STYPTICIN.—Is the hydrochloride of Cotarnine, an oxidation product of Narcotine, occurs in yellow crystals, readily soluble in Water.

Valuable in menorrhagia. Contra-indicated in threatened abortion or in any of the hæmorrhages of pregnancy.—*P.J.* '95, ii. 471; *B.M.J.* '96, ii. 17; *B.M.J.E.* '96, i. 7; '98, i. 71, 103.

PAPAVERINA.—Discovered by Merck. In white crystalline needles. Insoluble in Water; sparingly soluble in Alcohol and Ether. According to Merck, when moistened with strong Sulphuric Acid, it becomes dark blue, but Hesse states that pure Papaverine dissolves colourless in that acid cold, but when heated becomes dark violet. Strongly narcotic.

Dose.—$\frac{1}{12}$ to $\frac{1}{3}$ grain.

OXYMEL. *See* MEL.

OXYMEL SCILLÆ. *See* SCILLA.

Not Official.

PANCREATIC ENZYMES.

Pancreatic juice has been found to possess four distinct properties: conversion of starch, conversion of proteids, emulsification of fats, and curdling of milk.

Each of these properties is attributed to a peculiar soluble ferment or enzyme.

The enzymes of the pancreatic juice act only in neutral or alkaline solutions. Their action is suspended in feebly acid solutions, and when digested at 40° C. (104° F.) for an hour in a solution of Pepsine of the normal acidity of the stomach (equal to ·2 p.c. Hydrochloric Acid), or when digested with some gastric juice, they are destroyed. They are also destroyed in solution by heating to 71° C. (160° F.).

Official Preparation.

LIQUOR PANCREATIS. Pancreatic Solution. (New.)

A liquid preparation containing the digestive principles of the fresh pancreas of the pig. The preparation is most active when the animal from which it is obtained has been fed shortly before being killed.

5 oz. of the Pancreas, freed from fat and external membrane and finely divided by trituration with washed sand or powdered pumice-stone, should be digested, in a closed vessel, in 20 fl. oz. of Alcohol (20 p.c.) for seven days, and then filtered.

Test.—If 2 c.c. of the Solution, together with ·2 gramme of Sodium Bicarbonate and 20 c.c. of Water, be added to 80 c.c. of milk, and the mixture be kept at a temperature of 113° F. (45° C.) for one hour, coagulation should no longer occur on the addition of Nitric Acid.

Not Official.

TRYPSIN acts slowly on solid albuminoid masses (boiled egg-albumen), but with great rapidity on soluble albumens, such as the casein of milk. It converts albumens into peptones and subsequently into bodies which are not proteids, Leucin, Tyrosin, &c.

PANCREATIC DIASTASE converts starch into dextrin and maltose.

It is usually stated to be identical with the diastase of Malt, but it cannot be so,

as we find that it is affected quite differently to the latter by acid and alkali. Diastase from either source acts most rapidly in solutions which are practically neutral. The Malt ferment is retarded by acid, but almost stopped by a very small quantity (about ·1 p.c.) of alkali; the Pancreatic ferment on the contrary is retarded by alkali and almost stopped by a minute quantity of acid.

EMULSIVE ENZYME, fresh pancreatic tissue or pancreatic juice, emulsifies fats, but it is very doubtful whether any extract or solution prepared from the pancreas has the same property.—*Sir W. Roberts.*

Foster states that pancreatic juice splits up neutral fats into their respective acids and glycerin, but Roberts has failed to corroborate this with pancreatic tissue or pancreatic extract.

As both pancreatic diastase and trypsin have been shown by Roberts to be destroyed in the stomach, they are useless for internal administration, but they are peculiarly well-suited for peptonising, or artificially digesting, foods for the use of the sick.

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

PEPTONISED MILK.—A pint of milk is diluted with 4 fl. oz. of water and heated to 140° F. (60° C.).* To this add two teaspoonfuls of Liquor Pancreatis and 20 grains of Sodium Bicarbonate. Place in a jug and cover with a 'cosey' to keep it warm. At the end of an hour, or rather more, boil the contents of the jug. The product can be used like ordinary milk.

Peptonised Milk can also be prepared at about 60° to 65° F. Dilute a pint of Milk with half-a-pint of Lime Water, or with half-a-pint of water containing 20 grains of Sodium Bicarbonate in solution; to this add three teaspoonfuls of Liquor Pancreatis: the mixture is set aside in a jug for three or four hours, by which time the milk will have developed a slightly bitter taste and will be ready for use.

The bitter taste is well covered by Soda Water, or it may be warmed and sweetened for infants.

If it is used when ready it need not be boiled, but if not it must be boiled to prevent the change proceeding far enough to render it unpalatable.

PEPTONISED GRUEL.—Gruel from wheaten flour, oatmeal, arrowroot, sago, pearl barley, pea or lentil flour, should be very well boiled and made thick and strong. It is then poured into a covered jug and allowed to cool to a lukewarm temperature. Liquor Pancreatis is then added, two teaspoonfuls to a pint of gruel. At the end of three hours the product is boiled and strained. The starch of the meal is converted into sugar, and the albuminoid matters are peptonised.

PEPTONISED MILK-GRUEL.—To a good thick gruel, prepared from any of the above-mentioned farinaceous articles, while still hot, add an equal quantity of cold milk; the mixture will be about 125° F. (52° C.). To each pint of this mixture add two teaspoonfuls of Liquor Pancreatis and 20 grains of Sodium Bicarbonate. Set aside in a warm place for two or three hours until a perceptible bitterness is developed and not longer, then heat to the boiling point and strain.

PEPTONISED BEEF-TEA.—Half-a-pound of finely minced lean beef is mixed with a pint of water and 20 grains of Sodium Bicarbonate. This is simmered for two hours in a covered saucepan; the resulting beef-tea is decanted off into a covered jug, the undissolved beef residue is then beaten up with a spoon into a pulp and added to the beef-tea. When it has cooled down to about 140° F. (60° C.) a tablespoonful of the Liquor Pancreatis is stirred in. The mixture is kept warm for

* If a thermometer is not handy, the proper temperature may be obtained by boiling one-half of the mixture and adding it to the other half which is cold.

two or three hours and occasionally stirred. At the end of this time the contents of the jug are boiled briskly for two or three minutes and finally strained. Beef-tea prepared in this way is rich in peptone, and when seasoned with salt is scarcely distinguishable in taste from ordinary beef-tea.

PEPTONISED NUTRITIVE ENEMATA.—The enema may be prepared in the usual way with milk-gruel and beef-tea, and a dessertspoonful of Liquor Pancreatis should be added to it just before administration.

In the warm temperature of the bowel the ferments find a favourable medium for their action on the nutritive materials with which they are mixed.

It must be borne in mind that peptonised foods are very liable to change on keeping, and that fresh quantities should be prepared every twelve hours or they must be re-boiled.—*Sir W. Roberts, Lumleian Lectures*, 1880.

PANCREATISED FAT or **PANCREATIC EMULSION.**

The process of making Purified Pancreatic Emulsion is divided into three parts.—*See Proceedings of the Royal Society*, 1867.

1. To make Crude Emulsion:—

Fresh Pancreas of the pig freed from fat and all extraneous matter, 25 lbs.; Lard, 20 lbs.; Water, 3 gallons: bruise the Pancreas in a marble mortar, then add the Lard beat and mix well together, adding the water little by little as it becomes absorbed till 3 gallons are used. Strain by squeezing through muslin.

2. To make Pancreatised Fat:—

Treat the Crude Emulsion with Ether, in the proportion of three parts of Ether to one of Emulsion. Mix well, and allow the mixture to stand till two strata are formed, —(*a*) an ethereal solution of pancreatised fat at the top, (*b*) a watery stratum at the bottom. Decant the ethereal stratum and filter, put it into a proper still, and recover the Ether by distillation. The result is Pancreatised Fat.

3. To make Purified Pancreatic Emulsion:—

Pancreatised Fat, 2; Rectified Spirit, 1; Distilled Water, 3; Oil of Cloves, a sufficiency: mix gradually in a marble mortar, adding the Spirit and Water little by little, and enough Oil of Cloves to give a slight flavour.

Tests.—The 'Pancreatised Fat,' when made into Lead Plaster by Lead Oxide, should yield Glycerin.

The 'Watery Stratum' left after decanting the ethereal stratum of pancreatised fat (No. 2) should yield no Glycerin.

The 'Purified Pancreatic Emulsion' should be permanent, and should have an acid reaction.

Dose.—From 1 to 4 fl. drm. mixed in milk or water, from one to four times in twenty-four hours.

Not Official.

PAPAIN.

Syn.—Papayotin.

A digestive ferment extracted from Papaw juice (*Carica Papaya*).

Medicinal Properties.—Its solution (5 p.c.) is stated to dissolve false membranes in croup and diphtheria, and to be a good application to ulcers and warty epitheliomatous growths.—*L.* '85, ii. 86; '87, ii. 164; *B.M.J.* '85, ii. 151; '88, i. 1296; *T.G.* '86, 406; *P.J.* (3) xv. 507; (3) xx. 227. *M.P.* '94, i. 633; *Pr.* li. 372; *B.M.J.E.* '93, ii. 39. Internally in gastric ulcer.—*L.* '94, i. 840; '95, i. 333. In atonic dyspepsia.—*L.* 95, i. 1050. In gastritis.—*B.M.J.E.* '93, ii. 36.

Dose.—2 to 10 grains.

Prescribing Notes.—May be given in **cachets**, **mixture**, or **pills**. A good pill may be made by using 'Dispensing Syrup' *q.s.*

Description.—An amorphous powder, more or less white. Soluble in Glycerin. It dissolves animal proteids, and acts best in neutral or slightly alkaline solutions. The products of the action of Papain on boiled white of egg, in neutral, acid or alkaline solution, are described.—*P.J.* (3) xxiv, 633, 757, 758, 846; (3) xxv. 183; *C.D.* '94, ii. 199. Dried Papaw juice and the Papain prepared from it by purification and precipitation have very little solvent action on albumen either in alkaline or acid solution.—*P.J.* '96, i. 182.

PAPAVERIS CAPSULÆ.

POPPY CAPSULES.

The nearly ripe dried fruits of *Papaver somniferum*.

Medicinal Properties.—Similar to Opium, but much weaker and of uncertain strength. The **decoction** is used as a soothing anodyne fomentation.

Not Official.—Syrupus Papaveris and Extractum Papaveris Liquidum.

Foreign Pharmacopœias.—Official in Austr., Belg., Dan., Dutch, Fr. (Pavot), Ger., Hung., Ital. (Papavero), Mex. (Adormideras), Port. (Dormideiras), Russ., Span. (Adormidera) and Swiss; not in the others.

Description.—Rounded, depressed, or ovoid capsules with a thin, dry, brittle pericarp. They are usually from two to three inches (five to seven and a-half centimetres) in diameter, are suddenly contracted below into a neck, and are crowned above by the stellately arranged stigmas. The pericarp is pale yellowish-brown externally, and frequently marked with dark spots; from its inner surface a number of thin brittle parietal placentas project into the cavity. The seeds are numerous, small, reniform, reticulated and whitish. The fruits are inodorous; the pericarp has a bitter taste.

Not Official.

DECOCTUM PAPAVERIS.—Poppy Capsules, bruised, 2; Distilled Water, 30; boil ten minutes in a covered vessel, and strain; then pour over the contents of the strainer as much Distilled Water as will make the strained product 20.

=(1 in 10.)

An external soothing application, applied warm.

(Span., Infusion, 1 in 35; not in the other Pharmacopœias.)

SYRUPUS PAPAVERIS.—(*B.P.* '85). Poppy Capsules, freed from seeds and reduced to No. 20 powder, 36; Rectified Spirit, 16; Refined Sugar, 64; boiling Distilled Water, a sufficiency. Infuse the Poppy Capsules in 80 of the Water for twenty-four hours, stirring frequently, then pack in a percolator, and adding more of the Water, allow the liquor slowly to pass until 320 have been collected, or the Poppies are exhausted; evaporate the liquor by a water-bath until it is reduced to 60; when quite cold, add the Alcohol, let the mixture stand for twelve hours, and filter. Distil off the Alcohol, evaporate the remaining liquor to 40, and then add the Sugar; the product should weigh 104, and its sp. gr. be about 1·330.

Dose.—1 fl. drm. =(1 in nearly 2¼).

Foreign Pharmacopœias.—Official in Austr., Dutch, Ger., and Russ., 1 in 10; Belg., Syr. Diacodii with alcoholic *extract* and simple syrup, 1 in 100; Dan.,

about 1 in 12; Fr., Sirop de Pavot Blanc, 1 of extract of Poppy in 100; Hung., Syr. Diacodii, 1 in 27; Mex. (Jarabe diacodio), 1 of Ext. Opii in 2000; Port., Xarope de Dormideiras, 1 in 13½; Span., Jarabe de Adormideras, 1 extract in 100; not in Ital., Jap., Norw., Swed., Swiss or U.S.

EXTRACTUM PAPAVERIS LIQUIDUM.—The liquid obtained by the process for making the Syrup (previous to adding the Alcohol and the Sugar), 3; Alcohol (90 p.c.), 1: mix.

Dose.—30 to 60 minims.

PARAFFINUM DURUM.

HARD PARAFFIN.

A mixture of several of the harder members of the Paraffin series of hydrocarbons; usually obtained by distillation from shale, separation of the liquid oils by refrigeration, and purification of the solid product.

Solubility.—Insoluble in Water, sparingly soluble in Absolute Alcohol, 1 in 80 of Ether sp. gr. ·720; 1 in 140 of Ether B.P.

In B.P. 1885 it was stated to be 'freely soluble in Ether,' which is altered in B.P. 1898 to 'almost entirely soluble in Ether.'

Official Preparation.—Unguentum Paraffini. Contained in Unguentum Creosoti and Unguentum Eucalypti.

Not Official.—Massa Paraffinum.

Foreign Pharmacopœias.—Official in Belg., Dutch, Ger., Hung., and Russ., all Paraffinum Solidum (**m.p.** 74° to 80° C.); Fr. Paraffine (**m.p.** 44° to 65° C.); Jap. (**m.p.** 75°); U.S. Petrolatum Spissum (**m.p.** 45° to 51 C°.); not in the others.

Description.—Colourless, semi-transparent, crystalline, inodorous, and tasteless. Slightly greasy to the touch.

Tests.—Sp. gr. ·82 to ·94. An Alcoholic Solution should not redden Litmus. It melts at 130° to 135° F. (54·4° to 57·2° C.), and burns with a bright flame, leaving no residue.

Preparation.

UNGUENTUM PARAFFINI. PARAFFIN OINTMENT. (NEW.)

Hard Paraffin, 3; Soft Paraffin, 7. Melt together in a shallow evaporating dish; as the liquid cools triturate constantly, until, when cold, a uniform plastic Ointment is produced.

When Paraffin Ointment is used as the basis of white ointments, it should be prepared with the white variety of Soft Paraffin; and when used in coloured ointments it should be prepared with the yellow variety of Soft Paraffin. The proportions of Hard and Soft Paraffins in Paraffin Ointment may be modified to meet the exigencies of climate and prevailing temperature.

Official Preparations.—The **White** is used in the preparation of Unguentum Acidi Borici, Unguentum Acidi Carbolici, Unguentum Acidi Salicylici, Unguentum Glycerini Plumbi Subacetatis, Unguentum Hydrargyri Ammoniati, Unguentum Plumbi Acetatis, and Unguentum Plumbi Carbonatis. The **Yellow** is used in Unguentum Hydrargyri Oxidi Rubri, Unguentum Iodoformi, and Unguentum Plumbi Iodidi.

Foreign Pharmacopœias.—An ointment is official in Ger. and Russ.

Not Official.

MASSA PARAFFINUM.—Hard Paraffin (m.p. 120° F.), 1; Soft Paraffin 1½; melt together.

A good mass for making Silver Nitrate and Potassium Permanganate into Pills.

PARAFFINUM LIQUIDUM.

LIQUID PARAFFIN.

[NEW.]

A clear oily liquid, obtained from Petroleum, after the more volatile portions have been removed by distillation.

Solubility.—It mixes with Chloroform, Ether, and the fixed and volatile Oils. It dissolves Bromine, Iodine, Iodoform, and Phosphorus.

Medicinal Properties.—It has been used, alone or mixed with Castor or Olive Oil, as an application in chronic eczema accompanied by desquamation. Has been recommended as a base for the hypodermic administration of those substances which it dissolves.

Foreign Pharmacopœias.—Official in Belg., sp. gr. ·840; Dan. and Norw., sp. gr. ·895—·905; Dutch, sp. gr. ·840—·860; Ger. and Russ., sp. gr. ·880; Mex., sp. gr. ·875—·890; U.S., sp. gr. ·875—·945.

Description.—Colourless, odourless, tasteless, not fluorescent.

Tests.—Sp. gr. from ·885 to ·890. Boiling point not below 680° F. (360° C.). 3 c.c., heated with an equal volume of Sulphuric Acid in a test-tube placed in boiling water for ten minutes, with frequent agitation, should not colour the separated layer of acid of a deeper tint than pale brown. Alcohol (90 p.c.) boiled with Liquid Paraffin should not redden Blue Litmus Paper (absence of acid). A mixture of 4 c.c. with 2 of Absolute Alcohol, and 2 drops of a clear saturated solution of Lead Oxide in Solution of Sodium Hydroxide, should remain colourless when kept at 158° F. (70° C.) for ten minutes (absence of Sulphur compounds).

The B.P. sp. gr. is too high. The purification of the oil from tarry constituents reduces the gravity to ·882, whilst it is generally reduced to ·880. The Foreign Pharmacopœias admit gravities of ·880—·885, and even ·870—·875.—*C.D.* '98, i. 713.

PARAFFINUM MOLLE.

SOFT PARAFFIN.

A semi-solid mixture containing soft members of the Paraffin series of hydrocarbons; usually obtained by purifying the less volatile portions of Petroleum.

Solubility.—Insoluble in Water, slightly soluble in Absolute Alcohol, freely in Ether, Chloroform, Benzol, Oil of Turpentine, the fixed and volatile oils.

Official Preparations.—Unguentum Paraffini. The **White** is used in the preparation of Unguentum Creosoti, Unguentum Eucalypti, and Unguentum Zinci Oleatis. The **Yellow** in Unguentum Hydrargyri Nitratis Dilutum and Unguentum Hydrargyri Oxidi Flavi.

Foreign Pharmacopœias.—Official in Austr., Dan., Jap., Norw., and Swiss, Vaselinum; Belg., Paraffina Mollis; Dutch, Vaselinum Album and V. Flavum; Fr., Pétroléine; Ger. and Russ., Unguentum Paraffini; Hung., Ital., and Span., Vaselina; Mex., Vaselina Solida; U.S., Petrolatum Molle; not in the others.

Description.—White or yellow, translucent, soft, unctuous to the touch; free from acidity, alkalinity, or any unpleasant odour or flavour, even when warmed to 120° F. (48·9° C.).

Tests.—Sp. gr. at the melting point, ·840 to ·870. Melts at 96° to 102° F. (35·5° to 38·9° C.), or even somewhat higher, volatilises without giving off acrid vapours, and burns with a bright flame, leaving no residue. After treating with boiling Solution of Sodium Hydroxide the aqueous liquid yields no precipitate or oily matter on adding excess of acid (absence of fixed oils, fats, and resin).

A comparison of the methods of taking the melting point.—*P.J.* '98, i. 293.

It sometimes shows a strong fluorescence when melted.

PARALDEHYDUM.

PARALDEHYDE.

$C_6H_{12}O_3$, eq. 131·10.

A product of the polymerisation of Aldehyde by various acids and salts.

Solubility.—1 in 8½ of Water at 60° F., the solution becoming very turbid on warming. It is miscible, in all proportions, with Alcohol (90 p.c.) and with Ether.

Medicinal Properties.—Hypnotic. Produces quiet and refreshing sleep more speedily than Chloral; does not depress the heart's action. Has a marked action on the kidneys, increasing the flow of urine. It does not give rise to headache. Is a valuable remedy in the insomnia of cardiac disease, of mania, melancholia, and of other mental diseases.

Paraldehyde is given off by the lungs, and may be detected in the breath twelve or more hours after having been taken.

References.—*B.M.J.* '83, i. 215; '85, ii. 99; '89, i. 119, 515; *L.* '85, i. 201; '87, i. 554; '87, ii. 204; '89, ii. 15; '92, ii. 195.

30 minim doses every half or one hour in spasmodic asthma.—*B.M.J.* '93, i. 65; '96, i. 725.

Dose.—½ to 2 fl. drm.

Prescribing Notes.—May be taken dissolved in 1 to 2 fl. oz. of Water. A small dose repeated in an hour is more effective than a large dose. It has a pungent taste, which may be modified by the addition of Tincture of Orange and Syrup; it is also given in Gin at night. When larger doses than will dissolve are required in mixtures, Compound Tragacanth Powder should be ordered to diffuse it. It is also prescribed in **capsules.**

Not Official.—Metaldehyde, and Mistura Paraldehydi.

Foreign Pharmacopœias.—Official in Dan., Fr., Hung., Ger., Mex. (Paraldeida), Norw., Russ. and U.S.; not in the others.

Description.—A clear colourless liquid having a characteristic ethereal odour and an acrid, and afterwards cool, taste. Soluble in 10 parts of Water at 60° F. (15·5° C.); less soluble in hot Water.

Tests.—Sp. gr. ·998. An aqueous solution should not affect Solution of Litmus. Boiling point 255·2° F. (124° C.). It may be congealed to a clear crystalline mass which melts at about 50° F. (10° C.). It affords no coloration on standing for two hours mixed with Solution of Potassium Hydroxide (absence of Aldehyde), and should yield no characteristic reaction with the tests for Sulphates or for Chlorides.

