarana, in No. 60 powder, 4 oz.; Light Magnesia, ½ oz.; Oil of Cinnamon, 6 minims; Syrup, 2 fl. oz.; Proof Spirit, a sufficiency. Mix the powders and moisten them with 3 fl. oz. Proof Spirit; after 24 hours, mix with 8 oz. of coarse Sand and percolate with Proof Spirit until 16 fl. oz. are obtained, then press. To the percolate add the Syrup and Oil of Cinnamon, and make up to 20 fl. oz. with expressed liquid previously reduced by evaporation if necessary.

Dose.—30 to 120 minims.

To ascertain the effect of the Magnesia and Sand in percolating Guarana, three quantities were taken and percolated 1 to 4 with Proof Spirit, and tested for total extractive and alkaloid.

I. Guarana alone in impalpable powder.
II. The above with the addition of ⅛ Light Magnesia.
III. No. 2 with 2 parts of Sand mixed in after maceration.

RESULT.	I.	II.	III.
Per cent. of Extract in Proof Spirit percolate	6·93	3·08	2·9
Per cent. of Alkaloid in Proof Spirit Extract .	13·4	40·0	38·6
Per cent. of Alkaloid extracted from Guarana .	3·72	4·92	4·48

From this it would appear that if Guarana is prescribed as a substitute for Caffeine, the Magnesia treatment is rather an advantage; but in all other cases where the astringent extractive may be supposed to take part in the curative effect, the use of Magnesia is strongly contra-indicated. As pointed out (*P.J.* (3) xviii. 348) the addition of Sand is scarcely an advantage.

EXTRACTUM GUARANÆ FLUIDUM (U.S.).—1 equals 1 of Guarana; made with Alcohol (94 p.c.), 3; Water, 1.

TINCTURA GUARANÆ.—Guarana, in fine powder, 1; Alcohol (90 p.c.), 4; macerate the Guarana with 3 of the Alcohol for three days, stirring occasionally; allow it to settle, pour off the clear fluid, transfer the Guarana to a glass funnel plugged with Cotton Wool, allow it to drain, pour on sufficient Alcohol to yield with decanted portion 4. Almost the whole of the Alcohol retained by the Guarana can be recovered by careful displacement with Water.

Dose.—1 to 2 fl. drm. in water.

GUMMI RUBRUM.—*See* EUCALYPTI GUMMI.

Not Official.

GUTTA PERCHA.

The concrete juice of *Dichopsis Gutta*, and of several other trees of the natural order Sapotaceæ.

It was official in B.P. '85, but is replaced in B.P. '98 by Caoutchouc, a solution of which is now used for Charta Sinapis.

Solubility.—Almost entirely soluble in Chloroform, yielding a more or less turbid solution. Entirely soluble in Oil of Turpentine, Carbon Bisulphide, and Benzol. Insoluble in Water, Alcohol, alkaline solutions, or dilute acids.

Medicinal Properties.—Used for making **splints**; as Gutta Percha **tissue** for keeping surgical dressings moist; as a **solution** for mixing with medicaments for chronic skin diseases, and applying like Collodion.

Foreign Pharmacopœias.—Official in Fr., Ger., Hung., Jap., Port., Russ., Span., and Swed.; not in the others.

Description.—In tough somewhat flexible pieces, of a light brown or chocolate colour.

Preparations.

LIQUOR GUTTA PERCHA (*B.P.* '85).—Gutta Percha, in thin slices, 1; Chloroform, 8; Lead Carbonate, in fine powder, 1. Add the Gutta Percha to 6 of the Chloroform in a stoppered bottle, and shake them together frequently until solution has been effected. Then add the Lead Carbonate previously mixed with the remainder of the Chloroform, and having several times shaken the whole together, set the mixture aside, and let it remain at rest until the insoluble matter has subsided. Lastly, decant the clear liquid, and keep it in a well-stoppered bottle.

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

TRAUMATICINE.—A solution of 1 Gutta Percha tissue in 10 (by weight) of Chloroform. It produces a thin delicate film when painted on the skin, and causes neither tension nor pain. It is used for medicated applications.—*P.J.* (3) xiv. 341. A vehicle for the administration of Mercury in syphilis.—*L.* '94 ii. 590.

UNNA'S PLASTER MULLS consist of a very thin sheet of Gutta Percha coated on one side with an adhesive substance (Aluminium Oleinicum) containing one or more medicinal substances, and backed on the other side with Mull (undressed muslin).—*L.* '86, ii. 575.

Not Official.

GYNOCARDIÆ OLEUM.

CHAULMUGRA OIL.

Obtained from the seeds of *Gynocardia odorata*, a native of the forests of the Malayan Peninsula and Eastern India, as far north as Assam, extending thence along the base of the Himalayas as far west as Sikkim. The oil has been long known and used in India; it is solid, of a light brown colour, with a disagreeable taste and smell, and can be readily melted by a gentle heat.

Medicinal Properties.—It has been recommended in the treatment of leprosy, psoriasis, obstinate eczema, and other skin diseases, chronic rheumatism and gout, and secondary syphilis. Good results have been obtained from its external as well as internal administration in phthisis.—*B.M.J.* '80, ii. 844. In leprosy.—*B.M.J.E.* '93, ii. 4.

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 ½ 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 Hamatoxylin.

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;