The tests above given are in the main those to be expected from a good commercial sample. By careful fractionation, Paraldehyde may be obtained **melting** at 54°—55° F., having a **boiling point** 125°—126° C., and **sp. gr.** ·999.

The **Aldehyde reaction** with Solution of Potash is an exceedingly delicate one, almost too delicate, very few samples remaining quite uncoloured for two hours.

An impure Paraldehyde can generally be brought up to the standard by washing with Water containing an excess of Sodium Bicarbonate to remove acidity, and then dehydration over dried Potassium Carbonate. If the melting point be very low it should first be redistilled and the first tenth rejected.

Not Official.

METALDEHYDE.—Like Paraldehyde it is a polymer of Aldehyde (C_2H_4O.), but its formula is uncertain. It is formed under rather uncertain conditions by the influence of cold upon Aldehyde containing a trace of mineral acid. It occurs in colourless acicular crystals insoluble in Water and sparingly soluble in Alcohol and Ether. It sublimes readily, with partial conversion into ordinary Aldehyde. It is said to be a hypnotic.

Dose.—2 to 8 grains.

MISTURA PARALDEHYDI (*L.H.*).—Paraldehyde 1 fl. drm., Glycerin 40 minims, Rectified Spirit 2 fl. drm., Cassia Water to 1 fl. oz.

PAREIRÆ RADIX.

PAREIRA ROOT.

The dried root of *Chondrodendron tomentosum*.

Imported from Rio Janeiro in South Brazil. A spurious Pareira has lately been imported from Bahia in North Brazil, much inferior in alkaloid and extractive. The most marked chemical difference between the two is in the Petroleum Ether Extractive. In the genuine drug this amounts to over 8 p. c. and in the spurious to about ·3 p.c.—*P.J.* (3) xxii. 703, 771.

A good deal of the stem, which closely resembles the root, is also imported, and is said to be much less efficacious. Several drugs have been sold at different times as Pareira Brava.

Medicinal Properties.—Tonic and diuretic. In catarrhal affections of, and discharges from, the genito-urinary passages, such as gonorrhœa and leucorrhœa: strongly recommended by the late Sir B. Brodie for its sedative and astringent action in chronic inflammation of the bladder.

Official Preparation.—Extractum Pareiræ Liquidum.

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

Description.—In long and nearly cylindrical more or less twisted pieces, from about three-quarters of an inch to two or more inches (two to five centimetres) in diameter; covered with a thin blackish-brown bark, and marked externally with longitudinal furrows and transverse ridges and fissures. Internally yellowish- or brownish-grey, with well-marked concentric or more or less eccentric crenated zones, the porous wood being separated into wedge-shaped portions by large medullary rays, and when cut presenting a waxy appearance. No odour; taste bitter.

Preparation.

EXTRACTUM PAREIRÆ LIQUIDUM. Liquid Extract of Pareira. (Altered.)

Add to Pareira Root, in No. 40 powder, rather more than an equal bulk of boiling Distilled Water and set aside for twenty-four hours; then pack in a percolator and pass boiling Distilled Water slowly until the percolate amounts to about ten times the weight of the Pareira Root, or until the latter is exhausted. Ascertain the proportion of extractive matter in the percolate by evaporating a small weighed quantity in a counterpoised dish on a water-bath to a firm consistence, and weighing the product. Then evaporate the bulk of the percolate until the residual liquid contains one-third of its weight of such extractive matter; mix with this residual liquid sufficient Alcohol (90 p.c.) to produce from three volumes of the evaporated liquid four volumes of Liquid Extract of Pareira. Filter or otherwise clarify, if necessary.

Alcohol (90 p.c.) now used in place of Rectified Spirit, and made from the Root instead of the Extract.

Dose.—½ to 2 fl. drm.

Incompatibles.—Ferric salts, Lead salts, Tincture of Iodine.

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

PEPSINUM.

PEPSIN.

An enzyme obtained from the mucous lining of the fresh and healthy stomach of the pig, sheep, or calf. Tested as described below, it should dissolve 2500 times its weight of hard-boiled white of eggs.

Solubility.—Moderately soluble in Water and almost insoluble in Alcohol (90 p.c.).

Medicinal Properties.—A digestive adjuvant; preferably given with dilute Hydrochloric Acid; used in chronic gastric catarrh, with deficiency of gastric juice or excessive secretion of mucus; in irritability of stomach associated with vomiting and gastralgia. Externally, to stimulate indolent ulcers, and in eczema; in the form of a bougie for gonorrhœa.

Dose.—5 to 10 grains.

Prescribing Notes.—Given in **powders**, or in **pills** with 'Dispensing Syrup,' also in **cachets, capsules**, and compressed **tablets**.

Official Preparation.—Glycerinum Pepsinæ.

Not Official.—Pepsinum Saccharatum.

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

The usual solvent for making fluid preparations of Pepsin is a weak Alcohol acidulated with Hydrochloric Acid, to which Glycerin is usually added.

Pepsin is one of the soluble ferments or enzymes of the gastric juice. It dissolves natural proteids, albumens, and fibrin, and converts them into syntonin and subsequently into albumose and Peptone. It is a conversion of the less soluble proteids into those which are more so, Peptone being the most soluble and diffusible of the proteids. Pepsin has no action on starch.

It acts only in acid solution, ·2 p.c. of Hydrochloric Acid being the most favourable.

The action of Pepsin will continue almost indefinitely if the products of its action are removed by dialysis, or if the concentration of the products is reduced by acidified water.

The gastric juice also contains another enzyme 'rennin,' which curdles milk. The curd is formed in acid or neutral solutions in the presence of Calcium Phosphate. The casein is split up into a soluble and an insoluble proteid, the latter of which entangles the fat and forms a curd.

Description.—A light yellowish-brown or white powder or pale-yellow translucent grains or scales, having a faint odour, and a slightly saline taste free from any trace of putrescence, and liable to absorb moisture from the air.

Tests.—If 12·5 grammes of coagulated and firm white of fresh eggs, 125 c.c. of acidulated Water containing about ·2 p.c. of Hydrogen Chloride (**HCl**), and ·005 gramme of Pepsin, be digested together at 105° F. (40·5° C.) for six hours, and shaken frequently, the coagulated white of eggs dissolves, leaving only a few small flakes, in an almost clear solution. The 'white of eggs' should be prepared by boiling quite fresh eggs in Water for fifteen minutes, then immersing them in cold Water, and, as soon as sufficiently cool for handling, separating the whites, washing off any fragments of yolk or membrane with Water, removing the Water with a clean towel, then at once rubbing the whites through a sieve having twelve meshes to a centimetre, and using the product before it has lost moisture. For the 'acidulated Water' mix the official Hydrochloric Acid with Water in the proportion of 1 gramme to 156 c.c.; this will give a solution containing about ·2 p.c. of Hydrogen Chloride (**HCl**).

Allen draws attention to the advantage possessed by the U.S.P. process of employing a standard solution of Pepsin instead of weighing out the very small quantity of ·005 gramme as recommended in the B.P., presumably with an error of not more than ·0001 gramme. The B.P. process closely resembles that of U.S.P., which it follows in the objectionably long time for which the digestion is continued, but the U.S.P. gives precise directions as to the frequency of stirring, which very important condition is ignored by the B.P., nor is any correction made for the solvent action of the acid on the Albumen. By only requiring the Pepsin to dissolve the albumen, no distinction is drawn between its conversion into syntonin and true peptonization.

The real digestive power of a Pepsin is measured by the amount of Peptone which it produces in a given time under certain conditions.—*P.J.* '98, i. 416.

A method of testing Pepsin by determining the amount of Peptone produced.—*P.J.* '97, ii. 561; *Analyst* '97, 258.

Digestive power of Pepsin in presence of Alcohol.—*C.D.* '97, ii. 723.

The following description and improved test occur in U.S.P. (1893):—

A proteolytic ferment or enzyme obtained from the glandular layer of fresh stomachs from healthy pigs, and capable of digesting not less than 3000 times its own weight of freshly coagulated and disintegrated egg albumen, when tested by the process given below. If it be desired to use a diluent for reducing Pepsin of a higher digestive power to that required by the Pharmacopœia, Milk Sugar should be employed for this purpose.

A fine white, or yellowish-white, amorphous powder, or thin, pale yellow or yellowish, transparent or translucent grains or scales, free from any offensive odour and having a mildly acidulous or slightly saline taste, usually followed by a suggestion of bitterness. It slowly attracts moisture when exposed to the air.

Soluble, or for the most part soluble, in about 100 parts of Water, with more or less opalescence; more soluble in Water acidulated with Hydrochloric Acid; insoluble in Alcohol (94 p.c.), Ether, or Chloroform.

On heating a solution of Pepsin in acidulated Water to 100° C. (212° F.), it becomes milky or yields a light, flocculent precipitate, and loses all proteolytic power. In a dry state it can bear this temperature without injury.

Pepsin usually has a slightly acid reaction. It may be neutral, but should never be alkaline.

Valuation of Pepsin.—Prepare, first, the following three solutions:—

(*a*.) To 294 c.c. of Water add 6 c.c. of Diluted Hydrochloric Acid.

(*b*.) In 100 c.c. of solution *a* dissolve ·067 gramme of the Pepsin to be tested.

(*c*.) To 95 c.c. of solution *a* brought to a temperature of 40° C. (104° F.) add 5 c.c. of solution *b*.

The resulting 100 c.c. of liquid will contain ·2 c.c. (·21 gramme) of absolute Hydrochloric Acid, ·00335 gramme of the Pepsin to be tested, and 98 c.c. of Water.

Immerse and keep a fresh hen's egg during fifteen minutes in boiling water; then remove it and place it into cold water. When it is cold, separate the white coagulated albumen, and rub it through a clean sieve having 30 meshes to the linear inch. Reject the first portion passing through the sieve. Weigh off 10 grammes of the second, cleaner portion, place it in a flask of the capacity of about 200 c.c., then add one half of the solution *c*, and shake well, so as to distribute the coherent albumen evenly throughout the liquid. Then add the second half of solution *c*, and shake again, guarding against loss. Place the flask in a water-bath or thermostat kept at a temperature of 38° to 40° C. (100·4° to 104° F.) for six hours, and shake it gently every fifteen minutes. At the expiration of this time the albumen should have disappeared, leaving at most only a few thin, insoluble flakes. (Trustworthy results, particularly in comparative trials, will be obtained only if the temperature be strictly maintained between the prescribed limits, and if the contents of the flasks be agitated uniformly and in equal intervals of time.)

The relative proteolytic power of Pepsin stronger or weaker than that described above may be determined by ascertaining, through repeated trials, how much of solution *b*, made up to 100 c.c. with solution *a*, will be required exactly to dissolve 10 grammes of coagulated and disintegrated albumen under the conditions given above.

Preparation.

GLYCERINUM PEPSINI. Glycerin of Pepsin. (New.)

Pepsin, 800 grains; Hydrochloric Acid, 110 minims; Glycerin, 12 fl. oz.; Distilled Water, a sufficient quantity. Mix the Hydrochloric Acid, Glycerin, and 6 fl. oz. of the Distilled Water; then add the Pepsin; after one week, pour off the clear liquid, or filter; add sufficient Distilled Water to produce 20 fl. oz.

Dose.—1 to 2 fl. drm.

1 fl. drm. of this preparation represents 5 grains of Pepsin.

Not Official.

Pepsinum Saccharatum.—Jap. and U.S., Pepsin (of above strength), 1; Milk Sugar, 9.

PHENACETINUM.

PHENACETIN.

$C_2H_5O{\cdot}C_6H_4{\cdot}NHCOCH_3$, eq. 177·80.

Para-acet-phenetidin, or Phenacetin, is produced by the interaction of Glacial Acetic Acid and Para-phenetidin, a body obtained from Para-nitro-phenol.

In the process of manufacture, Nitro-phenols are formed by the action of Nitric Acid on Carbolic Acid. The Ortho-nitro-phenol having been separated from the Para-nitro-phenol, a Sodium salt of this latter is then formed, the Sodium of which is afterwards (by the action of Ethyl Iodide) replaced by Ethyl. By the reducing action of nascent Hydrogen the Nitro-group (NO_2) of this compound is transformed to an Amido-group (NH_2), forming Para-amidophenetol, otherwise called Para-phenetidin, which finally by treatment with Glacial Acetic Acid yields Para-acet-phenetidin or Phenacetin.

Solubility.—1 in 1700 of Water; 1 in 50 of Boiling Water; 1 in 21 of Alcohol (90 p.c.); 1 in 100 of Alcohol (60 p.c.).

Medicinal Properties.—Analgesic, antipyretic and nervine sedative. It relieves pyrexia of typhoid, pneumonia, and other febrile conditions. The fall and subsequent rise of temperature are gradual. It does not produce nausea. It is the most efficient synthetic analgesic for the relief of neuralgic, rheumatic, locomotor ataxial and other pains.—*L.* '88, i. 489; '88, ii. 322; *B.M.J.* '88, i. 1126; '89 ii. 1417; *B.M.J.* '98, ii. 1054.

Recommended in Influenza to relieve the headache and reduce temperature.—*B.M.J.* '91, i. 1282; '91, ii. 190; *Pr.* liv. 383; *B.M.J.* '94, ii. 1045.

As the result of an enquiry as to the ill-effects of Phenacetin by a Committee of the British Medical Association, it is stated that it appears to have a notable freedom from injurious action, and has great value, especially as an analgesic. Some observers recommend a commencing dose of 5 grains or less, others using doses of 8 to 10 grains.—*B.M.J.* '94, i. 89. Untoward effects, *Pr.* li. 241, liii. 444. Two cases of rash caused by Phenacetin.—*L.* '95, i. 91; *C.D.* '95, i. 797.

A recent digest of the literature on synthetic analgesics by Taylor Grant (*Scot. Med. and Surg. Journ.* '98, iii. 436) shows that Phenacetin and Antipyrine are the most trustworthy and valuable of this class of pain-relieving remedies, and that, if used with due care and judgement, ill-effects following the use of either are exceedingly rare, the principal precaution being to commence with a small dose, of Phenacetin 5 grains and of Antipyrine not more than 10 grains.

Dose.—5 to 10 grains.

Prescribing Notes.—It is given in **cachets,** or **suspended** in Water with Compound Powder of Tragacanth.

Not Official.—Amygdophenine, Kryofin, Lactophenine, Malakin, Paraphenetidin Citrates, Triphenine, Phenocoll Hydrochloridum, and Salocoll.

Foreign Pharmacopœias.—Official in Dan., Fr. Acet-Phenetidine; Ger., Norw., Russ. and Swiss, Phenacetinum; Ital. and Mex.; Fenacetina; not in the others.

Description.—White, tasteless, inodorous, glistening, scaly crystals, neutral to Litmus.

It is also supplied commercially as a powder.

Tests.—Melting point, 275° F. (135° C.). ·1 gramme boiled with 2 c.c. of Hydrochloric Acid for half a minute yields a liquid which, diluted with ten times its volume of Water, cooled, and filtered, assumes a deep-red coloration on the addition of Solution of Chromic Acid. Heated with free access of air, it burns leaving no residue. Sulphuric Acid dissolves it without colour. A cold, saturated aqueous solution should not become turbid on the addition of Solution of Bromine (absence of Acetanilide). A mixture of ·3 gramme of Phenacetin with 1 c.c. of Alcohol (90 p.c.) should not acquire a red tint when diluted with three times its volume of Water, and boiled with one drop of Volumetric Solution of Iodine (absence of Para-phenetidin).

The only test given in B.P. for detecting Acetanilide in Phenacetin is the Solution of Bromine Water; the Iso-nitrile test has been left out. This latter test when carried out according to the modification described under 'Acetanilide,' is capable of detecting readily an addition of 2 p.c. Acetanilide.

Detection of admixture with Acetanilide by the melting point. Pure Phenacetin and pure Acetanilide do not begin to fuse at any temperature approaching 92° C., whereas mixtures containing from 1 to 95 p.c. of Acetanilide all commenced to fuse at this temperature.—*J.S.C.I.* '95, 852.

Unconverted Para-phenetidin may be detected by the following test:—Dissolve ·5 gramme of the sample in Water, add a few drops of Solution of Ferric Chloride and warm gently. A dark red colour is produced if Phenetidin is present.—*C.D.* '94, ii. 144.

Not Official.

AMYGDOPHENINE.—The Amygdalic Acid derivative of Para-phenetidin. A greyish-white voluminous crystalline powder, very sparingly soluble in Water. Anti-rheumatic and anti-neuralgic, but is of little value as an antipyretic.—*P.J.* '96, i. 139, 162; *C.D.* '96, i. 223; *B.M.J.E.* '95, ii. 99.

Dose.—8 to 15 grains.

KRYOFIN.—A condensation product of Para-phenetidin and Methylglycolic Acid. Occurs in white, odourless, tasteless crystals, sparingly soluble in cold Water. Antipyretic and analgesic. Has been found useful in neuralgia. Severe sweating sometimes follows its use.—*B.M.J.E.* '97, i. 83; '97, ii. 88; *L.* '97, ii. 728.

Dose.—8 to 15 grains.

LACTOPHENINE.—The Lactic Acid derivative of Para-phenetidin. A white inodorous bitter crystalline powder, melting at 118° C. Sparingly soluble in Water.

Medicinal Properties.—Antipyretic, analgesic and hypnotic. Used in migraine, erysipelas, nervous headache and the neuralgia of influenza.—*L.* '94, ii. 211; '95, i. 1064; *B.M.J.E.* '94, ii. 63; *T.G.* '95, 44; *Pr.* liii. 51. In typhoid fever.—*B.M.J.E.* '94, i. 68; '94, ii. 92; *T.G.* '94, 42. Cases of jaundice after the use of Lactophenine.—*B.M.J.E.* '95, ii. 80; '96, i. 40; inconstant, uncertain, and may produce collapse.—*B.M.J.* '98, ii. 1056.

Tests.—It should dissolve without colour in strong Sulphuric Acid and leave no ash on ignition. 3 gramme triturated with 2 c.c. of Nitric Acid and the mixture allowed to stand, yields Nitrolactophenine, which on washing with Water and purification with Benzol has a melting point of 96·5° C.—*J.S.C.I.* '95, 196.

MALAKIN.—The Salicylic Acid derivative of Para-phenetidin. Occurs in pale yellow silky needles, insoluble in Water and strong Alcohol.

Antipyretic, analgesic and anti-rheumatic. Used in acute rheumatism, the fever of phthisis, migraine and neuralgia.—*M.P.* '94, i. 268; *B.M.J.E.* '93, ii. 92; '94 i. 84; '94, ii. 88; *T.G.* '95, 325; *Pr.* liii. 45; *Y.B.P.* '95, 89; *Y.B.T.* '95, 89; in every way inferior to Phenacetin and Antipyrine.—*B.M.J.* '98, ii. 1055.

Dose.—10 to 20 grains.

PARA-PHENETIDIN CITRATES.—Two of these derivatives are known. The monobasic variety known as **Apolysin** forms a yellowish-white crystalline powder or large crystals melting at about 72° C.; readily soluble in Water and having an acid reaction.

The dibasic variety known as **Citrophen** is a white powder with an acid reaction only slightly soluble in Water, melting at about 181° C.—*P.J.* '95, ii. 363; '97, i. 24; *C.D.* '96, i. 223.

Both are analgesic, antipyretic, and anti-neuralgic. **Citrophen** causes considerable sweating.—*B.M.J.E.* '95, ii. 87; '95, ii. 95; '96, i. 87; '96, ii. 19; warning against the use of Citrophen.—*B.M.J.* '98, ii. 1056.

Dose.—**Apolysin** 10 to 30 grains. **Citrophen** 7 to 10 grains.

Triphenine.—A derivative of Para-phenetidin and Propionic Acid. Dose, 8 to 15 grains. **Phesine,** a sulpho-derivative of Para-phenetidin, and **Pyrantin,** a derivative of Para-phenetidin and Succinic Acid, dose 5 to 10 grains, have been recommended as antipyretics.

PHENOCOLL HYDROCHLORIDUM.—A compound closely related to Phenacetin, and obtained by the action of Glycocoll on Phenetidin. A white crystalline powder, soluble 1 in 16 of Water, sparingly soluble in Alcohol.

Medicinal Properties.—Antipyretic, yielding good results in rheumatic fever. *L.* '91, i. 1060; '92, ii. 438. As a substitute for Quinine in malaria, *B.M.J.E.* '93, ii. 104, *T.G.* '93, 334, 618; in acute rheumatism, typhoid, malaria, and as an intestinal antiseptic, *B.M.J.E.* '94, i. 79; '96, ii. 83; *L.* '97, i. 1227; *P.J.* '96, i. 178.

Dose.—5 to 10 grains.

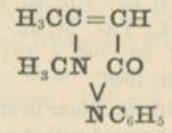
Salocoll, a recent introduction, is Phenocoll Salicylate, given in doses of 15 to 30 grains.

PHENAZONUM.

PHENAZONE.

$C_6H_5(CH_3)_2C_3HN_2O$. eq. 186·77.

Phenazone, or Phenyl-dimethyl-iso-pyrazolone, is obtainable from Phenyl-hydrazine by interaction with Aceto-acetic Ether, and the subsequent interaction of the resulting Phenyl-methyl-iso-pyrazolone with Methyl Iodide. Its constitution is indicated by the following formula:—



Phenazone is commonly known as 'Antipyrine.'

Solubility.—1 in 1 of Water; 3 in 4 of Alcohol (90 p.c.); about 5 in 6 of Chloroform; 1 in 40 of Ether.

Medicinal Properties.—Antipyretic and analgesic, nervine sedative. Given to reduce temperature in all forms of febrile disease, but in case of weak subjects, its depressant effect should be borne in mind.

As an analgesic it is used with great success in neuralgia, migraine, gout, rheumatism, locomotor ataxia and other painful affections, and is frequently given with Sodium Salicylate.

As a pain-relieving remedy it ranks second to Phenacetin; for results of a recent digest on this subject *see under* 'Phenacetin.'

A specific in acute rheumatism, *L.* '85, ii. 642; '86, ii. 876; *B.M.J.* '86, ii. 601. An anodyne for neuralgia, *L.* '87, i. 907; in migraine, *L.* '87, ii. 1163; '89, ii. 790; *B.M.J.* '87, ii. 123; in sciatica, *B.M.J.* '89, i. 610, 710. Relieves ocular pain and ciliary neuralgia in various eye diseases (glaucoma, &c.), *L.* '86, i. 708; *B.M.J.* '88, i. 1360. A uterine sedative, *B.M.J.* '87, ii. 1349. Recommended in hectic fever, *L.* '87, i. 284; *B.M.J.* '85, ii. 602; in hay fever, *B.M.J.* '88, i. 40; in chorea, *L.* '88, i. 39, 157; *L.M.R.* '88, 311; *T.G.* '88, 249; *M.A.* '95, 147; *B.M.J.* '94, ii. 1227; in sunstroke (large doses), *B.M.J.* '87, i. 930; to arrest hæmoptysis, *B.M.J.* '87, ii. 1349; in the early stages of whooping cough, *T.G.* '88, 84, 608; in febrile affections of children, *B.M.J.E.* '95, ii. 35; in laryngismus stridulus, *L.* '88, ii. 961; in kidney diseases, *B.M.J.* '88, i. 1185; *L.* '89, ii. 431; in diabetes, *L.* '89, i. 812. A failure in sea-sickness, *M.P.* '88, i. 541. 10 grains daily as an antigalactagogue, *L.M.R.* '88, 290. 50 p.c. solution hypodermically as a local anæsthetic, *B.M.J.* '88, ii. 1124. Sometimes produces a rash resembling measles, *B.M.J.* '87, i. 111, 210; '93, ii. 944. Toxic effects produced, *B.M.J.* '86, ii. 788; '87, ii. 431; '88, i. 243, 258; *L.* '88, i. 364; *T.G.* '87, 542; as an analgesic in cystitis by intra-vesical injection, *M.A.* '95, 183 and 138; *B.M.J.E.* '94, ii. 36; internally in herpetic dermatitis; *M.A.* '95, 184; as a local anæsthetic in throat and nose affections (30 to 50 p.c. sol.); *Y.B.T.* '94, 429; a 10 p.c. sol. locally in epistaxis; *M.A.* '94, 253; *L.* '93, ii. 453. As a styptic and

antiseptic, *B.M.J.E.* '95, i. 28; *L.* '95, i. 1453; in malaria, *T.G.* '94, 841; in small and repeated doses in puerperal fever, *M.P.* '94, i. 667. In Tannic Acid solution as a styptic, *B.M.J.E.* '95, ii. 90. Cases of poisoning, *B.M.J.* '96, i. 269, 511. In pruritus, *B.M.J.E.* '95, i. 32; *T.G.* '95, 397; *P.J.* '95, ii. 343. One of the most pleasant and rapid remedies for Influenza, *Pr.* liv. 383. In infantile diarrhœa, *P.J.* '95, ii. 175; '96, i. 178; discussion on its benefits and risks as an analgesic, *B.M.J.* '98, ii. 1054.

It is contra-indicated in cardiac weakness, and cases of extreme exhaustion.—*T.G.* '89, 457.

As the result of an enquiry, as to the ill-effects of Phenazone, by a Committee of the British Medical Association, it is stated that the commencing dose should not exceed 10 grains, and should not be repeated too frequently; there is a necessity for watching its action, but ill-effects are not of the frequency or importance ascribed to them by a widespread impression. The large majority of observers agree in stating that they are of no importance whatever, and that, with reasonable and judicious care, they limit in no way the general usefulness of the drug as a therapeutic agent.—*B.M.J.* '94, i. 88.

Dose.—5 to 20 grains.

Prescribing Notes.—Given in **solution, powders, cachets, capsules,** or in the form of effervescent **granules.**

Incompatibles.—Spiritus Ætheris Nitrosi, Tannic Acid in aqueous solutions, Extractum Cinchonæ Liquidum, and other Astringent Decoctions and Infusions. Chloral Hydrate is not incompatible with Phenazone in moderately dilute aqueous solution. Sodium Salicylate is not incompatible with Phenazone in aqueous solution, but forms an oily liquid if the *solids* be mixed, and exposed to the air. *P.J.* (3) xx. 861.

The incompatibility of Antipyrine and Spiritus Ætheris Nitrosi may be overcome by prescribing them with Sodium Bicarbonate.—*A.J.P.* '94, 321; *C.D.* '98, i. 357.

Not Official.—Ferripyrin, Hypnal, Migrainine, Pyramidon, Salipyrin, Tolypyrin and Tussol.

Foreign Pharmacopœias.—Official in Aust., Dan., Dutch, Fr. (Analgesine), Ger., Hung., Ital., Jap., Mex. (Antipirina), Norw., Russ. and Swiss; not in the others.

Description.—In colourless and inodorous scaly crystals with a bitter taste.

Tests.—Melting point about 235·4° F. (113° C.). ·1 gramme of Sodium Nitrite and 12 c.c. of a 1 p.c. aqueous solution of Phenazone yield a nearly colourless liquid which turns deep green on the addition of 1 c.c. of Diluted Sulphuric Acid.

A few drops of Spiritus Ætheris Nitrosi will answer the same purpose as the Sodium Nitrite.

An aqueous solution of the same strength mixed with an equal volume of Nitric Acid assumes a yellow colour passing to crimson on warming. Test-solution of Ferric Chloride produces in a very dilute aqueous solution a deep red colour, which is nearly discharged by excess of Diluted Sulphuric Acid.

A 5 p.c. aqueous solution of Phenazone gives with Test-solution of

Mercuric Chloride a white precipitate which disappears on boiling, but reappears as the liquid cools. The aqueous solution should not affect Solution of Litmus, and should not be affected by Hydrogen Sulphide.

2 c.c. of a 1 p.c. aqueous solution should be coloured green by 2 drops of Fuming Nitric Acid, and the colour should be changed to red by boiling with an additional 3 or 4 drops of the acid.

A colorimetric process for the determination of Antipyrine by means of the Nitrous Acid reaction.—*A.J.P.* '94, 321; *J.S.C.I.* '95, 199, 773; *P.J.* (3), xxiv. 71. Titration of Phenazone by volumetric solution of Iodine.—*J.S.C.I.* '95, 1072; *J.C.S. Abs.* '96, ii. 456; *Analyst* '97, 219.

Chloroform extracts Antipyrine from alkaline solution, but imperfectly from acid solution.

In acidified aqueous solution, it precipitates with Mayer's reagent, and also with Iodo-Potassium Iodide Solution, just like an alkaloid.

Not Official.

FERRIPYRIN.—A compound of Antipyrine and Ferric Chloride containing about 64 p.c. Antipyrine. Occurring as an orange-red powder, soluble in Water. In 20 p.c. solution it has been found useful as a hæmostatic or styptic. Useful in chlorosis and anæmia.—*B.M.J.* '95, i. 1382; *L.* '95, i. 1320; *B.M.J.E.* '95, i. 44; as analgesics, Ferripyrin, Tolypyrin, and Pyramidon appear to be neither beneficial nor harmful, and are therefore of no therapeutic value for the relief of urgent pain.—*Scot. Med. and Surg. Journ.* '96, iii. 442.

HYPNAL.—Is a crystalline compound of Antipyrine with Chloral Hydrate, has been recommended as a hypnotic; used in simple insomnia, delirium tremens and maniacal excitement.—*Pr.* l. 297; in the insomnia due to neuralgia or migraine, or the pyrexia of phthisis.—*M.P.* '94, i. 267. Dose.—15 to 30 grains.

MIGRAININE.—A registered name for a double Citrate of Caffeine and Antipyrine. A white, odourless powder, soluble in Water. Has been found useful in migraine and in neuralgia.—*C.D.* '95, i. 3; *P.J.* '97, ii. 18.

Pyramidon.—A methyl derivative of Antipyrine, is a yellowish-white crystalline powder, soluble in Water. Recommended as an antipyretic and analgesic.—*B.M.J.E.* '97, ii. 7, 84; *P.J.* '97, ii. 299; *see also under* 'Ferripyrin.' Dose.—5 to 20 grains in solution.

Tussol (Antipyrine Amygdalate).—In white granular crystals. Recommended in whooping cough. Dose, for young children, 1 to 2 grains; older children may take as much as 7 grains. It should not be taken with milk.—*L.* '95, i. 1452; *P.J.* (3), xxv. 912, 958.

SALIPYRIN (Antipyrine Salicylate).—A white crystalline powder, almost insoluble in water, soluble 1 in 4 of Alcohol (90 p.c.).

In uterine hæmorrhage, *B.M.J.E.* '93, ii. 82; *L.* '95, i. 1005; *P.J.* '95, ii. 363; a specific for influenza, *Y.B.T.* '95, 454; *B.M.J.E* '93, ii. 103; in peliosis rheumatica.—*B.M.J.E.* '97, i. 44; as an analgesic in painful states of rheumatic origin.—*B.M.J.* '98, ii. 1055.

Dose.—10 to 30 grains.

TOLYPYRIN.—A body allied to Antipyrine (Phenazone), readily soluble in Water.

Antipyretic and analgesic; and useful in acute rheumatism.—*L.* '94, ii. 991; *Pr.* l. 383; *see also under* 'Ferripyrin.'

PHENOL.

See ACIDUM CARBOLICUM.

Not Official.

PHLORIDZIN.

A glucoside obtained from various Rosaceous trees.

A light crystalline powder, whitish or pale yellow, slightly soluble in Water, 1 in 5 of Alcohol (90 p.c.).

It quiets irritability of the stomach. It induces artificial diabetes.

Dose.—5 to 15 grains, in **mixtures,** or in **pills** with Glucose.

PHOSPHORUS.

PHOSPHORUS.

P, eq. 30·80.

A solid non-metallic element obtained from Calcium Phosphate.

Solubility.—Slightly soluble in Absolute Alcohol and in Ether; 1 in 25 of Chloroform; 2 in 1 of Carbon Bisulphide, about 1 in 60 of Olive Oil; 1 in 60 of Oil of Turpentine; also in melted fats; insoluble in Water.

Medicinal Properties.—Given as a nervine tonic, and as a general stimulant. Useful in nervous exhaustion; during convalescence from acute diseases; in chronic neuralgia; in chronic paralysis if seat of lesion be spinal cord; as an aphrodisiac; in chronic scaly skin diseases; but without great success in leucocythemia and in bone diseases such as rickets. Poisonous doses affect principally the liver and kidneys, leading to fatty degeneration. The preparations are **Oleum** and **Pilula,** and it has been combined with Cod-Liver Oil and other menstrua; should be given with caution, as gastritis may be set up.

Sodium and Calcium Hypophosphites are other forms of giving loosely-combined Phosphorus.

In optic nerve atrophy, *M.A.* '95, 261; in pernicious anæmia, *B.M.J.* '95, i. 1084.

Dose, *in pill or solution.*—$\frac{1}{100}$ to $\frac{1}{20}$ grain.

Official Preparations.—Oleum Phosphoratum and Pilula Phosphori. Used in the preparation of Acidum Phosphoricum Concentratum and Calcii Hypophosphis.

Not Official.—Elixir Phosphori, Pilula Phosphori c. Sevo, and Tinctura Phosphori Composita.

Antidotes.—Stomach Tube, Emetics: Copper Sulphate is both emetic and antidote: 3 grains dissolved in Water every 5 minutes till vomiting is induced, then continue it in 1 grain doses every $\frac{1}{4}$ hour, with 10 drops of Solution of Morphine if rejected; also 30 drops of old or French Oil of Turpentine every half hour. Half an ounce of Epsom Salts as a purgative. Demulcent drinks, but avoid oils and fats.

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

Description.—A semi-transparent waxlike solid, which emits white vapours and is luminous in the dark when exposed to the air.

Tests.—Sp. gr. 1·77. It is soft and flexible at common temperatures, melts at 110° F. (43·3° C.), ignites in the air at a temperature a little above its melting point, burns with a luminous flame and produces dense white fumes. 1 or 2 grammes should be attacked slowly and be dissolved without residue on being boiled with 5 or 10 c.c. of Nitric Acid diluted with an equal volume of Water, and the resulting solution should yield no characteristic reaction with the tests for Arsenium, and only the slightest reactions with the tests for Sulphates.

It should always be handled with caution and be cut under water.

Preparations.

OLEUM PHOSPHORATUM. Phosphorated Oil.

Heat Almond Oil in a porcelain dish to about 300° F. (149° C.), and keep it at this temperature for about fifteen minutes, then let it cool, and filter it through paper. Put 99 parts by weight into a stoppered bottle, capable of holding rather more than this quantity, and add to it 1 part by weight of dry Phosphorus. Immerse the bottle in hot water until the mixture has acquired the temperature of 180° F. (82·2° C.) removing the stopper two or three times to allow the escape of expanded air, then shake until the Phosphorus is entirely dissolved.

Dose—1 to 5 minims. =(about 1 in 100).

Foreign Pharmacopœias.—Official in Belg., 1 and 100 Olive Oil; Fr. and U.S., 1 in 100 Almond Oil and Ether; Mex. (Aceite fosforado), 1 in 100 Sesame Oil; Russ., 1 in 100 Almond Oil; not in the others.

Description.—A clear straw-coloured liquid; phosphorescent in the dark. It contains 1 p.c. of Phosphorus.

PILULA PHOSPHORI. Phosphorus Pill. (Altered.)

Phosphorus, 10 grains; White Beeswax, melted, 125 grains; Lard, melted, 125 grains; Kaolin, 115 grains; Carbon Bisulphide, 33 minims, or a sufficient quantity. Place the melted Wax and Lard in a slightly warmed mortar, and stir until the mixture has the consistence of cream. Dissolve the Phosphorus in the Carbon Bisulphide and carefully mix the solution with the melted fats; add the Kaolin; mix well together. Keep the mixture immersed in cold water in a bottle from which the light is excluded.

When dispensed, every 3 grains of the mixture is to be incorporated with 1 grain of Gum Acacia in powder; and the resulting pills should be varnished. =(1 in 90.)

Balsam of Tolu and Curd Soap now omitted, and Lard, Kaolin, Carbon Bisulphide, and Gum Acacia used.

Dose.—1 to 2 grains.

Phosphorus Pill, including the Gum Acacia, contains 2 p.c. of Phosphorus; hence, is nearly double the strength of the Phosphorus Pill of the British Pharmacopœia of 1885.

Foreign Pharmacopœias.—Official in U.S., about $\frac{1}{100}$th grain of Phosphorus in each pill; not in the others.

Not Official.

PILULA PHOSPHORI CUM SEVO.—(1) Phosphorus, 10 grains; Mutton Suet, 90 grains; Purified Carbon Bisulphide, 40 minims. Dissolve the Phosphorus in the Carbon Bisulphide, and incorporate with the Suet, previously rubbed into a smooth paste. (2) Starch, 60 grains; Powdered Liquorice Root, 60 grains; Powdered Soap, 40 grains; Powdered Tragacanth, 12 grains; Glycerin, 48 minims. Make into a pill mass.

No. 1 should be kept in a stoppered bottle, and incorporated with No. 2 as required for dispensing. One part of No. 1 with 8 parts of No. 2.

Each 3-grain pill will contain $\frac{1}{30}$th of a grain of Phosphorus.

ELIXIR PHOSPHORI (*B.P.C.*).—Compound Tincture of Phosphorus, 1; Glycerin, 4: add the Tincture to the Glycerin, with agitation; should be preserved from the light. Each fluid drachm contains $\frac{1}{30}$ grain of Phosphorus.

Dose.—15 to 60 minims.

U.S. (Elixir Phosphori), contains 21 of Spiritus Phosphori in 100.

TINCTURA PHOSPHORI COMPOSITA (*B.P.C.*).—Phosphorus, 12 grains; Chloroform, 2½ fl. oz.: place in a stoppered bottle and apply the heat of a water-bath until dissolved. Then add the solution to Ethylic Alcohol 12½ fl. oz. Shake well. This tincture should be preserved from the light in accurately stoppered bottles. Each fluid drachm contains $\frac{1}{10}$ grain of Phosphorus.

Dose.—3 to 12 minims.

U.S. (Spiritus Phosphori), 1·2 in 1000.

Not Official.

PHYSALIS ALKEKENGI.

WINTER CHERRY.

The *Solanum Vesicarium* of the old dispensatories.

The ripe berries are full of seeds; they yield half their weight of juice.

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

Preparation.

TINCTURA PHYSALIS.—Dried Berries, 2; Alcohol (60 p.c.), 8: digest 7 days.

Dose.—1 to 2 fl. drm. Diuretic and febrifuge.

PHYSOSTIGMATIS SEMINA.

CALABAR BEAN.

The ripe seeds of *Physostigma venenosum*.

Medicinal Properties.—Myotic, antispasmodic, expectorant. Used in chorea and general paralysis of the insane and other spasmodic nervous diseases and in large doses for tetanus; it increases most of the secretions, and is occasionally used in acute pneumonia and bronchitis. The salts of the alkaloid **physostigmine** are used in ophthalmic work; *see under* 'Physostigminæ Sulphas.'

Traumatic Tetanus cured by Calabar Bean, $\frac{1}{8}$ grain of the Extract given every hour, increasing the dose according to symptoms.—*L.* '67, i. 265; '68, i. 434, 463; and by $\frac{1}{12}$ grain injections of Eserine Sulphate; *T.G.* '94, 632.

Stimulates the liver, but not powerfully unless given in large doses.—Dr. Rutherford.

Official Preparation.—Extractum Physostigmatis. Used to prepare Physostigminæ Sulphas.

Not Official.—Tinctura Physostigmatis.

Foreign Pharmacopœias.—Official in Belg., Semen Calabariense; Dutch, and Jap., Semen Physostigmatis; Fr., Fève du Calabar; Mex., Haba de Calabar; Port., Fava do Calabar; Span., Haba del Calabar; Swed., Semina Calabar; U.S., Physostigma; not in the others.

Description.—Large reddish-brown or chocolate-brown, oblong reniform seeds, usually about one inch (twenty-five millimetres) long, three-quarters of an inch (eighteen millimetres) broad, and half an inch (twelve millimetres) thick. A broad dark furrow extends nearly the entire length of the curved margin. The testa is hard, thick, and somewhat rough, and encloses two firm white starchy cotyledons between which there is a large cavity. The Bean has no characteristic taste, and no odour.

Considerable discrepancies exist in the published matter regarding the Calabar Bean.

(1.) In 1876 it was stated that the bean contained two alkaloids, Physostigmine and Calabarine, the latter physiologically antagonistic to the former, differing in Ether solubility, &c. This has never been corroborated, and from the experiments of MacEwan (*C.D.* '87, i. 193) does not seem to apply to beans and extract as met with in commerce.

(2.) According to *P.J.* (3), xv. 594, commercial extracts might contain from 1 to 10·5 p.c. of alkaloid. The probability is that the very low figures are due to the use of a weak Alcohol in preparing the extract, but some of the higher figures point rather to the use of a variety of bean, *P. cylindrospermum*, of great alkaloidal strength, a quantity of which was imported about 1878, but which has not been seen on the market since.

(3.) From *P.J.* (3) xv. 593, it would appear that although (66 p.c.) Alcohol gives an extract of only half the alkaloidal strength of one made with Alcohol (90 p.c.), the yield from the former is 3½ times as much as from the latter, so that nearly twice as much alkaloid is extracted. The inference is that if Extractum Physostigmatis is retained in B.P., a weaker Alcohol than Alcohol (90 p.c.) should be used in its preparation; but perhaps it would be better if the extract were discarded in favour of the crystallised alkaloidal salts.

28 lbs. of Calabar Beans, treated by us with Alcohol (90 p.c.), yielded 2·07 p.c. of extract; this extract yielded 5·74 p.c. of alkaloids, which is equal to nearly ·12 p.c. of alkaloids in the Beans.

The same powder treated with boiling Alcohol (90 p.c.) in an exhaustion apparatus yielded 4·66 p.c. of extract; which extract yielded 3·2 p.c. of alkaloids, which is equal to nearly ·15 p.c. of alkaloids in the Beans.

Preparation.

EXTRACTUM PHYSOSTIGMATIS. Extract of Calabar Bean. (Altered).

Calabar Bean, in No. 40 powder, 16; Alcohol (90 p.c.), 80; Milk Sugar, in fine powder, a sufficient quantity. Mix the powdered Calabar Bean with 20 of the Alcohol; set aside in a closed vessel for forty-eight hours, agitating occasionally; transfer to a percolator;

when the liquid ceases to pass, add the remainder of the Alcohol so that it may slowly percolate through the powder; remove the marc and subject it to pressure, add the expressed liquid to the percolate; filter; recover most of the Alcohol by distillation; transfer the residue to a counterpoised basin, and evaporate to the consistence of a very soft extract; weigh; then add three times its weight of Milk Sugar and mix thoroughly to produce a firm Extract.

Now made with Alcohol (90 p.c.) in place of Rectified Spirit and Milk Sugar added.

This preparation is one-fourth the strength of the Extract of Calabar Bean of the British Pharmacopœia of 1885.

See also note (3) under 'Description of Semina.'

Dose.—$\frac{1}{4}$ to 1 grain.

Foreign Pharmacopœias.—Official in Belg., Fr., Jap., Mex., Port., Span., Swed. and U.S.; Dutch, with 5 p.c. of Glycerin; not in the others.

Not Official.

TINCTURA PHYSOSTIGMATIS.—Calabar Bean, in coarse powder, 1; Alcohol (90 p.c.), 5: digest fourteen days.

Dose.—10 minims, gradually increasing.

Foreign Pharmacopœias.—Official in Fr., 1 and 5; Mex., 1 in 5; U.S., 15 in 100; not in the others.

PHYSOSTIGMINÆ SULPHAS.

PHYSOSTIGMINE SULPHATE.

[NEW.]

B.P.Syn.—Eserine Sulphate.

$(C_{15}H_{21}N_3O_2)_2$, H_2SO_4,H_2O. eq. 643·80.

The Sulphate of an alkaloid obtained from Calabar Bean.

Solubility.—Readily soluble in Water and in Alcohol (90 p.c.).

Medicinal Properties.—It is used to contract the pupil in ciliary paralysis due e.g. to diphtheria; to reduce intra-ocular tension in glaucoma, &c.; to prevent or reduce prolapse of the iris after corneal wounds; to diminish the amount of light in painful affections of the eye; to break down adhesions due to iritis, its use being alternated with that of Atropine; and to remove the prolonged dilatation and paralysis produced by the latter.

Dose.—$\frac{1}{60}$ to $\frac{1}{20}$ grain.

Official Preparation.—Lamellæ Physostigminæ.

Not Official.—Guttæ Physostigminæ, Guttæ Physostigminæ Fortiores, Guttæ Physostigminæ cum Cocaina, Physostigminæ Hydrobromidum, and Physostigminæ Salicylas.

Foreign Pharmacopœias.—Official in Belg., Fr., Ger., Mex. (Sulfato de Eserina), Span., and U.S.; not in the others.

Description.—In yellowish-white, minute crystals, becoming red by exposure to air and light, having a bitter taste, highly deliquescent, very soluble in Water, and soluble in Alcohol (90 p.c.).

Tests.—The aqueous solution is neutral to Litmus, and affords the reactions characteristic of Sulphates; when shaken with dilute Solution of Potassium Hydroxide it becomes red; and when mixed with Solution of Ammonia, and evaporated to dryness on a water-bath, it leaves a bluish residue, the solution of which in very dilute acids is dichroic, being red by reflected and blue by transmitted light. A minute fragment dissolved in a few drops of Fuming Nitric Acid yields a yellow liquid which, on evaporation on a water-bath darkens in colour, the residue when completely dried being of a green colour. A dilute aqueous solution applied to the eye causes contraction of the pupil. It leaves no ash when burned with free access of air.

Preparation.

LAMELLÆ PHYSOSTIGMINÆ. Discs of Physostigmine. (Altered.)

Discs of Gelatin, with some Glycerin, each weighing about $\frac{1}{80}$ grain (·0013 gramme), and containing $\frac{1}{1000}$ grain (·000065 gramme) of Physostigmine Sulphate.

Now made with Physostigmine Sulphate instead of Physostigmine.

Foreign Pharmacopœias.—Official in Ital., Dischi Oftalmici con Eserina; not in the others.

Books of Calabar Bean Paper and of Calabar Bean Gelatin, with divided squares, are also used by oculists to contract the pupil (after the use of Belladonna or Atropine), in order to bring back the vision to the normal state.

Not Official.

GUTTÆ PHYSOSTIGMINÆ (*L.O.H.*). — Physostigmine Sulphate, 2 grains; Water, 1 fl. oz.

GUTTÆ PHYSOSTIGMINÆ FORTIORES (*L.O.H.*).—Physostigmine Sulphate, 4 grains; Water, 1 fl. oz.

GUTTÆ PHYSOSTIGMINÆ CUM COCAINA (*L.O.H.*).—Physostigmine Sulphate, 1 grain; Cocaine Hydrochloride, 5 grains; Water, 1 fl. oz.

PHYSOSTIGMINÆ HYDROBROMIDUM.—In fibrous masses, non-deliquescent, very soluble in Water.

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

PHYSOSTIGMINÆ SALICYLAS.—*Syn.*—Eserinæ Salicylas.

Colourless acicular crystals, becoming coloured on exposure to light and air. Soluble 1 in 130 of Water; 1 in 15 of Alcohol (90 p.c.).

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

Not Official.

PHYTOLACCA.

Both the **fruit** (Poke fruit) and the **root** (Poke root) of *Phytolacca decandra* are Official in U.S.P.

The Fluid Extract has been recommended for inflamed and painful mammæ, internally and as a local application.—*B.M.J.* '87, ii. 844.

It has also been used in orchitis.—*T.G.* '85, 622.

In large doses it is emetic, purgative, and slightly narcotic.

Preparations.

EXTRACTUM PHYTOLACCÆ RADICIS FLUIDUM (*U.S.*).—1 fluid ounce is equal to 1 ounce of the Root.

PHYTOLACCIN.—An eclectic remedy used in rheumatic and syphilitic conditions. Cholagogue and alterative, ¼ to ½ grain; purgative, 2 to 4 grains.

Is a powerful hepatic stimulant; it also slightly stimulates the intestinal glands.—*Dr. Rutherford.*

PICROTOXINUM.

PICROTOXIN.

A neutral principle obtained from the fruits of *Anamirta paniculata*.

Solubility.—1 in 334 of Water; 1 in 13½ of Alcohol (90 p.c.).

Medicinal Properties.—$\frac{1}{30}$ grain has been given as a remedy against immoderate sweating in phthisis.—*B.M.J.* '80, i. 96; '85, ii. 610. $\frac{1}{8}$ to $\frac{1}{4}$ grain given in epilepsy (*L.M.R.* '87, 155) but in this, as in other chronic nervous diseases, it has not been a success. $\frac{1}{114}$th of a grain effected a cure in a case of profuse sweating following influenza.—*L.* '95, ii. 668; *B.M.J.E.* '95, i. 35; *P.J.* '95, ii. 343. Externally used with caution as an **ointment** (1 grain to a drm.) for pediculi.

On account of its bitterness, it has been fraudulently used as a substitute for Hops in Beer, it is the more objectionable because of its poisonous properties.

Dose.—$\frac{1}{100}$ to $\frac{1}{25}$ grain.

Antidote.—Chloral and Picrotoxin are mutually antagonistic.

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

Description.—In colourless and inodorous prismatic crystals, possessing a bitter taste.

Tests.—Melts at 378° F. (192·2° C.). It is soluble in 10 parts of Solution of Potassium Hydroxide, and the resulting liquid, on boiling immediately reduces Fehling's Solution.

This test may also be applied to a cold saturated solution in Water, 5 c.c. of which will give a distinct reaction. If to this quantity 1 c.c. Pavy's Solution be added, and the liquid boiled, the blue colour will completely disappear.

According to Meyer, commercial Picrotoxin is not constant in composition, the melting point of samples varying between 193° and 200° C. This should not be, since it is easy to obtain the pure article, melting at 199° to 200° C., by a few recrystallisations from Alcohol and Water. Picrotoxin is stated to be not a simple body but a compound containing 34 p.c. of Picrotin, and 66 p.c. of Picrotoxinin.—*P.J.* '98, i. 45.

Heated on Platinum foil, the crystals melt, forming a yellowish liquid, which, on further heating, becomes charred, and is at length completely dissipated. It dissolves in Sulphuric Acid with a saffron-yellow colour. Its aqueous solution is not precipitated by Test-solution of Mercuric Chloride, Solution of Platinic Chloride, or Solution of Tannic Acid (distinction from alkaloids).

PILOCARPINÆ NITRAS.

PILOCARPINE NITRATE.

$C_{11}H_{16}N_2O_2$, HNO_3, eq. 269·23.

The nitrate of an alkaloid obtained from Jaborandi Leaves.

Solubility.—1 in 8 of Water; 1 in 50 of Alcohol (90 p.c.).

Medicinal Properties.—A powerful diaphoretic and sialagogue. Is useful in the dropsy and thirst of Bright's disease, and to remove pleural and peritoneal effusion. It should be used with caution in cases of dropsy due to weakness or disease of the heart. It contracts the pupil, and has been used in detachment of the retina, glaucoma and intra-ocular hæmorrhage; in bronchitis and asthma; and in chronic poisoning by lead, arsenic or mercury.

$\frac{1}{30}$ grain three times a day given to moisten the mouth in diabetes and diminish thirst.—*L.* '84, ii. 275; *P.J.* (3), xxv. 1219. A case of convulsions during pregnancy treated by hypodermic injections, $\frac{1}{3}$ grain of Pilocarpine Hydrochloride.—*L.* '85, i. 1079; '86, i. 635, 1016. Useful in certain cases of deafness, especially of syphilitic origin, *B.M.J.* '85, i. 1192; '89, i. 471; '89, ii. 220; '90, ii. 86; *L.* '83, ii. 956; '89, ii. 643. On its use in affections of the ear, *L.* '91, i. 10; *B.M.J.* '90, i. 1125, 1300; '90, ii. 1511; '91, i. 49; '93, i. 407; '93, ii. 570. In jaundice, *L.* '89, i. 1157. In uræmia, *B.M.J.* '88, i. 188; caused untoward effects in uræmia, *M.A.* '95, 496; *L.* '97, i. 334; not so useful in Bright's disease when the uræmic stage has set in, *L.* '95, ii. 47; as a galactagogue, *L.* '85, ii. 885. In Menière's disease, *T.G.* '95, 88; *B.M.J.E.* '94, ii. 52; *T.G.* '94, 746. In acute hysterical insanity, *M.A.* '95, 333. In croup and all croupous diseases, *Y.B.T.* '95, 437. Contribution to the study of, *B.M.J.* '94, i. 1291. Dangers of its use, *B.M.J.E.* '94, i. 3. $\frac{1}{8}$ to $\frac{1}{4}$ grain twice daily in chronic eczema with the happiest results, *M.A.* '93, 209. In erysipelas, *T.G.* '94, 289; in acute and chronic urticaria, *T.G.* '94, 849; in acute articular rheumatism, *T.G.* '95, i. 177; hypodermically in labyrinthine disease, *B.M.J.* '94, ii. 1236; and other aural affections, *T.G.* '93, 602; in facial erysipelas, *B.M.J.E.* '94, i. 79. As an ointment containing ·05 to ·1 p.c. of the Nitrate with Vaseline in nephritis.—*L.* '95, ii. 47. In puerperal eclampsia ($\frac{1}{10}$ grain hypodermically).—*B.M.J.* '97, i. 367; '97, ii. 706; *L.* '97, i. 276. In some acute infectious diseases.—*T.G.* '98, 225. Although an ordinary dose of Pilocarpine produces sweating, small doses of $\frac{1}{60}$th to $\frac{1}{30}$th of a grain have the effect of checking excessive sweating.—*L.* '97, i. 334. The Hydrochloride in grippal pneumonia.—*P.J.* '95, ii. 470. Hydrochloride in influenzal pneumonia.—*B.M.J.E.* '95, ii. 104. Stated to be useless in the treatment of pneumonia.—*Pr.* lxi. 401. Various opinions on its value in uræmia; in carefully-selected cases, and as a means of initiating diaphoresis, which can be prolonged by other measures, Dr. Nestor Tirard thinks it is sometimes an extremely valuable drug, that the present relative disuse of it probably results from its former prolonged employment in inordinate doses, and that its sphere of usefulness should not be limited by possible errors of dosage or administration.—*B.M.J.* '98, ii. 1052.

Dose.—$\frac{1}{30}$ to $\frac{1}{2}$ grain.

The **Pilocarpine Hydrochloride** is preferred in all other countries, *see* p. 483, and is most frequently prescribed in London.

Not Official.—Guttæ Pilocarpinæ, Injectio Pilocarpinæ Nitratis, Pilocarpinæ Hydrochloridum, and Pilocarpine Phenate.

Foreign Pharmacopœias.—Official in Mex. and Span.; not in the others. Fr. and Mex. have Pilocarpine.

Description.—A white crystalline powder; soluble in 8 or 9 parts of cold Water; slightly soluble in cold, freely soluble in hot Alcohol (90 p.c.).

Tests.—Strong Sulphuric Acid forms with it a yellowish solution which, on the addition of Potassium Bichromate, gradually acquires an emerald-green colour. A dilute Aqueous Solution applied to the eye causes contraction of the pupil. It leaves no ash when burned with free access of air (absence of mineral impurity).

The B.P. omits to give the melting point of this salt, though it is essential since commercial Pilocarpine (according to Paul and Cownley) varies in composition as shown by the different melting points of several samples, namely 141·7°, 167·2°, 150·5° and 162·7° C. This variation might be expected from the results of the analyses of the different species of leaves (*see* Jaborandi) showing the presence of more than one alkaloid yielding crystalline nitrates. There is as yet no certainty about what is really to be understood by the name Pilocarpine. For example, an injection of 8 drops of a 3 p.c. solution of Pilocarpine Nitrate of a high melting point 167·2° C. produced the unusual effect of intense desire to micturate, with strangury and subsequent vomiting. According to Petit and Polonovski (*Journal Pharm. et de Chimie*, 15 April, 1897) pure Pilocarpine Nitrate melts at 177—178° C., and they state that Pilocarpine Nitrate frequently contains as much as 50 p.c. of a salt melting at 158° C., which they call 'Pilocarpidine' Nitrate, though it is not the same as Harnack's Nitrate, which melts at 129·2° C. The nearly equal solubility of the Pilocarpine Nitrates and Pilocarpidine allow them to crystallise together, with the Hydrochlorides the difference in solubility is much more marked, so that a Pilocarpine Hydrochloride can be obtained containing very little Pilocarpidine. The melting point of Pilocarpine Nitrate is materially lowered by the presence of Pilocarpidine Nitrate. With different species of Jaborandi the yield of Pilocarpidine varied from 5 to 75 p.c. of the total alkaloids, and is found in greater proportion in the stem than in the leaves.—*P.J.* '96, ii. 1; '97, i. 466; *J.S.C.I.* '97, 461; *J.C.S.Abs.* '97, i. 582.

Not Official.

GUTTÆ PILOCARPINÆ (*L.O.H.*).—Pilocarpine Nitrate, 2 grains; Distilled Water, 1 fl. oz.

INJECTIO PILOCARPINÆ NITRATIS (*L.O.H.*).—Pilocarpine Nitrate, 1 grain; Water, 20 minims.

PILOCARPINÆ HYDROCHLORIDUM.—Minute white crystals, deliquescent, neutral.

Very soluble in Water and Alcohol (90 p.c.).

According to Petit and Polonovski Pilocarpine Hydrochloride melts at 200° C. and is a more definite salt than the Nitrate, being more easily separated from accompanying Hydrochlorides of the other bases. It is said to be soluble in the proportion of 10 in 4 of Water and 1 in 10·5 of Alcohol (95 p.c.), whilst their Pilocarpidine Hydrochloride melted (when dehydrated) at 161° C. and was soluble 1 in ·27 of Water and 1 in 2·1 of Alcohol. The hydrated salt melts at 124° C.—*P.J.* '96, ii. 1, 437; '97, i. 466; *J.S.C.I.* '97, 461; *J.C.S.Abs.* '97, i. 582.

Foreign Pharmacopœias.—Official in Austr., Belg., Dan., Dutch, Ger., Hung., Ital., Jap., Mex., Norw. (Chloretum Pilocarpicum), Russ., Swiss and U.S.; not in the others.

PILOCARPINE PHENATE (Aseptoline).—A colourless, oily liquid, soluble in Water and in Alcohol, has been recommended in the treatment of phthisis and in intermittent fevers, 1 fl. drm. of a solution of 1 grain in 10 fl. oz. of 2¾ p.c. Carbolic Acid Solution injected into the abdominal wall.—*P.J.* '96, ii. 379; '98, i. 84.

PILULÆ.

PILLS.

This class of medicine, so convenient and portable, was introduced in the earliest Pharmacopœias, and some of the formulas remain almost unchanged. The Pilula Rufi (Pilula Aloes et Myrrhæ) has for at least two hundred years maintained practically the same composition, but in B.P. '98 the Saffron is omitted.

Excipients for pills are of two kinds: (1) those which are more or less fluid, and employed to bind together powders, or to impart the necessary moisture to adhesive substances; (2) those, generally in powder, which are intended to absorb moisture and give solidity to the mass. Of the former, 'Dispensing Syrup' (equal volumes of Alcohol (90 p.c.), Glycerin, Syrup, and Mucilage) and Glucose, are most in request; Alcohol (60 p.c.) also is very useful. Glycerin by itself is distinctly inferior to the foregoing. Glycerin of Tragacanth is much employed, but in the majority of cases where it would be used, we should prefer Glucose, either by itself or mixed with an equal weight of Syrup. Of the powders, that of Liquorice root is most useful when moisture is to be absorbed and no binding power is required. An unexpected exception is the case of Carbolic Acid, which makes a very good plastic mass with twice its weight of Liquorice powder (when well worked together, the result is very satisfactory). When more plasticity is required, the absorbent powder is supplemented with Compound Tragacanth Powder, or powdered Gum Acacia. For Essential Oils this condition is best obtained by the use of powdered Curd Soap; as a rule, one minim of the Oil will require half a grain of the Soap and two grains of the Liquorice. A mixture of Paraffins (Massa Paraffini), with or without Kaolin (Massa Kaolin), is used for substances which are readily reduced by organic matter, such as the Permanganates, and the salts of Gold and Silver. It 'goes without saying' that an excipient must not be chemically incompatible with the other ingredients, but there is not much opportunity for such an occurrence, with those above selected.

Coatings.—Pills have been finished in various ways: rolled in Flour, Starch, Magnesia, Liquorice powder, and in Lycopodium, or a mixture of these; enveloped in Silver or Gold Leaf; coated with Ether-Alcoholic solution of Tolu or better of Sandarach (Ether 2, Absolute Alcohol 6, Sandarach 3), or with Gelatin or French Chalk. Pills containing substances exceedingly soluble in Alcohol should not be varnished, as the varnish may dissolve some part of the pill.

When pills are intended to pass through the stomach, and to be disintegrated in the intestine, they are coated with a solution of Keratine, *see* p. 390.

The following are contained in the British Pharmacopœia, the formulas for which will be found under the names of the substances from which they are prepared:—

	Proportions of active ingredient in the mass.
PILULA ALOES BARBADENSIS	about 1 in 2.
PILULA ALOES ET ASAFETIDÆ	Aloes 1, Asafetida 1 in 4.
PILULA ALOES ET FERRI	Aloes 2, Iron (Exsic.) 1 in 9.
PILULA ALOES ET MYRRHÆ	Aloes 1, Myrrh ½, in 2¼.
PILULA ALOES SOCOTRINÆ	about 1 in 2.

	Proportions of active ingredient in the mass.
PILULA CAMBOGIÆ COMPOSITA	about 1 in 6.
PILULA COLOCYNTHIDIS COMPOSITA	Col. 1, Aloes 2, Scam. 2, in 6.
PILULA COLOCYNTHIDIS ET HYOSCYAMI	{ Pil. Col. Co. 2 / Ext. Hyos. 1. } in 3.
PÍLULA FERRI	Iron Carbonate about 1 in 5.
PILULA GALBANI COMPOSITA	Galb. 1, Asafetida 1 in 3½.
PILULA HYDRARGYRI	Mercury 1 in 3.
PILULA HYDRARG. SUBCHLORIDI COMPOSITA	about 1 Calomel in 4½.
PILULA IPECACUANHÆ CUM SCILLA	about 3 Dover's Powder in 7.
PILULA PHOSPHORI	Phosphorus 1 in 50.
PILULA PLUMBI CUM OPIO	Lead Acetate 6, Opium about 1 in 8.
PILULA QUININÆ SULPHATIS	5 in 6.
PILULA RHEI COMPOSITA	Rhubarb 2, Aloes 1½ in 8.
PILULA SAPONIS COMPOSITA	1 Opium in 5.
PILULA SCAMMONII COMPOSITA	Resin Scam. 1, Resin Jalap 1 in 3½.
PILULA SCILLÆ COMPOSITA	Squill about 1 in 4.

PIMENTA.

PIMENTO.

The dried full-grown unripe fruit of *Pimenta officinalis*.

From the West Indies.

Medicinal Properties.—A warm aromatic stimulant and carminative like Cloves; used as an adjuvant to tonics and purgatives.

Dose.—Not given in B.P.; 10 to 30 grains in powder.

Prescribing Notes.—The **Oil** may be given on **sugar**, or in **pill** with Liquorice powder and soap, *see* p. 484.

Official Preparations.—Aqua Pimentæ and Oleum Pimentæ.

Foreign Pharmacopœias.—Official in Mex., Pimienta Gorda; Port., Pimenta da Jamaica; Span., Pimienta de la Jamaica; U.S.; not in the others.

Description.—Dark reddish-brown, nearly globular, two-celled fruits, varying usually from one-fifth to one-third of an inch (five to eight millimetres) in diameter. The pericarp is rough externally, brittle, and crowned by the remains of the four-toothed calyx in the form of a raised ring, surrounding the remains of the style. Each cell contains a single brownish-black reniform seed. Odour and taste warm and aromatic, characteristic, somewhat resembling those of Cloves.

Preparations.

AQUA PIMENTÆ. PIMENTO WATER. (ALTERED.)

Pimento, bruised, 4; Water, 160: distil one-half. =(1 in 20).

Now 1 in 20 instead of 1 in 11½.

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

(Not in the other Pharmacopœias.)

OLEUM PIMENTÆ. OIL OF PIMENTO.

The Oil distilled from Pimento.

Solubility.—In all proportions of Alcohol (90 p.c.); about 1 in 50 of Alcohol (60 p.c.).

Dose.—½ to 3 minims.

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

Description.—Yellow or yellowish-red when recently distilled, but gradually becomes darker. It has the odour and taste of Pimento.

Tests.—Sp. gr. not below 1·040. It should be converted into a semi-solid mass when shaken with an equal volume of Strong Solution of Ammonia.

1 minim dissolved in 60 minims of Alcohol (90 p.c.), and treated with 1 minim of a very dilute solution of Ferric Chloride, turns a fine indigo blue colour. This is also the case with Oil of Cloves, which Oil of Pimento very much resembles in chemical constitution.

PINI OLEUM.

OIL OF PINE.

[NEW.]

The oil distilled from the fresh leaves of *Pinus Pumilio*.

This is also sold under the names 'Pinol' and 'Pumiline.'

Solubility.—About ⅘ dissolves 1 in 5 of Alcohol (90 p.c.), but the remaining ⅕ is much less soluble.

Medicinal Properties.—The vapour is a mild stimulant and disinfectant in chronic catarrhal affections of the respiratory passages. It is also applied externally in rheumatism. Internally the dose is 1 to 5 minims taken on **sugar**, or in the form of **jujube**.

Dose.—Not given in B.P.; 1 to 5 minims.

Not Official.—Extractum Pini Pumilionis.

Foreign Pharmacopœias.—Official in Austr. and Swiss; not in the others.

Description.—Colourless or nearly so, with a pleasant aromatic odour and pungent taste.

Tests.—Sp. gr. ·865 to ·870. It should rotate the plane of a ray of polarised light from 5° to 10° to the left at 60° F. (15·5° C.) in a tube 100 millimetres long. Not more than 10 p.c. should distil below 329° F. (165° C.).

Not Official.

EXTRACTUM PINI PUMILIONIS.—A liquid extract, of a brown colour, prepared from the young shoots of the Pinus Pumilio. It is used in baths.

Not Official.

PINI SYLVESTRIS OLEUM.

The oil distilled from the fresh leaves of *Pinus sylvestris*.

Solubility.—1 in 7½ of Alcohol (90 p.c.); in all proportions of Absolute Alcohol.

Medicinal Properties.—Similar to those of Oil of Turpentine. It is also used externally in rheumatism, and as an inhalation or spray with hot water in chronic laryngitis, bronchitis and phthisis.

Foreign Pharmacopœias.—Official in Hung., sp. gr. ·872; Russ., Oleum Pini Foliorum, sp. gr. ·870—·880; not in the others.

Description.—Colourless, or nearly so, with an agreeable odour.

Many oils sold as Pinus Sylvestris, yield, on fractionation, 60 to 70 p.c., boiling below 167° C. Rotation varies with the time of year at which the oil is collected, climate and locality. Sp. gr. should not be below ·880, and not more than 15 p.c. should distil below 170° C.—*P.J.* '95, ii. 161, 542; *C.D.* '95, ii. 202.

Preparation.

VAPOR OLEI PINI SYLVESTRIS.—Fir-wool Oil, 40 minims; Light Magnesium Carbonate, 20 grains; Water a sufficiency: rub the Fir-wool Oil with the Magnesium Carbonate and gradually add sufficient Water to produce 1 fluid ounce.

Place 1 fl. drm. of this mixture with half a pint of cold Water and half a pint of boiling Water into an apparatus so arranged that air may be made to pass through the solution and may afterwards be inhaled.

PIPER NIGRUM.

BLACK PEPPER.

The dried unripe fruit of *Piper nigrum*.

Chiefly from the East Indies.

Medicinal Properties.—A warm carminative stimulant and stomachic. Chiefly used to assist gastric digestion and correct flatulence. Acts as a local stimulant on the mucous membrane of the rectum, whence it is useful in hæmorrhoids, ulcer, fistula, and other rectal diseases; also on the mucous membrane of the urethra, similarly to Cubebs. In intermittent fever it may be used as an adjuvant to Quinine.

Official Preparation.—Confectio Piperis. Contained in Pulvis Opii Compositus.

Not Official.—Oleo-Resina Piperis, Piperinum, Piperidine, Piperidine Guaiacolate, Piperidine Tartrate.

Foreign Pharmacopœias.—Official in Belg.; Fr., Poivre Noir; Mex., Pimienta Negra; Port., Pimenta; Span., Pimisuta Nigra; U.S.; not in the others.

Description.—Almost black, nearly globular, inferior, one-celled fruits, usually about one-fifth of an inch (five millimetres) in diameter. The pericarp is deeply and reticulately wrinkled, and contains a single seed that completely fills the cavity. Odour aromatic; taste pungent.

The ash of genuine Black Pepper varies from 4 to 6 p.c.

Preparation.

CONFECTIO PIPERIS. Confection of Pepper.

Black Pepper, in fine powder, 2; Caraway fruit, in fine powder, 3; Clarified Honey (by weight), 15: Mix. =(1 in 10).

Dose.—60 to 120 grains.

(Not in the other Pharmacopœias.)

Not Official.

OLEO-RESINA PIPERIS (*U.S.*)—Obtained from Pepper by exhaustion with Ether, and separation from the Piperine.

Dose.—$\frac{1}{4}$ to 1 minim, given in **pill.**

PIPERINUM (*U.S.*).—A neutral principle obtained from Piper nigrum and also from other plants of the natural order Piperaceæ. It possesses antipyretic properties, but it is not the active principle of Pepper.

In intermittent fever.—*B.M.J.* '86, ii. 449, 613.

Dose.—2 to 8 grains.

PIPERIDINE.—Is produced by the hydrolysis of Piperine, the alkaloid occurring in pepper, or synthetically by the reduction of Pyridine by nascent Hydrogen. Is a colourless limpid liquid boiling and distilling unchanged at 106° C. It is a powerful base.

PIPERIDINE GUAIACOLATE.—A compound of Piperidine and Guaiacol. A yellowish-white crystalline body, having a faint odour of Guaiacol. It melts at 80° C. Soluble in Water. Mineral acids and alkalis decompose it into its constituents. Has been recommended in the treatment of phthisis.—*B.M.J.* '97, i. 136; *J.C.S.Trans.* '98, 145.

Dose.—5 to 30 grains.

PIPERIDINE TARTRATE.—The Acid Tartrate is a white crystalline powder possessing a faint odour. Readily soluble in Water. Has been introduced as a solvent for gouty deposits, uric acid gravel and calculi. It increases the solvent power of serum for sodium biurate to a much larger extent than Piperazine, Lysidine or Urotropine.—*L.* '98, ii. 198, 280, 345, 433, 507.

Dose.—10 to 15 grains.

Not Official.

PIPERAZINE.

$C_4H_{10}N_2$, eq. 85·52.

Piperazine (Diethylene-diamine) is produced by action of Ammonia on Ethylene Bromide or Chloride.

Medicinal Properties.—It has a powerful solvent action on Uric Acid, the Piperazine Urate being about seven times more soluble than Lithium Urate. It has been recommended for gouty affections in general, rheumatoid arthritis, and renal calculus and colic.—*T.G.* '93, 19; '94, 192; '95, 99; *B.M.J.* '94, i. 1291; *B.M.J.E.* '93, ii. 20; *Pr.* li. 134; liii. 265.

Little or no effect in gouty states.—(Sir Wm. Roberts and Bohland) *Pr.* liii. 50; in diabetes.—*B.M.J.E.* '93, ii. 72; action as a Uric Acid solvent.—*B.M.J.* '96, ii. 901.

Dose.—5 to 15 grains.

Prescribing Notes.—Usually given in **mixture,** also in Aërated Water, or as a granular effervescing preparation.

Description.—Colourless deliquescent crystals, readily soluble in Water. When anhydrous it melts at 104° to 107° C., and boils at 145° C.

LYCETOL (Dimethylpiperazine Tartrate).—A white powder, readily soluble in water, possessing an acid taste. Has been recommended in the treatment of chronic gout and rheumatism.

Dose.—5 to 10 grains.

Not Official.

PISCIDIA.

Syn.—JAMAICA DOGWOOD.

The bark of the root of *Piscidia erythrina*.

The shrub is a native of South America and the West Indies, where it has been used for stupefying fish.

Medicinal Properties.—Hypnotic, anodyne. Introduced as a substitute for Opium, but without producing the implied effects of the latter. A sedative in irritant cough; an antispasmodic in asthma.

Has been used in neuralgia and toothache.—*P.J.* (3) xvi. 1014.

Has been found useful in nervous debility and nervous irritability.—*T.G.* '88, 102.

Preparation.

EXTRACTUM PISCIDIÆ LIQUIDUM.—1 fluid ounce is equal to 1 ounce of the root.

Dose.—30 to 120 minims.

PIX BURGUNDICA.

BURGUNDY PITCH.

The resinous exudation obtained from the stem of *Picea excelsa*, melted and strained.

Imported from Germany.

Solubility.—Almost entirely dissolves 1 in 20 of Alcohol (90 p.c.); the greater part dissolves 1 in 1½ of Glacial Acetic Acid.

Medicinal Properties.—The Plaster is applied to the chest in chronic pulmonary complaints, to the loins in lumbago, to the joints in chronic articular affections, and to other parts to relieve local pain of a rheumatic character. It acts as a counter-irritant.

Official Preparation.—Emplastrum Picis.

Foreign Pharmacopœias.—Official in Belg. and U.S., Pix Burgundica; Fr., Poix de Bourgogne; Hung., Resina Pini Burgundica; Ital., Pece di Borgogna; Mex. and Span., Pez de Borgona; Swed., Resina Pini Flava; Port., Pez de Borgonha; Swiss, Resina Pini; not in Austr., Dan., Dutch, Ger., Jap., Norw., or Russ.

It is the Thus or Frankincense of Lond. and Dub. Pharmacopœias. It exudes from the spruce fir, and when melted and strained is called Burgundy Pitch.

Description.—Hard and brittle, yet gradually taking the form of the vessel in which it is kept; somewhat opaque, dull reddish-brown or yellowish-brown, fracture clean and conchoidal. Odour aromatic, especially when heated; taste sweet, aromatic, without bitterness. Readily soluble in Glacial Acetic Acid.

Preparation.

EMPLASTRUM PICIS. PITCH PLASTER. (ALTERED.)

Burgundy Pitch, 26; Frankincense, 13; Resin, 4½; Yellow Beeswax, 4½; Olive Oil (by weight), 2; Distilled Water, 2: add the Olive Oil and the Water to the Frankincense, Burgundy Pitch, Resin, and Beeswax, previously melted together; evaporate with constant stirring to a proper consistence.

The Expressed Oil of Nutmeg is now omitted.

Foreign Pharmacopœias.—Official in U.S., Yellow Wax 3, Olive Oil 1, Burgundy Pitch 16; Belg., Fr., Port., Span. and Swiss, Yellow Wax 1, Burgundy Pitch 3; Dan. (Emplastrum Picis), Pitch 8, Yellow Wax 8, Suet 1, Colophonium 8; Ital. (Empiastro Adesivo), Yellow Wax 3, Burgundy Pitch 7, Diachylon Plaster 40; Mex. (Emplasto Aglutinante), Pitch 74, Elemi 10, Sesame Oil 6, Yellow Wax 10; Swed., Resina Pini Flava 6, Pitch 4, Yellow Wax 2, Venetian Turpentine 1; not in the others.

PIX CARBONIS PRÆPARATA.

PREPARED COAL TAR.

[NEW.]

Prepared by placing commercial Coal Tar in a shallow vessel, and maintaining it at a temperature of 120° F. (48·9° C.) for one hour, stirring frequently.

Official Preparation.—Liquor Picis Carbonis.

Not Official.—Liquor Carbonis Detergens.

Foreign Pharmacopœias.—Official in Fr., Goudron de Houille; not in the others.

Preparation.

LIQUOR PICIS CARBONIS. Solution of Coal Tar. (New.)

Prepared Coal Tar (by weight), 4; Quillaia Bark, in No. 20 powder, 2; Alcohol (90 p.c.), a sufficient quantity. Moisten the powdered Quillaia Bark with 1 of the Alcohol, and complete the percolation process with the remainder of the Alcohol as for Tinctures, 20 being produced. To the resulting percolate add the Prepared Coal Tar, and digest the mixture at 120° F. (48·9° C.) for two days, occasionally stirring. Cool and decant, or filter.

Not Official.

LIQUOR CARBONIS DETERGENS.—An alcoholic solution of Coal Tar, as obtained from the gas-works. It is almost black, smells strongly of Naphthalene, and is of light specific gravity. Used externally in chronic scaly skin diseases diluted about 1 in 20 of Water.

Coal Tar in dermatological practice.—*B.M.J.E.* '94, ii. 88.

PIX LIQUIDA.

TAR.

A bituminous liquid, obtained from the wood of *Pinus sylvestris* and other species of Pinus, by destructive distillation. Known in commerce as Stockholm Tar.

It contains Guaiacol and Creosol. Coal tar yields Phenol and Cresol.

Solubility.—In less than its own bulk of Alcohol (90 p.c.) or Chloroform, and separates on the addition of Water; soluble 1 in 3 of Solution of Soda (4 p.c.); slightly soluble in Olive Oil or Oil of Turpentine.

Medicinal Properties.—Similar to Turpentine. May be used internally as a disinfectant expectorant in chronic bronchitis and winter cough, taken internally or inhaled from hot water. As an ex-

ternal application in cases of lepra, pruritus, and also for some chronic skin diseases, such as eczema and psoriasis.

Dose.—Not given in B.P.; 5 to 10 minims; but larger doses may be given.

Prescribing Notes.—May be given in **capsules**, or in **pills** with Liquorice powder.

Official Preparation.—Unguentum Picis Liquidæ.

Not Official.—Unguentum Picis Molle, Aqua Picis, Capsulæ Picis, Pigmentum Picis Liquidæ, Pilulæ Picis, Syrupus Picis Liquidæ, Black Pitch.

Foreign Pharmacopœias.—Official in all; Dan. Norw. and Swed., Pyroleum Pini; Fr., Goudron Végétal, obtained from *Pinus maritima*; Ital., Catrame vegetale; Mex., Alquitran; Port., Alcatrao; Span., Brea.

Description.—A dark-brown or blackish semi-liquid substance, of a peculiar aromatic odour.

Tests.—Sp. gr. varies from 1·02 to 1·15. Water agitated with it acquires a pale-brown colour, sharp empyreumatic taste, and acid reaction, and with dilute Test-solution of Ferric Chloride assumes a red colour. Tar is completely soluble in 10 times its volume of Alcohol (90 p.c.).

Preparation.

UNGUENTUM PICIS LIQUIDÆ. Tar Ointment.

Tar (by weight), 5; Yellow Beeswax, 2. Melt the Beeswax at a low temperature; add the Tar; stir the mixture until cold.

This ointment is too hard for use. A proper consistence is obtained by replacing half of the Yellow Beeswax with Almond Oil (*see* Ung. Picis Molle).

Applied in cases of psoriasis and in tinea capitis.

Foreign Pharmacopœias.—Official in Belg., Tar 1, Lard 4; Dan., Pitch 9, Lard 6, Potassium Carbonate 3, Water 2; Dutch (Ung. Picis), Pix Solida 3, Resin 3, Yellow Wax 2, Olive Oil 12; Fr. (Pommade de Goudron), and Port., Tar 1, Lard 9; Span., Tar 8, Lard 30; U.S., Tar 4, Yellow Wax 1, Lard 3; not in the others.

Not Official.

UNGUENTUM PICIS MOLLE.—Tar (by weight), 5; Yellow Beeswax, 1; Almond Oil, 1: melt together and stir till cold.

AQUA PICIS (Tar Water).—Stir a pint of Tar with half a gallon of Water for fifteen minutes, and decant.

Dose.—From 1 to 2 pints daily, or may be used as a wash for ulcers and wounds.

Foreign Pharmacopœias.—Official in Belg. (Aq. Picis Concentrata), Tar 50, Sodium Bicarbonate 3, Water 200; and Aqua Picis is made with Aq. Picis Conc. 3, Water 97; Dutch, Tar 1, Water 20; Fr. (Eau de Goudron), Tar 1, Pine Sawdust 3, Water 200; Ger., Tar 1, Pumice 3, Water 10; Dan. and Norw. (Aqua Pyrolei Pini), and Swed. (Infusum P. P.), 1 in 10; Mex. (Agua de Alquitran), Tar 5, Water 1000; Port. (Agua de Alcatrao), 1 in 40; Span. (Agua de Brea), 1 in 24; Swiss, Tar 1, Sawdust 1, Cold Water 10; Russ., Birch Tar 1, Water 30: not in Austr., Hung., Ital., Jap., or U.S.

CAPSULÆ PICIS.—Capsules containing 5 minims.

Dose.—1 or 2 capsules.

PIGMENTUM PICIS LIQUIDÆ (*B.S.H.*).—Tar 1; Alcohol (90 p.c.) 1.

Used as a stimulant in cases of psoriasis and of chronic dry eczema.

Its use in eczema demands caution.

PILULÆ PICIS.—Tar and Liquorice Powder, equal weights mixed, and made into five-grain pills.

Dose.—2 or 3 pills thrice daily.

They are sometimes made of Black Pitch, and have been taken to relieve hæmorrhoids.

SYRUPUS PICIS LIQUIDÆ (*U.S.*).—Mix Tar 15 intimately with about 20 of White Sand, pour on 30 of Water, and stir frequently for 12 hours; pour off the Water and throw it away. Pour boiling Distilled Water 80 upon the residue, stir well and frequently for 15 minutes, add Glycerin 20, and set the vessel aside for 24 hours, occasionally stirring; decant the clear solution and filter. Dissolve Sugar 160 in the filtrate with the aid of a gentle heat; allow the liquid to cool, then strain it, and pass enough Water through the strainer to make the product measure 200: mix thoroughly.

May be prescribed with Syrup of Wild Cherry Bark.—*B.M.J.* '88, i. 463, 569; *M.P.* '89, i. 213.

BLACK PITCH.—There are three kinds, Archangel, Swedish, and that obtained from Gas Tar; the latter is without odour. Pitch **pills** are sometimes recommended to increase the size and weight of the body.

Not Official.

PLUMBUM.

LEAD.

Pb, eq. 205·35.

Sp. gr. 11·3; fuses at about 617° F. (325° C.). Lead occurs in nature as an Oxide, and as a Sulphide called *Galena;* also in saline combination, forming the native Lead Sulphate, Phosphate, Carbonate, Chromate, Molybdate, Tungstate, and Arsenate. The native Oxide is rare, but Galena, the ore from which nearly all the Lead of commerce is extracted, is exceedingly abundant.

Lead salts are distinguished when in solution from those of any other metal, by giving white precipitates with soluble Chlorides and Sulphates, insoluble in any dilute acid; yellow precipitates with Chromates and Iodides; a black precipitate with Sulphuretted Hydrogen from an acid solution. All of these precipiates (except the Sulphides) are soluble in excess of hot caustic alkali.

The Official Tests for the presence of Lead will be found in the Appendix.

Incompatibles.
Antidotes. } Are given after Plumbi Subacetatis Liquor.

PLUMBI ACETAS.

LEAD ACETATE.

$Pb(C_2H_3O_2)_2$, $3H_2O$, eq. 376·15.

A salt obtained by dissolving Lead Oxide or Lead Carbonate in Acetic Acid.

Solubility.—1 in 2 of Water; 6 in 1 of boiling Water; 1 in 20 of Alcohol (90 p.c.); 1 in 2 of Glycerin.

Medicinal Properties.—In small doses it is sedative and astringent, lessening morbid mucous discharges and hæmorrhages in the gastro-intestinal and genito-urinary tracts, and even diminishing natural secretions; whence it is useful in diarrhœa, dysentery,

cholera, and in tubercular and typhoid ulceration. Used in phthisis to check excessive expectoration, and to allay hæmorrhage; in bronchitis to abate profuse secretion. Its prolonged use requires caution, otherwise chronic lead poisoning may be induced. It is often accompanied or followed by a small dose of Acetic Acid, as excess of acid makes it less injurious to the system. Externally, it is sedative, desiccant, and astringent, diminishing profuse discharges of ulcers; used for injection in gonorrhœa and other chronic inflammatory discharges; in ophthalmia and in sprains and bruises and cutaneous inflammations.

In large doses somewhat lessens the secretion of bile, probably by direct action on the liver.—Dr. Rutherford.

Dose.—1 to 5 grains.

Prescribing Notes.—May be given in **pills** with Compound Tragacanth Powder and Dispensing Syrup, q.s., also in **solution,** with excess of Acetic Acid.

Incompatibles.—Sulphuric and Tannic acids, and their salts; Chlorides and Iodides.

Official Preparation.—Unguentum Plumbi Acetatis. Used in the preparation of Glycerinum Plumbi Subacetatis, Liquor Plumbi Subacetatis Fortis. Contained in Pilula Plumbi cum Opio and Suppositoria Plumbi Composita.

Not Official.—Lotio Plumbi Acetatis.

Antidotes.—Same as under Plumbi Subacetatis Liquor.

Foreign Pharmacopœias.—Official in all; Austr., Ger., and Swiss., Plumbum Aceticum; Hung. and Russ., Plumbum Aceticum Depuratum; Dan., Dutch, Norw., and Swed., Acetas Plumbicus; Belg., Acetas Plumbi; Fr., Acétate Neutre de Plomb; Ital., Acetate Neutro di Piombo; Mex., Acetato de Plomo; Port., Acetato de Chumbo; Span., Acetato Plumbico.

Description.—In small white monoclinic prisms, slightly efflorescent, having an acetous odour and a sweet astringent taste. It is soluble in less than 3 parts of cold Water, and in 30 parts of Alcohol (90 p.c.).

Tests.—Its solution in Water slightly reddens Litmus, and is clear, or has only a slight milkiness, which disappears on the addition of Acetic Acid. It affords the reactions characteristic of Lead and of Acetates. It should yield no characteristic reaction with the tests for Silver, Copper, Arsenium, Iron, Zinc, Calcium, Sodium, Potassium, Ammonium, Chlorides, or Nitrates. Each gramme dissolved in Water should require for complete precipitation 53·1 c.c. of the Decinormal Volumetric Solution of Sulphuric Acid.

Dott has shown (*P.J.* (3) xxi. 475) that in a solution containing practically $\frac{1}{3}$ p.c. of Lead Acetate, and Acid equivalent to 6 p.c. of Hydrochloric Acid (not $\frac{1}{3}$ p.c. as reported in *P.J.*), Sulphuretted Hydrogen Gas will produce no precipitate.

Preparations.

PILULA PLUMBI CUM OPIO. Pill of Lead with Opium. (Modified.)

Lead Acetate, in fine powder, 36 grains; Opium, in powder, 6 grains; Syrup of Glucose, 4 grains, or a sufficient quantity. Mix to form a mass.

Now made with Syrup of Glucose in place of Confection of Roses.

Dose.—2 to 4 grains.

This pill contains about 12½ p.c. of Opium.

A four-grain pill contains about 3 grains of Plumbi Acetas and ½ grain Pulvis Opii.

Foreign Pharmacopœias.—Official in Port., Lead Acetate, 5; Extract of Opium, 1; Extract of Liquorice, 14; not in the others.

SUPPOSITORIA PLUMBI COMPOSITA. Compound Lead Suppositories.

Lead Acetate in powder, 36 grains; Opium in powder, 12 grains; Oil of Theobroma, a sufficient quantity for 12 suppositories. Proceed as directed for Tannic Acid Suppositories.

Each of these Suppositories contains 3 grains (or ·2 gramme) of Lead Acetate, and 1 grain (·067 gramme) of Opium.

UNGUENTUM PLUMBI ACETATIS. Lead Acetate Ointment. (Altered.)

Lead Acetate, in fine powder, 20 grains; Paraffin Ointment, white, 480 grains. Mix. =(1 in 25).

Now 1 in 25 instead of 1 in 37½, and made with White Paraffin Ointment in place of Benzoated Lard.

Foreign Pharmacopœias.—Official in Austr. and Hung., Lead Acetate 3, Lard 150, White Wax 50, Water 10; Dan. and Ital., Lead Acetate 1, Benzoated Lard 9; Norw., Lead Acetate 1, Olive Oil 14, Yellow Wax 5; not in the others.

Not Official.

LOTIO PLUMBI ACETATIS (*L.O.H.*).—Lead Acetate, 2 grains. Diluted Acetic Acid, 2 minims, Water to 1 fl. oz.

PLUMBI CARBONAS.

LEAD CARBONATE.

$2PbCO_3$, $Pb(OH)_2$, eq. 768·91.

Lead Carbonate or Hydroxy-carbonate may be prepared by the interaction of Lead, Water, and Carbonic Anhydride in the presence of vapours of Acetic Acid.

Solubility.—Insoluble in water; soluble, with effervescence, in Diluted Nitric Acid and Acetic Acid.

Medicinal Properties.—Employed externally as an astringent and sedative, or as an ointment for ulcers and inflamed and excoriated surfaces.

Official Preparation.—Unguentum Plumbi Carbonatis.

Foreign Pharmacopœias.—Official in Austr., Hung., Jap., and Russ., Plumbum Carbonicum; Belg., Ger., and Swiss, Cerussa; Dan., Norw., and Swed., Hydratocarbonas Plumbicus; Dutch, Carbonas Plumbicus; Fr., Carbonate de Plomb; Mex., Carbonato de Plomo; Port., Alvaiade; Span., Albayalde Cerusa; U.S., Plumbi Carbonas; not in Ital.

Description.—A soft, heavy, white powder.

Tests.—Entirely soluble in diluted Acetic Acid. It affords the reactions characteristic of Lead and of Carbonates. It should yield no characteristic reaction with the tests for Zinc, Calcium, or Magnesium.

Preparation.

UNGUENTUM PLUMBI CARBONATIS. LEAD CARBONATE OINTMENT. (ALTERED.)

Lead Carbonate, in fine powder, ¼; Paraffin Ointment, white, 2¼. Mix. =(1 in 10).

Now 1 in 10 instead of 1 in 8, and White Paraffin Ointment used in place of Simple Ointment.

Foreign Pharmacopœias.—Official in Austr., Hung., Norw., Russ. and Swed., 1 in 3; Belg., 1 in 6¼; Dan., 3½ in 10; Dutch, Mex. (Unguento Blanco simple) and Port., 1 in 5; Ger., 3 in 10; Span. 10 in 28; U.S., 1 in 10; Fr., Pommade de Carbonate de Plomb, 1 in 6; not in Ital., Jap. or Swiss.

PLUMBI IODIDUM.

LEAD IODIDE.

PbI_2, eq. 457·15.

Precipitated Lead Iodide, is obtained by the interaction of Lead Nitrate or Acetate and Potassium Iodide.

Solubility.—Sparingly soluble in cold Water; more soluble in boiling Water; soluble also in solutions of Acetates, and of Ammonium Chloride.

Medicinal Properties.—Used externally as a resolvent to chronic swellings and indolent joint enlargements; also in the form of **pessaries.**

In 'dispersible' tumours of the mamma.—*B.M.J.* '94, ii. 972.

Official Preparations.—Emplastrum Plumbi Iodidi, and Unguentum Plumbi Iodidi.

Not Official.—Pessus Plumbi Iodidi et Atropinæ, and Pessus Plumbi Iodidi et Opii.

Foreign Pharmacopœias.—Official in U.S.; Belg., Ioduretum Plumbi; Fr., Iodure de Plomb; Mex., Yoduro de Plomo; Port., Iodato de Chumbo; Russ. and Swiss, Plumbum Iodatum; Span., Ioduro Plumbico; Swed., Iodetum Plumbicum; not in the others.

Description.—A heavy, bright-yellow powder, soluble in about 2000 parts of cold and in about 200 parts of boiling Water, and deposited in golden-yellow crystalline scales as the latter solution cools, entirely soluble in Solution of Ammonium Chloride.

Tests.—It affords the reactions characteristic of Lead and of Iodides. It should yield no characteristic reaction with the tests for Nitrates or Acetates.

Preparations.

EMPLASTRUM PLUMBI IODIDI. LEAD IODIDE PLASTER.

Lead Iodide, 2; Lead Plaster, 16; Resin, 2. Finely powder the Iodide of Lead; mix it with the Lead Plaster and Resin previously melted together at as low a temperature as possible. =(1 in 10).

UNGUENTUM PLUMBI IODIDI. LEAD IODIDE OINTMENT. (ALTERED.)

Lead Iodide, in fine powder, ¼; Paraffin Ointment, yellow, 2¼. Mix. =(1 in 10).

Now 1 in 10 instead of 1 in 8, and Yellow Paraffin Ointment used in place of Simple Ointment.

Foreign Pharmacopœias.—Official in Fr., Port., Swiss and U.S., 1 and 9; Mex., Pomada, 1 and 9; Span., 4 and 30; not in the others.

An ointment of **Cadmium Iodide** of the same strength has been recommended as a substitute; it is said not to stain the skin.

Not Official.

PESSUS PLUMBI IODIDI ET ATROPINÆ.—Lead Iodide, 10 grains; Atropine Sulphate, $\frac{1}{8}$ grain; (Gelatin) Basis, 60 grains.

PESSUS PLUMBI IODIDI ET OPII.—Lead Iodide, 5 grains; Opium in powder, 2 grains; Oil of Theobroma, 12 grains.

PLUMBI OXIDUM.

LEAD OXIDE.

B.P.Syn.—LITHARGE.

PbO, eq. 221·23.

Lead Oxide is prepared by the action of air on melted Lead.

Official Preparation.—Emplastrum Plumbi. Used in the preparation of Liquor Plumbi Subacetatis Fortis, Plumbi Acetas, and Glycerinum Plumbi Subacetatis. **Lead Plaster** is contained in Emplastrum Hydrargyri, Emplastrum Plumbi Iodidi, Emplastrum Resinæ, and Emplastrum Saponis.

Not Official.—Ung. Diachylon Hebræ, Dr. Pearson's Cerate, and Plumbi Oleas.

Foreign Pharmacopœias.—Official in Austr., Hung., Russ., and Swiss, Plumbum Oxydatum; Belg. and Ger., Lythargyrum; Dan., Norw., and Swed., Oxydum Plumbicum; Dutch, Oxydum Plumbicum Semivitreum; Fr., Oxyde (Proto) de Plomb Fondu; Ital., Protossido di Piombo; Jap., Mex., Oxido de Plomo; Port., Oxydo de Chumbo; Span., Litargirio; U.S., Plumbi Oxidum.

Description.—Heavy scales of a pale yellowish-red colour.

Tests.—Completely soluble in Diluted Nitric Acid and in Acetic Acid. It gives the reactions of Lead, but should yield no characteristic reaction with the tests for Copper, Iron, or Carbonates.

Preparation.

EMPLASTRUM PLUMBI. LEAD PLASTER. *N.O.Syn.*—DIACHYLON PLASTER.

Lead Oxide, in fine powder, 1; Olive Oil (by weight), 2; Distilled Water, 1, or a sufficient quantity. Boil all the ingredients together gently by the aid of a steam-bath; keep them simmering for 4 or 5 hours, stirring constantly until the product acquires a proper consistence for a plaster; add more of the Distilled Water during the process if necessary.

It is practically a Lead Oleate with mechanically included Glycerin.

Equal weights of Lead Plaster and Soap Plaster melted together, form an excellent plaster for corns.

Foreign Pharmacopœias.—Official in Austr. and Hung. (Empl. Diachylon Simplex), Litharge 1, Lard 2; Belg., Litharge 2, Olive Oil 2, Water 1, Lard 2; Dan., Litharge 5, Olive Oil 10, Water 1; Dutch, Ger., Port. and Russ., Litharge 1, Lard 1, Olive Oil 1, Water *q.s.*; Fr., Litharge 1, Lard 1, Olive Oil 1, Water 2; Ital., Norw., Span. and Swed., Litharge 1, Olive Oil 2, Water *q.s.*; Jap., Litharge

I., Olive Oil 1, Lard 1; Mex. (Emplasto Simple), Litharge 2, Lard 4, Water 3; Swiss and U.S. (Empl. Plumbi), Litharge 16, Olive Oil 30, Water *q.s.*

Not Official.

UNG. DIACHYLON. HEBRÆ (modified by Professor Kaposi).—Simple Lead Plaster, 1; Soft Paraffin, 1: melt with heat.

DR. PEARSON'S CERATE.—Lead Plaster 4, Yellow Beeswax 1, Oil of Almonds 3; melt and mix.

PLUMBI OLEAS.—Lead Acetate, 280 grains; dissolve in Distilled Water, 40 fl. oz.; add slowly Solution of Sodium Oleate (1 Castile Soap in 20, p. 650), 20 fl.oz.; warm gently, wash by decantation, collect and dry.

Melted with equal parts of Lard or Lard oil to form an **ointment.**

PLUMBI SUBACETATIS LIQUOR FORTIS.

STRONG SOLUTION OF LEAD SUBACETATE.

B.P.Syn.—Goulard's Extract.

Subacetate of Lead, $Pb_2O(C_2H_3O_2)_2$, eq. 543·74; dissolved in water.

Medicinal Properties.—When largely diluted, it is used externally as an astringent and sedative for inflammation arising from sprains, bruises, &c. As an astringent **gargle** (½ fl. drm. to 6 fl. oz. Rose Water).

Incompatibles.—Hard Water, Mineral acids, vegetable acids, Alkalis, Potassium Iodide, all astringents, preparations of Opium, Mucilage of Acacia.

Official Preparations.—Glycerinum Plumbi Subacetatis, Liquor Plumbi Subacetatis Dilutus, and Unguentum Glycerini Plumbi Subacetatis.

Not Official.—Cremor Lithargyri, Unguentum Plumbi Tannici, and Glycerinum Tannatis Plumbi.

Antidotes.—Sodium Sulphate, Epsom Salts, succeeded by emetics, and afterwards by Opium and liberal libations of Milk, or white of Egg mixed with Water.

A course of Potassium Iodide is useful in eliminating Lead from the system.

L. '81, ii. 779, gives an unusual source of Lead poisoning, from shot found in a bottle full of Port wine; an appreciable quantity of Lead was found in solution.

Foreign Pharmacopœias.—Official in all; U.S., sp. gr. 1·195; Plumbum Aceticum Basicum Solutum, Austr. and Hung., sp. gr. 1·230—1·240, Russ., sp. gr. 1·235—1·240; Belg., Subacetas Plumbi Liquidus, sp. gr. 1·240; Solution Subacetatis Plumbici, Norw. and Swed., sp. gr. 1·170—1·175; Dan., sp. gr. 1·165—1·170; Dutch, Solutio Acetatis Plumbici Basici, sp. gr. 1·235—1·240; Fr., Sous-Acétate de Plomb Liquide, sp. gr. 1·320; Ger., Liquor Plumbi Subacetici, sp. gr. 1·235—1·240; Ital., Acetato Basico di Piombo, sp. gr. 1·260; Jap., sp. gr. 1·23—1·24; Mex., Acetato de Plomo Liquido, sp. gr. not given; Norw., sp. gr. 1·165—1·170; Port., Soluto de Subacetato de Chumbo, sp. gr. 1·260; Span., Acetato (sub) Plumbico Liquido, sp. gr. not given; Swiss, Plumbum Subaceticum Solutum, sp. gr. 1·236—1·240.

O.M.P.—Lead Acetate, 5; Lead Oxide, in powder, 3½; Distilled Water, a sufficient quantity. Boil the Lead Acetate and the Lead Oxide in 20 of Distilled Water for half an hour, constantly stirring, and maintaining the volume of the liquid by occasional addi-

tions of Distilled Water; filter; when the liquid is cold add sufficient Distilled Water to produce 20 of the Strong Solution.

Digestion in the cold for a week answers equally well, if not better, than the half-hour's boiling.

Description.—A clear, colourless liquid, with alkaline reaction and sweet astringent taste. It becomes turbid by exposure to the air.

Tests.—Sp. gr. 1·275. It forms with Mucilage of Gum Acacia an opaque white jelly. It affords the reactions characteristic of Lead and of Acetates. Each gramme should require for complete precipitation 17 c.c. of the Decinormal Volumetric Solution of Sulphuric Acid.

Preparations.

GLYCERINUM PLUMBI SUBACETATIS. Glycerin of Lead Subacetate.

Lead Acetate, 5; Lead Oxide, in powder, 3½; Glycerin, 20; Distilled Water, 12: mix; boil for a quarter of an hour; filter; evaporate at a temperature not exceeding 222° F. (105·5° C.) until the product weighs 32¾, and has a sp. gr. of 1·48.

Foreign Pharmacopœias.—Official in Port., Solution, 1, Glycerin 9; not in the others.

LIQUOR PLUMBI SUBACETATIS DILUTUS. Diluted Solution of Lead Subacetate. *B.P.Syn.*—Goulard's Lotion; Goulard Water. (Modified.)

Strong Solution of Lead Subacetate, 2 fl. drm.; Alcohol (90 p.c.), 2 fl. drm.; Distilled Water, a sufficient quantity. Mix the Alcohol with 19½ fl. oz. of recently boiled and cooled Distilled Water; add the Strong Solution of Lead Subacetate and shake. =(1 in 80).

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

Foreign Pharmacopœias.—Official in Austr. and Hung. (Aqua Goulardi), Solution 2, Alcohol (70°) 5, Water 100, also (Aqua Plumbica), Solution 1, Water 50; Belg. (Aqua Vegeto-Mineralis Goulardi), Solution 2, Alcohol (92°) 3·5, Water 100; Swed. (Solutio Subacetatis Plumbici Diluta); Dan. (Aqua Saturnini), Solution 2, Alcohol (60°) 8, Water 90; Dutch (Aqua Plumbi), Solution 1, Water 20; Fr. (Lotion dite de Goulard), Solution 2, Alcohol (60°) 8, Water 90; also (Lotion à l'Acetate de Plomb), Solution 1, Water 50; Ger. (Aqua Plumbi), Solution 1, Water 49; Ital. (Acqua con Acetato Basico di Piombo), Solution 1, Water 50; Jap., Solution 2, Water 98; Mex. (Agua de Vegeto), Solution 3, Eau de Cologne 5, Water 92; Norw. (Aqua Saturnina) Solution 2, Dilute Spirit 8, Water 90; Port. (Aqua Saturnina Alcoolisada), Solution 2, Alcohol (85°) 8, Water 90; also (Aqua Saturnina), Solution 1, Water 50; Russ. (Aqua Plumbi Spirituosa), Solution 2, Alcohol (70°) 8, Water 90; also (Aqua Plumbi), Solution 1, Water 49; Span. (Agua Vegeto-Mineral), Solution 4, Alcohol (90°) 7, Water 345; Swiss (Aqua Plumbi), Solution 1, Water 49; U.S., Solution 3, Water 100.

UNGUENTUM GLYCERINI PLUMBI SUBACETATIS. Lead Subacetate Ointment. (Modified.)

Glycerin of Lead Subacetate (by weight), 1; Paraffin Ointment, white, 5. Mix. =(1 in 6).

Now made with White Paraffin Ointment in place of Hard and Soft Paraffin.

Foreign Pharmacopœias.—Official in Belg. (Unguent. Subacetatis Plumbi), 1 in 3; Dutch (Ung. Plumbici Basici), 1 in 2; Fr. (Cérat Saturné), 1 in 10; Ger. and Swiss (Unguentum Plumbi), 1 in 10; Russ. (Ung. Plumbi Acetici), 1 in 12; Swed. (Ung. Subacetatis Plumbici), 3 in 20; U.S. (Ceratum Plumbi Subacetatis), 1 in 5; not in the others.

Not Official.

CREMOR LITHARGYRI.—Solution of Lead Subacetate, 1; Cream, 7: mix. Useful as an application in eczema.

UNGUENTUM PLUMBI TANNICI.

Ger., Tannic Acid 1, Liquor Plumbi 2, Lard 17.

Hung. and Swiss, Tannic Acid 1, Liquor Plumbi 2, Vaseline 17.

Russ., Tannic Acid 1, Glycerin 2, Liquor Plumbi 6, Ung. Cerei 24.

Swed., freshly precipitated Lead Tannate 2, Glycerin 1.

GLYCERINUM TANNATIS PLUMBI.

Belg., freshly precipitated Lead Tannate 3, Glycerin of Starch 2.

This preparation has been recommended for bed-sores and sore nipples.

PODOPHYLLI RHIZOMA.

PODOPHYLLUM RHIZOME.

B.P. Syn.—Podophyllum Root.

The dried rhizome and roots of *Podophyllum peltatum*.

Imported from North America.

Medicinal Properties.—The **resin** is an active cholagogue and in large doses purgative. In doses of $\frac{1}{8}$ to $\frac{1}{4}$ grain it is a common ingredient of pills for habitual constipation associated with torpid liver. Combined generally with Henbane or Belladonna to prevent griping.

It is best given, not in purgative, but in cholagogue dose, combined with purgatives such as Mercury and Colocynth.

Official Preparations.—Podophylli Resina and Tinctura Podophylli.

Not Official.—Tinctura Podophylli Ammoniata.

Foreign Pharmacopœias.—Official in Belg., Dutch, Fr., Ital., Port., Span. and U.S.; not in the others.

Description.—Dark reddish-brown, smooth or only slightly wrinkled, nearly cylindrical pieces, several inches in length, and from about one-fifth to one-third of an inch (five to eight millimetres) in thickness. The rhizome is enlarged at intervals of about two inches (five centimetres) and the upper surface of each enlargement is marked by a depressed circular scar, below which, on the under surface, are rather stout brittle brown roots, or the scars corresponding to them. It breaks with a short fracture, and internally is either nearly white and starch-like, or pale yellowish-brown and horny. The odour is characteristic, the taste slightly bitter and acrid.

It has been suggested that the root of *Podophyllum Kmodi*, growing in Northern India, might also be admitted to the B.P. The earlier examination showed it to be about $2\frac{1}{2}$ times as rich in resin as the ordinary variety, the resin being medicinally active in $\frac{1}{2}$ grain doses.—*P.J.* (3) xix. 585.

A second examination showed the resin to be efficacious in $\frac{1}{4}$ grain doses, but questioned its agreement in solubility with B.P.—*P.J.* (3) xxi. 445.

A detailed analysis has since been made showing the percentage of resin to be nearly double that from *P. peltatum*, but that the proportion of active constituent in the resin was little more than half. Its action was also stated to be very uncertain. —*P.J.* (3) xxiii. 207.

In a comparison of Indian and American Podophyllin it has been more recently shown that the resin obtained from *P. Emodi* is as valuable a purgative as that obtained from *P. peltatum*, but as it gelatinises with Solution of Ammonia it will not conform to the B.P. requirements.—*J.C.S. Trans.* '98, 209; *P.J.* '98, i. 213.

6 grains Resin with 1 fl. drm. of diluted Alcohol and 8 or 10 drops of Liquor Potassæ should not gelatinise on shaking. Indian Resin assumes a semi-solid gelatinous mass, and on this account is unsuitable in the place of *P. peltatum*.—*P.J.* '98, i. 304.

Preparations.

PODOPHYLLI RESINA. Podophyllum Resin. *N.O.Syn.*—Podophyllin.

Podophyllum Rhizome, in No. 40 Powder, 16; Alcohol (90 p.c.), 60, or a sufficient quantity; Distilled Water and Hydrochloric Acid, of each a sufficient quantity. Exhaust the Podophyllum with the Alcohol by percolation; place the resulting tincture in a still; recover the greater part of the Alcohol; acidulate the Distilled Water with one twenty-fourth of its bulk of Hydrochloric Acid, and slowly pour the liquid which remains after the distillation of the tincture into three times its volume of the acidulated Water, constantly stirring; allow the mixture to stand for twenty-four hours to deposit the Resin; wash the Resin on a filter with Distilled Water, and dry it at a temperature not exceeding 100° F. (37·7° C.).

B.P. '67 precipitated in Water containing Hydrochloric Acid 1 in 24; U.S. employs 1 in 100; B.P. '85 omitted the acid altogether, but it is generally admitted that a slight acidification is an advantage, particularly to facilitate the 'settling' and filtration in the collection of the Resin.

Dose.—¼ to 1 grain.

A very powerful stimulant of the liver, and also of the intestine.—Dr. Rutherford.

Foreign Pharmacopœias.—Official in Belg., Dan., Ger., Hung., Russ., and Swiss, Podophyllinum; Dutch, Jap., Norw., Port., and U.S., Resina Podophylli; U.S. has also an Extract and Fluid Extract; Fr., Resine de Podophyllum Peltatum; Ital., Podofillina; Mex. and Span., Podofilina; not in Austr. or Swed.

Description.—An amorphous powder of a bitter taste, varying in colour from pale yellow to deep orange-brown; soluble or nearly so in Alcohol (90 p.c.) and in Solution of Ammonia; precipitated from the former solution by Water, from the latter by acids. Partly soluble in Ether.

Test.—It should not yield more than 1 p.c. of ash upon incineration.

The variations in colour appear to depend upon the heat applied during its preparation; by distilling quickly and drying at a low temperature the lightest tints are obtained. It is difficult to find a commercial sample *perfectly* soluble in cold Alcohol (90 p.c.), and many will not give clear solutions even with addition of Ammonia. The insoluble matter, however, should not exceed 10 p.c.

More than half the weight of Podophyllum Resin should dissolve in cold Chloroform, the residue being generally reckoned as medicinally inert. If the Chloroformic solution be evaporated to small bulk and poured into an excess of Ether another

inert body (Podophyllic Acid) is precipitated. If the Ether-chloroform solution be now added to a large excess of Petroleum Ether there is precipitated a compound called **Podophyllotoxin,** supposed to contain the whole medicinal elements of the resin. For a still further fractionation of Podophyllotoxin, *see P.J.* (3) xii. 217, and *Y.B.P.* '82, 158, and for its laxative action, *L.* '94, ii. 212.

Badly adulterated specimens are frequently detected by a high percentage of ash; it may be as low as ½ p.c. and should not exceed 2 p.c.

TINCTURA PODOPHYLLI. TINCTURE OF PODOPHYLLUM. (ALTERED.).

Podophyllum Resin, 320 grains; Alcohol (90 p.c.), a sufficient quantity. Add the Podophyllum Resin to 18 fl. oz. of the Alcohol, and set aside for twenty-four hours, occasionally agitating; filter; pass sufficient of the Alcohol through the filter to produce 20 fl. oz. of the Tincture.

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

Dose.—5 to 15 minims.

1 fl. drm. equals 2 grains of Podophyllum Resin.

This Tincture contains twice the proportion of Podophyllum Resin ordered for the corresponding preparation in the British Pharmacopœia of 1885.

(Not in the other Pharmacopœias.)

Not Official.

TINCTURA PODOPHYLLI AMMONIATA. — Podophyllum Resin, 24 grains; Alcohol (90 p.c.), 2 fl. oz.; Solution of Ammonia, 1 fl. oz.: dissolve.

The Resin does not separate on the addition of Water.

Dose.—10 to 30 minims. 1 fl. drm. contains 1 grain of the Resin.

Not Official.

POTASSIUM.

POTASSIUM.

K, eq. 38·83.

Potassium was discovered by Sir Humphrey Davy in 1807. It is a soft metal (sp. gr. ·865), cutting like wax, of a silver-white colour, but tarnishes the instant it is cut, and assumes a leaden colour. It has so great an affinity for Oxygen, that when thrown upon Water it combines with it, evolving heat enough to set the liberated Hydrogen on fire, and a solution of Potassium Hydroxide is the result.

Potassium salts are characterised by the violet colour imparted to a bunsen flame (red through blue glass); in aqueous solution by the formation of crystalline Potassium Hydrogen Tartrate on the addition of Tartaric Acid, Sodium Acetate being also added when the Potassium is combined with a mineral Acid; and by giving a yellow crystalline precipitate with Platinic Chloride, if the Potassium be present as Chloride, if not Hydrochloric Acid must be added.

The best general reagent for Potassium salts is probably a saturated aqueous solution of Picric Acid. With a 1 p.c. solution of Potassium Nitrate a crystalline precipitate is obtained with a few seconds' shaking. With the use of Tartaric Acid no reaction is obtainable in 4 hours.

The Official Tests for the presence of Potassium will be found in the Appendix.

The prolonged use of Potassium salts is apt to lead to a depressant effect on muscular tissue, including that of the heart; in people with weakness of that organ this should be borne in mind.

POTASSA CAUSTICA.

POTASSIUM HYDROXIDE.

B.P.Syn.—Caustic Potash; Potassium Hydrate. Hydrate of Potassium, *B.P.* '85.

Potassium Hydroxide, **KOH**, eq. 55·71, with not more than 10 p.c. of combined water and impurities, prepared by the interaction of Potassium Carbonate with Calcium Hydroxide.

Commercial samples examined (*P.J.* (3) xxii. 393) showed only 60 to 90 p.c. of Hydroxide. We find the general range to be between 78 and 85 p.c.

Solubility.—2 in 1 of Water; 1 in 3½ of Alcohol (90 p.c.); 1 in 3 of Glycerin; 1 in 4 of Alcohol (60 p.c.) (if stronger than this the Alcohol separates).

Medicinal Properties.—A powerful escharotic. Has been much used for the destruction of tumours and the surface of malignant ulcers; to stimulate unhealthy and foul ulcers; and to form issues.

Official Preparation.—Liquor Potassæ; used in the preparation of Potassii Permanganas.

Not Official.—Brandish's Alkaline Solution, and Potassa cum Calce (Vienna Paste).

Foreign Pharmacopœias.—Official in Austr. and Hung., Kalium Hydroxydatum; Belg., Potassa Caustica Fusa; Dan., Norw., and Swed., Hydras Kalicus; Fr., Potasse Caustique à la Chaux, also à l'Alcool; Ger. and Russ., Kali Causticum Fusum; Ital., Potassa Caustica; Jap., Kali Causticum; Mex., Oxido de Potasio; Port., Hydrato de Potassa; Span., Hidrato Potasico, also Potassa Caustica por la Cal; Swiss, Kalium Hydricum; U.S., Potassa; not in Dutch.

Description.—In hard white pencils or cakes, very deliquescent, powerfully alkaline and corrosive.

Commercial Potash as a rule contains 1 or 2 p.c. of Chloride derived from the Carbonate used in its preparation. When required *pure* it is dissolved in Absolute Alcohol, and the solution evaporated as far as practicable without access of air to avoid absorption of Carbonic Acid. No commercial samples, however, are quite free from Carbonate.

Tests.—It affords the reactions characteristic of Potassium. Each gramme dissolved in Water or in Alcohol (90 p.c.) should leave only a trace of sediment, and should require for neutralisation at least 16·1 c.c. of the Volumetric Solution of Sulphuric Acid. It should yield no characteristic reaction with the tests for Lead, Copper, or Arsenium.

The test indicates nearly 90 p.c. KOH, which few commercial samples approach, although such a standard is easy of attainment.—*P.J.* (3) xxiii. 619. *See* above.

Preparation.

LIQUOR POTASSÆ. Solution of Potash.

An aqueous solution containing in 110 minims 6·2 grains, or in 1 fl. oz. 27 grains, of Potassium Hydroxide, KOH.

Medicinal Properties.—Antacid and antilithic. Occasionally employed as an antacid in dyspepsia, accompanied by acidity and

gastralgia. It is apt to irritate the stomach, and so, to obtain all the best internal effects of Potash, the Bicarbonate and Citrate are much to be preferred. Externally as an escharotic against the bite of rabid or venomous animals; diluted, it relieves itching.

Dose.—10 to 30 minims, freely diluted.

Solution of Potash should be preserved in a green glass bottle furnished with an air-tight stopper.

It acts powerfully on all organic matter, converting flannel into a kind of soft jelly after immersion for five or six hours.

Incompatibles.—Acids, acid salts, metallic salts, the preparations of Ammonium, Belladonna, Henbane, and Stramonium.

Antidotes.—Diluted Acetic Acid, Citric Acid, Lemon Juice, or any vegetable acids, fixed oils and demulcents; stimulants; Morphine for pain; neither stomach-tube nor emetics are to be used.

Foreign Pharmacopœias.—Official in U.S., sp. gr. 1·036 (5 p.c.); Belg., Potassa Caustica Soluta, sp. gr. 1·330—1·340; Ger., Liquor Kali Caustici, Russ., Kali Causticum Solutum, sp. gr. 1·126—1·130 (15 p.c.); Span., Solucion de Potassa Caustica, sp. gr. 1·334; Swiss, Kalium Hydricum Solutum, sp. gr. 1·33; not in the others.

Description.—A colourless, odourless, and transparent liquid having a nauseous taste. It is strongly alkaline.

Tests.—Sp. gr. 1·058. It should not yield any characteristic reaction with the tests for Lead, Copper, Arsenium, Iron, Aluminium, Calcium, Magnesium, Sodium, or Ammonium, and should be free from more than traces of Carbonates, Chlorides, or Sulphates. 9 c.c. should require for neutralisation 10 c.c. of the Volumetric Solution of Sulphuric Acid, corresponding to ·557 gramme of Potassium Hydroxide, KOH, or to 6·19 grammes in 100 c.c., or to 5·85 grammes in 100 grammes.

When freshly made, Solution of Potash usually contains a little Lime in solution, but as it absorbs Carbonic Acid the Lime will be thrown out.

Not Official.

BRANDISH'S ALKALINE SOLUTION.—American Pearl-ash, 6 lbs.; freshly prepared Quicklime, 2 lbs.; Wood-ashes, 2 lbs.; Boiling Water, 6 gallons; or 6, 2, 2, and 60 parts: add first the Lime, then the Pearl-ash, and lastly the Wood-ashes to the Boiling Water, stir well together, let it stand twenty-four hours, and decant the clear liquor.

Dose.—½ to 2 fl. drm. in Milk. Given for scrofulous conditions.

POTASSA CUM CALCE (Vienna Paste).—Potassium Hydroxide and Calcium Hydroxide, equal weights: powder and mix; it is made into a paste with Alcohol (90 p.c.) or Glycerin.

Foreign Pharmacopœias.—Official in U.S.; Ital., Potassium Hydroxide 5, Lime 6; Mex. (Pasta de Viena) Potassium Hydroxide 1, Lime 1; Russ. (Pasta Caustica) Potassa 3, Lime 1.

The paste is spread on the part to be cauterised, and is allowed to remain for ten or fifteen minutes, while the surrounding skin is protected by adhesive plaster. It is also used in the treatment of lupus.

Potassa cum Calce **in cylinders**, consisting of two parts of Potassa and 1 of Lime was introduced by Dr. Henry Bennet, and is a suitable form for the use of obstetricians.

POTASSA SULPHURATA.

SULPHURATED POTASH.

B.P.Syn.—Liver of Sulphur.

A mixture of salts of Potassium, of which the chief are Potassium Sulphides.

Solubility.—1 in 2 of Water.

Medicinal Properties.—Similar to those of Sulphur, but more energetic. Externally it is a good remedy for scabies and other parasitic cutaneous diseases; used also for chronic eruptions, especially psoriasis and acne. Internally it is occasionally used for chronic rheumatism, bronchitis, and chronic skin diseases.

A hot bath of Sulphurated Potash relieves the itching of jaundice.—*L.* '85, ii. 1220.

Dose.—Not given in B.P.; 2 to 6 grains.

Not Official.—Balneum Sulphuretum.

Foreign Pharmacopœias.—Official in all; U.S.; Austr., Ger., Jap., Russ. and Swiss, Kalium Sulfuratum; Austr. and Hung. have Kalium Sulfuratum pro Balneo; Belg., Sulphuretum Potassii Officiale; Dan., Norw., and Swed., Hepar Sulphuris; Dutch, Trisulphuretum Kalicum; Fr., Sulfure de Potassium Solide; Ital., Solfuro di Potassio; Mex., Sulfuro de Potasio; Port., Potassa Sulfurada; Span., Sulfuro (tri) Potasico.

O.M.P.—Potassium Carbonate, in powder, 2; Sublimed Sulphur, 1. Mix the Potassium Carbonate, previously dried, and the Sulphur, in a warm mortar; introduce them into a crucible; heat this, at first gradually, until effervescence has ceased, and finally to dull redness, so as to produce perfect fusion; pour out the liquid contents of the crucible on a clean flagstone, and cover quickly with an inverted porcelain basin so as to prevent free access of air while solidification is taking place. The solid product thus obtained should, when cool, be broken into fragments, and immediately enclosed in a green-glass bottle furnished with an air-tight stopper.

Description.—Solid greenish fragments, liver-brown when recently broken, alkaline and acrid to the taste.

It was shown, *Y.B.P.* '70, 442, that when well made this preparation really contains 60 p.c. of Sulphide K_2S_3, and about 40 p.c. of Thiosulphate. It is conveniently prepared on a small scale in a Florence flask. A commercial sample examined by us in 1890 yielded 48 p.c. K_2S_3.

Tests.—It readily forms with Water a yellow solution which has the odour of Hydrogen Sulphide, and evolves it freely when excess of Hydrochloric Acid is dropped into it, Sulphur being at the same time deposited. This acid liquid when boiled and filtered gives a yellow precipitate with Solution of Platinum Chloride and a white precipitate with Solution of Barium Chloride. About 50 p.c. of the Sulphurated Potash should be soluble in Alcohol (90 p.c.).

Not Official.

BALNEUM SULPHURETUM.—Sulphurated Potash, 4 oz.; Water, 30 gallons: dissolve.

Used as a solvent and stimulant in cases of psoriasis, &c.

This is not quite so agreeable as the Barèges waters, which may be made artificially as follows:—Sodium Sulphuret, Sodium Carbonate, and Sodium Chloride, of each 20 grains to one gallon. But a much stronger solution is often used.

POTASSII ACETAS.

POTASSIUM ACETATE.

$CH_3 \cdot COOK$, eq. 97·41.

Potassium Acetate is prepared by fusing the product of the interaction of Acetic Acid and Potassium Carbonate.

Solubility.—2 in 1 of Water; 1 in 2 of Alcohol (90 p.c.).

Medicinal Properties.—Used as a diuretic in dropsy, chiefly renal, and in febrile diseases; as an antilithic in gout and the uric acid diathesis.

Dose.—10 to 60 grains.

Prescribing Note.—Best administered in simple solution, with a little Syrup if desired.

Foreign Pharmacopœias.—Official in all except Austr., which contains a *solution*, sp. gr. 1·200; Ger., Hung. and Russ., have also a solution, sp. gr. 1·176—1·180 (33 p.c.); Swed., has also Liquor, 1 in 20; Swiss, has also Liquor, sp. gr. 1·16—1·17.

Description.—Either in white foliaceous satiny masses, or in granular particles, very deliquescent, alkaline to Litmus.

Tests.—It yields the reactions characteristic of Potassium and of Acetates, and should yield no characteristic reaction with the tests for Lead, Copper, Arsenium, Iron, Aluminium, Calcium, Magnesium, Carbonates or Sulphides, and only the slightest reactions with the tests for Chlorides or Sulphates.

Not Official.

POTASSII BENZOAS.

A crystalline powder.

Solubility.—1 in 1½ of Water; 1 in 18 of Alcohol (90 p.c.).

Medicinal Properties.—Useful in cystitis of the Lithic Acid diathesis.

Dose.—15 to 20 grains.

(Not in the other Pharmacopœias.)

POTASSII BICARBONAS.

POTASSIUM BICARBONATE.

B.P.Syn.—Potassium Hydrogen Carbonate.

$KHCO_3$, eq. 99·38.

May be obtained by saturating a strong aqueous solution of Potassium Carbonate with Carbonic Anhydride.

Solubility.—1 in 3·2 of Water. Insoluble in Alcohol (90 p.c.).

Medicinal Properties.—Antacid, antilithic, and diuretic. Used in dyspepsia as an antacid, and in urinary affections where there is a tendency to deposit Uric Acid; in the acute or inflammatory stage of gonorrhœa there is no better remedy, as it renders the urine alkaline and unirritating. In bronchitis and pneumonia it renders the secretion less tenacious; in influenza it has been given with success.

20 grains are prescribed in effervescence with 15 grains of Citric Acid.

Closely resembles the Carbonate, but without its irritant qualities.

Does not excite the liver, unless it be given in large doses.—Dr. Rutherford.

Dose.—5 to 30 grains.

Foreign Pharmacopœias.—Official in U.S.; Belg., Bi-Carbonas Potassæ; Fr., Carbonates (Bi) de Potasse; Norw. and Swed., Bicarbonas Kalicus; Ger., Jap., Russ. and Swiss, Kalium Bicarbonicum; Ital., Bicarbonato di Potassio; Mex., Carbonato de Potasio acido; Port., Bicarbonato de Potassa; Span., Carbonato (bi) Potasico; not in Austr., Dan., Dutch or Hung.

Description.—Colourless monoclinic prisms, not deliquescent, of a saline feebly alkaline taste.

Tests.—It affords the reactions characteristic of Potassium and of Bicarbonates. Each gramme exposed to a low red heat leaves ·69 gramme of a white residue, which requires for exact neutralisation 10 c.c. of the Volumetric Solution of Sulphuric Acid. It should yield no characteristic reaction with the tests for Lead, Copper, Arsenium, Aluminium, Calcium. Magnesium, Sodium, Nitrates, Sulphates, or Sulphides, and only the slightest reactions with the tests for Iron or for Chlorides.

20 parts by weight of Potassium Bicarbonate are neutralised by 14 parts of Citric Acid, and by 15 parts of Tartaric Acid.

POTASSII BICHROMAS.

POTASSIUM BICHROMATE.

B.P.Syn.—Potassium Dichromate; Red Chromate of Potassium.

K_2CrO_4, CrO_3, eq. 292·30.

It is obtained by roasting Chrome Ironstone with Lime in the presence of air, and by treating the resulting Chromate with a Potassium salt, and subsequently with an acid.

Solubility.—1 in 10 of Water; 5 in 6 of boiling Water.

Medicinal Properties.—A powerful irritant poison in over doses, rarely used in medicine, but extensively in the arts.

Highly recommended by Fraser in dyspepsia and gastric ulcer (*L.* '94, i. 923), and by Bradbury.—*L.* '95, ii. 671.

Dose.—$\frac{1}{10}$ to $\frac{1}{2}$ of a grain.

Official Preparation.—Used in the preparation of Acidum Chromicum.

Antidotes.—Stomach pump or emetics, Magnesium Carbonate or Chalk, albuminous and demulcent drinks.

Description.—In large, orange-red, transparent triclinic crystals, which are soluble in 10 parts of cold Water; fuses below redness;

at a higher temperature is decomposed, yielding green Chromium Oxide and yellow Potassium Chromate, which may be separated by dissolving the latter in Water.

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

Tests.—Potassium Bichromate dissolved in Water gives a yellowish-white precipitate with Solution of Barium Chloride, and a purplish-red precipitate with Solution of Silver Nitrate, the filtrate from either solution affording the reactions characteristic of Potassium, and each precipitate being entirely soluble in Diluted Nitric Acid (absence of Sulphates and Chlorides). The aqueous solution digested with Sulphuric Acid and Ethylic Alcohol or with many other organic compounds, acquires an emerald-green colour. 5·66 grammes of Ferrous Sulphate, dissolved in a little Water and acidulated with Sulphuric Acid, should not cease to yield a blue colour with solution of Potassium Ferricyanide until such a quantity of solution as contains 1 gramme of the Potassium Bichromate has been added.

POTASSII BROMIDUM.

POTASSIUM BROMIDE.

KBr, eq. 118·18.

According to B.P. it may be obtained by adding a slight excess of Bromine to a strong solution of Potassium Hydroxide, evaporating the solution of Potassium Bromide and Bromate to dryness, decomposing the Bromate by fusing the mixture with Charcoal, and purifying by crystallisation.

Solubility.—10 in 17 of Water; 1 in 1 of boiling Water; 1 in 95 of Alcohol (90 p.c.); 1 in 17 of boiling Alcohol (90 p.c.).

Medicinal Properties.—Sedative, hypnotic, anaphrodisiac. Very successful in epilepsy, in hysteria, and in convulsions generally. Useful in insomnia, sea-sickness and the sickness of pregnancy, also in head-ache and over-worked brain. It exerts a sedative influence on the generative organs. Useful in some forms of mania and nymphomania. Relieves in some cases of whooping-cough and spasmodic asthma, both in children and adults. This salt, as well as the Ammonium Bromide, is used to produce anæsthesia of the larynx.

On its use combined with Sodium Salicylate in headache.—(Brunton) *Pr.* lii. 101.

By combining with it Arsenic in small doses, the unpleasant effects known as 'Bromism' may be prevented or reduced.

Dose.—5 to 30 grains.

Incompatibles.—Any oxidising agents are liable to set free the Bromine; Spiritus Ætheris Nitrosi.

Official Preparation.—Used in the preparation of Acidum Hydrobromicum Dilutum.

Foreign Pharmacopœias.—Official in Austr., Ger., Hung., Jap., Russ., and Swiss, Kalium Bromatum; Belg., Bromuretum Potassii; Dan., Dutch, Norw., and

Swed., Brometum Kalicum; Fr., Bromure de Potassium; Ital., Bromuro di Potassio; Mex., Bromuro de Potasio; Port., Brometo de Potassio; Span., Bromuro Potasico; U.S., Potassii Bromidum.

Description.—In colourless cubical crystals, with no odour, but with a pungent saline taste, soluble in 2 parts of cold Water, and in 200 parts of Alcohol (90 p.c.).

Tests.—It affords the reactions characteristic of Potassium and of Bromides. Each gramme, dissolved in Water, requires for complete precipitation not less than 83·7 nor more than 85·4 c.c. of the Volumetric Solution of Silver Nitrate. It should yield no characteristic reaction with the tests for Lead, Copper, Arsenium, Iron, Aluminium, Zinc, Calcium, Magnesium, Sodium, Ammonium, Bromates, Iodates, or Cyanides, and only the slightest reactions with the tests for Chlorides, Iodides, or Sulphates. Test-solution of Ferric Chloride should not cause a red coloration in the aqueous cold solution (absence of Thiocyanates).

In the above Silver Nitrate titration, if the figures be calculated into KBr, they would show a percentage of 98·91 to 100·92, as 100 p.c. KBr requires 84·62 c.c.: the excess over the theoretical figure will be due to KCl which may be present from ·1 to 6 p.c. This cannot give a definite Chloride figure unless all impurities unaffected by Silver Nitrate are known to be absent. The only interfering impurity, however, which may be expected to be present is Water, so that if B.P. directed the *dried* salt to be used for titration, the percentage of Chloride might be arrived at by subtracting 84·62 from the number of c.c. used, and dividing the result by ·5.

Some English samples of the salt contain less than ¼ p.c. of Chloride, but U.S.P. allows as much as 3 p.c., and some American samples contain nearly 6 p.c.

POTASSII CARBONAS.

POTASSIUM CARBONATE.

B.P.Syn.—Salt of Tartar.

Potassium Carbonate, K_2CO_3, (eq. 137·21), associated with either one or two molecules of water. May be obtained from the ashes of wood, or by the interaction of crude Potassium Sulphate and crude Calcium Carbonate and Carbon.

Solubility.—4 in 3 of Water. Insoluble in Absolute Alcohol.

Medicinal Properties.—Antacid, diuretic and antilithic. Little used internally on account of its irritant and nauseous properties. Externally it is used as a lotion in eczema and urticaria.

Dose.—5 to 20 grains.

Official Preparations.—Contained in Decoctum Aloes Compositum, Liquor Arsenicalis, Mistura Ferri Composita, Unguentum Potassii Iodidi. Used in the preparation of Iodoform, Liquor Bismuthi et Ammonii Citratis, Potassa Caustica, Potassa Sulphurata, Potassii Acetas, Potassii Bicarbonas, Potassii Citras and Potassii Tartras.

Foreign Pharmacopœias.—Official in all; Austr., Ger., Hung., Jap., Russ., and Swiss, Kalium Carbonicum; Belg., Carbonas Potassæ; Dan., Dutch, Norw., and Swed., Carbonas Kalicus; Fr., Carbonate de Potasse Pur; Ital., Carbonato di

Potassio; Mex., Carbonato de Potasio Neutro; Port., Carbonato de Potassa; Span., Carbonato Potasico; U.S., Potassii Carbonas.

Description.—A white crystalline powder, alkaline and caustic to the taste, very deliquescent, readily soluble in an equal weight of Water, but insoluble in Alcohol (90 p.c.).

Tests.—It affords the reactions characteristic of Potassium and of Carbonates. Each gramme should require for neutralisation at least 11·9 c.c. of the Volumetric Solution of Sulphuric Acid. 2 grammes, after exposure to a red heat, should leave between 1·66 and 1·7 grammes of anhydrous Potassium Carbonate, K_2CO_3. It should yield no characteristic reaction with the tests for Lead, Copper, Aluminium, Calcium, Magnesium, Sodium, Cyanides, Nitrates, Sulphates, Sulphides, or Thiosulphates, only the slightest reactions with the tests for Iron, and no strongly marked reactions with the tests for Chlorides.

This titration figure corresponds to 84 p.c. K_2CO_3. Potassium Carbonate may always be expected to contain 1 to 2 p.c. (at least) of Chloride.

POTASSII CHLORAS.

POTASSIUM CHLORATE.

$KClO_3$, eq. 121·66.

It is obtained by passing Chlorine into water holding Lime or Magnesia in suspension, treating the clarified liquid with Potassium Chloride, and subsequently crystallising the Potassium Chlorate.

Solubility.—1 in 16 of cold Water; 1 in 2 of boiling Water; 1 in 1700 of Alcohol (90 p.c.); 1 in 152 of Alcohol (60 p.c.).

Medicinal Properties.—A local stimulant. A strong solution, 1 or 2 in 40 of Water, is the best **wash** for the mouth when the gums are spongy, inflamed and irritable, and for ulcerative stomatitis; it relieves the tenderness and induces a firmness of the gums; it is also an excellent **gargle** in tonsillitis. A solution of ½ drm. in 4 fl. oz. Water, has been used as an **injection** into the bladder, for vesical catarrh and as a **lotion** for unhealthy ulcers. The powder is applied to aphthæ in the mouth. Internally it is given to prevent the tendency to miscarriage. In young people it should be used with great care and in small doses, if given at all.

Dose.—5 to 15 grains.

As a galactagogue, *T.G.* '93, 322; internally 7 drm. taken by mistake caused death.—*L.* '79, i. 206.

Incompatibles.—Charcoal, Sulphur, and Ferrous salts. Hydrochloric Acid causes the evolution of Chlorine; other mineral acids, of various chlorous-smelling oxy-compounds; organic acids the same but much more slowly.

Official Preparation.—Trochiscus Potassii Chloratis; used in the preparation of Potassii Permanganas.

Not Official.—Gargarisma Potassii Chloratis, Pulvis Potassii Chloratis Compositus, and Sodii Chloras.

Foreign Pharmacopœias.—Official in Austr., Ger., Hung., Jap., Russ., and Swiss, Kalium Chloricum; Belg., Chloras Potassæ; Dan., Dutch, Norw., and Swed.,

Chloras Kalicus; Fr., Chlorate de Potasse; Ital., Chlorato di Potassio; Mex., Clorato de Potasio; Port., Chlorato de Potassa; Span., Chlorato Potasico; U.S.

Description.—In colourless monoclinic crystals, with a cool saline taste.

Tests.—Moistened with Hydrochloric Acid it evolves a yellow gas consisting of a mixture of Chlorine and Chloric Oxide. When heated it fuses, gives off Oxygen gas, and leaves a white residue soluble in Water, forming a solution which affords the reactions characteristic of Potassium and of Chlorides. It should yield no characteristic reaction with the tests for Lead, Iron, Aluminium, Calcium, Magnesium, Sodium or Nitrates, and only the slightest reactions with the tests for Chlorides or Sulphates.

Potassium Chlorate has caused an explosion when rubbed in a mortar with Sulphur or a Sulphide; also with Tannic Acid, *P.J.* (3) xiii. 1085; also when in compressed tablets with Ammonium Chloride.—*A.J.P.* '90, 385.

Preparation.

TROCHISCUS POTASSII CHLORATIS. Potassium Chlorate Lozenge. (Altered.)

Potassium Chlorate, 3 grains (·1944 gramme). Mix with the Rose Basis to form a Lozenge.

Now made with Rose Basis.

Dose.—Not given in B.P.; 1 to 6 lozenges.

Potassium Chlorate is supplied in **tablets** or **compressed discs,** also combined with Borax and with Cocaine.

Foreign Pharmacopœias.—Official in Belg. (Tabellæ), 1½ grains; Dutch, 1½ grains; Fr. (Tablettes), 1½ grains; Ital. (Pastiglia), 1½ grains; Mex. (Pastillas), 1½ grains; Port. (Pastilhas), 1½ grains; Span. (Tabletas), 1½ grains; Swiss (Pastilli), 1½ grains; U.S., about 4½ grains in each lozenge.

Not Official.

GARGARISMA POTASSII CHLORATIS.—Potassium Chlorate, 1 drm.; Glycerin, ½ fl. oz.; Water to 6 fl. oz.

PULVIS POTASSII CHLORATIS COMPOSITUS.—Potassium Chlorate, 1; Borax, 1; Sodium Bicarbonate, 1; White Sugar, 2; all in powder: mix. A measured teaspoonful to be dissolved in half a tumbler (5 fl. oz.) of tepid water; half the solution to be injected with a syringe along the floor of each nostril night and morning. After use blow the nose freely.—*Central London Throat Hospital.*

SODII CHLORAS (*U.S.*).—Soluble in about its own weight of Water, and in five times its weight of Glycerin.

POTASSII CITRAS.

POTASSIUM CITRATE.

$C_3H_4 \cdot OH \cdot (COOK)_3$, eq. 304·11.

Prepared by the interaction of Citric Acid and Potassium Carbonate.

Solubility.—10 in 6 of Water, 1 in 2 of Glycerin, 1 in 9 of Alcohol (60 p.c.), but if more of the salt is added the Alcohol separates from the watery solution.

Medicinal Properties.—Antacid, mild diaphoretic and diuretic. It is a valuable saline febrifuge, increasing the secretion of the kidneys, rendering it alkaline, and so preventing the precipitation of Uric Acid; its free administration in acute nephritis is strongly advocated by Fothergill. Useful in gout and rheumatism. Given as a drink in scurvy.

Dose.—10 to 40 grains.

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

Various solutions of Potassium Citrate occur as follows: Belg., Hung., and Russ., Potio Riverii; Dan. and Norw., Julapium Salinum; Fr., Potion Gazeuse; Swed., Liquor Citratis Kalici; Port., Soluto de Citrato de Potassa; U.S., Liquor Potassæ Citratis.

Description.—A white powder, of saline feebly acid taste, deliquescent, very soluble in Water.

Tests.—It affords the reactions characteristic of Potassium salts and of Citrates. Each gramme of the dry salt, heated to redness till gases cease to be evolved, should leave an alkaline residue, which when treated with Water, filtered, and well washed, should yield a clear solution requiring for neutralisation at least 9·7 c.c. of the Volumetric Solution of Sulphuric Acid. It should yield no characteristic reaction with the tests for Lead, Iron, Calcium, Magnesium, Sodium, Carbonates or Tartrates, and only the slightest reactions with the tests for Chlorides or Sulphates.

Not Official.

POTASSII CYANIDUM.

KCN, eq. 64·68.

White translucent deliquescent masses, having the odour of Hydrocyanic Acid. It is intensely poisonous. *See also* Appendix.

Solubility.—1 in 2¼ of Water; almost entirely 1 in 100 of Alcohol (90 p.c.).

Ordinary fused Cyanide only contains about 40 p.c. of real Cyanide, but there is no difficulty in obtaining it from 95 to 99 p.c.

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

It is useful to remove the black stains on the skin caused by Silver Nitrate.

Entomologists use it with gypsum to make poison bottles for killing insects without injuring their delicate structure; for this purpose dissolve 1 of the Cyanide, in 1½ of Water, and add 2 of Plaster of Paris. This mixture stirred and poured whilst liquid into a wide-mouthed bottle, forms a hard floor, which is constantly giving off vapour.

Not Official.

POTASSII FERROCYANIDUM.

Syn.—Yellow Prussiate of Potash.

$K_4FeC_6N_6$, $3H_2O$, eq. 419·66.

Large yellow crystals. *See also* Appendix.

Solubility.—1 in 4 of Water; insoluble in Alcohol (90 p.c.).

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

POTASSII IODIDUM.

POTASSIUM IODIDE.

KI, eq. 164·73.

This salt may be prepared in the same manner as Potassium Bromide, Iodine being used in place of Bromine.

Solubility.—4 in 3 of Water; 1 in 10 of Alcohol (90 p.c.); 1 in 3 of Glycerin.

Medicinal Properties.—Alterative, deobstruent, diuretic, expectorant. It is useful in cases where Iodine is indicated, and being less irritating is much preferred for internal administration. Useful especially in secondary and in tertiary syphilis and in all diseases associated with syphilis, such for example as locomotor ataxy. For secondary symptoms 60 grains in solution may be given in the twenty-four hours. It reduces chronic inflammation and swellings, effusions and glandular enlargements, and is useful in bronchocele; also in bronchitic asthma, aortic disease, endocarditis, internal aneurism and angina pectoris; chronic rheumatism and gout; lumbago, sciatica, psoriasis and actinomycosis. May be given with Quinine dissolved by Sulphuric or Phosphoric Acid, but not with Nitro-hydrochloric Acid, as the eliminated Chlorine decomposes it and makes an unsightly mixture. Combined with Nux Vomica the system bears it better. It is useful in the elimination of Lead in cases of chronic Lead poisoning; also in treating chronic Mercury poisoning. *See also under* 'Iodum.'

In cretinism, *L.* '93, ii. 1545.

In actinomycosis, *T.G.* '94, 62; *B.M.J.E.* '93, ii. 23; '95, ii. 64; *L.* '96, i. 1553; '97, i. 735.

Has no notable effect on biliary secretion.—Dr. Rutherford.

Dose.—5 to 20 grains.

Prescribing Notes.—It is sometimes prescribed with Tincture of Cinchona, an ounce of which dissolves 30 grains; also with Fowler's Solution to prevent the rash sometimes produced.

It is better borne when given with Potassium Acetate, or when administered alternately with Ferrous Iodide.—*L* '88, i. 1019.

Incompatibles.—Spiritus Ætheris Nitrosi, Bismuthi Subnitras.

Official Preparations.—Linimentum Potassii Iodidi cum Sapone and Unguentum Potassii Iodidi; contained in Liquor Iodi Fortis, Tinctura Iodi and Unguentum Iodi. Used in the preparation of Hydrargyri Iodidum Rubrum and Plumbi Iodidum.

Not Official.—Linimentum Potassii Iodidi cum Sapone (*B.P.* 1867).

Foreign Pharmacopœias.—Official in Austr., Ger., Hung., Jap., Russ., and Swiss, Kalium Iodatum; Belg., Ioduretum Potassii; Dan., Dutch, Norw., and Swed., Iodetum Kalicum; Fr. Iodure de Potassium; Ital., Ioduro di Potassio; Mex., Yoduro de Potasio; Port., Iodeto de Potassio; Span., Ioduro Potasico; U.S.

Description.—In colourless, generally opaque, cubic crystals. It commonly has a feebly alkaline reaction.

Tests.—It affords the reactions characteristic of Potassium and of Iodides. Each gramme should require for complete precipitation not less than 59·5 and not more than 61·9 c.c. of the Volumetric Solution of Silver Nitrate. It should yield no characteristic reaction with the tests for Lead, Copper, Arsenium, Iron, Aluminium, Calcium, Magnesium, Sodium, Ammonium, Bromates, Iodates, Cyanides, or Nitrates, and only the slightest reactions with the tests for Bromides, Chlorides, Carbonates, or Sulphates.

Preparations.

LINIMENTUM POTASSII IODIDI CUM SAPONE. Liniment of Potassium Iodide with Soap.

Curd Soap, recently prepared and in shavings, 2 oz.; Potassium Iodide, 1½ oz.; Glycerin, 1 fl. oz.; Oil of Lemon, 1 fl. drm.; Distilled Water, 10 fl. oz. Reduce the Curd Soap to fine shreds; mix it with the Distilled Water and Glycerin in a porcelain dish on a water-bath; when the Soap is dissolved, pour the liquid into a mortar in which the Potassium Iodide has previously been powdered; mix briskly by trituration; continue the trituration until the mixture is cold; set aside for an hour; then rub well the Oil of Lemon into the cream-like product.

When first prepared it is very bulky, but after it has been made some time it occupies a much smaller space, and this is apt to cause trouble with patients. The difference is due to the quantity of air incorporated in it by the trituration, and is so great that it would be quite possible at different times for the same weight of Liniment to fill a 1 oz. pot and a 4 oz. pot.

The advantages of this liniment are that it does not stain, nor does it irritate when rubbed on the skin; it is employed in enlargement of the joints, and in indurated glands, especially the cervical glands.

Foreign Pharmacopœias.—Official in Swiss (Opodeldoc Iodatum), Lard or Butter, 50; Alcohol (95 p. c.), 25; Solution of Caustic Soda, 25: saponify and dissolve in Alcohol, 800; Sodium Iodide, 50; Water, 50; Oil of Lemon, 10. Swiss has also Opodeldoc Iodatum Liquidum; not in the others.

UNGUENTUM POTASSII IODIDI. Potassium Iodide Ointment. (Altered).

Potassium Iodide, 50; Potassium Carbonate, 3; Distilled Water (by weight), 47; Benzoated Lard, 400. Dissolve the Potassium Iodide and Potassium Carbonate in the Distilled Water; mix the solution, gradually, with the Benzoated Lard, in a slightly warmed mortar.

Now 1 in 10 instead of 1 in 8¾. =(1 in 10).

Foreign Pharmacopœias.—Official in Dan., Dutch, Fr., Ger., Hung., Norw., Port., Russ., Swed. and Swiss, 1 in 10; Ital. and Span., 1 in 9½; Mex., Pomada de Yoduro de Potasio, 1 in 8½; U.S., 1 in 8½ with Sodium Hyposulphite; not in Austr., Belg., or Jap.

Not Official.

LINIMENTUM POTASSII IODIDI C. SAPONE (*B.P.* 1867).—Hard Soap, 1½ oz.; Potassium Iodide, 1½ oz.; Glycerin, 1 fl. oz.; Oil of Lemon, 1 fl. drm.; Water, 10 fl. oz. 'Put the Glycerin, Iodide, and 3 fl. oz. of Water into a clean 20-oz. wide-mouthed bottle; then dissolve the soap (in shavings) in the 7 fl. oz. of Water in a jar by the heat of a water-bath; strain the solution whilst hot through muslin into the

bottle containing the Iodide, etc.; allow to stand for two or three minutes, until the bottom of the soap solution is a little opaque, then mix by agitation; lastly add the Oil of Lemon, shaking briskly, and, after agitating at intervals for two hours or more, a liniment in the form of a soft white jelly will result, and remain so; if it should not, a small addition of Water will generally perfect it.'

This formula is that of B.P. '67, but the manipulation has been modified; when made properly it gives satisfaction.

POTASSII NITRAS.

POTASSIUM NITRATE.

B.P.Syn.—Nitre, Saltpetre.

KNO_3, eq. 100·41.

It may be obtained by purifying crude Nitre, or by the interaction of Sodium Nitrate and Potassium Chloride.

Solubility.—1 in 4 of cold Water; 2½ in 1 of boiling Water; sparingly in Alcohol (90 p.c.).

Medicinal Properties.—Sometimes given as a diuretic and diaphoretic, but the Acetate and Citrate are much to be preferred. Useful as a gargle in relaxed sore throat. Potassium Nitrate, 5 grains, Potassium Bicarbonate, 20 grains, taken, during effervescence, with Citric Acid, 15 grains, in a small tumbler of cold Water, is a pleasant cooling draught in febrile excitement. Charta Nitrata is used in spasmodic asthma.

In Phlegmasia alba dolens.—*T.G.* '94, 830.

Dose.—5 to 20 grains.

Official Preparations.—Contained in Argenti Nitras Induratus and Argenti Nitras Mitigatus. Used in the preparation of Acidum Nitricum.

Not Official.—Sal Prunella, Charta Nitrata, Charta Nitrata et Chlorata.

Foreign Pharmacopœias.—Official in all; Austr., Ger., Hung., Jap., Russ. and Swiss, Kalium Nitricum; Belg., Nitras Potassæ; Dan., Dutch, Norw. and Swed., Nitras Kalicus; Fr., Azotate de Potasse; Ital., Nitrato di Potassio; Mex., Nitrato de Potasio; Port., Azotato de Potassa; Span., Nitrato Potasico; U.S., Potassii Nitras.

Description.—In white crystalline masses or fragments of striated six-sided rhombic prisms, colourless, having a cool saline taste.

Tests.—It affords the reactions characteristic of Potassium and of Nitrates. It should yield no characteristic reaction with the tests for Lead, Copper, Arsenium, Iron, Aluminium, Zinc, Calcium, Magnesium, Sodium, Ammonium, Chlorides, Iodides, or Sulphates.

Not Official.

SAL PRUNELLA.—Potassium Nitrate fused and moulded into small balls.

CHARTA NITRATA (Belg., Dan., Fr., Ger., Ital., Jap., Norw., Port., Russ., Swed., Swiss and U.S.).—Soak porous paper in a saturated solution of Nitre, and dry. Roll it up and burn in a candlestick. Used in asthma.

The paper is sometimes impregnated also with Compound Tincture of Benzoin, Spirit of Camphor, Oils of Cassia, Cinnamon, and Santal, and Tincture of Sumbul.

CHARTA NITRATA ET CHLORATA.—Soak porous paper in a saturated solution of Potassium Nitrate and Potassium Chlorate, and dry. Used in asthma.

POTASSII PERMANGANAS.

POTASSIUM PERMANGANATE.

$K_2Mn_2O_8$, eq. 313·74.

It may be obtained by the interaction of Potassium Chlorate, Potassium Hydroxide, and Manganese Dioxide.

Solubility.—1 in 18 of Water; 1 in 3 of boiling Water.

Medicinal Properties.—A powerful deodorizer and antiseptic. Useful internally in amenorrhœa, and in anæmia; also in typhoid and dysentery. Externally, as a caustic and deodoriser, to foul ulcers and chancres. Useful as a wash in ozæna; and as an antiseptic gargle in throat affections.

Weak solution (1 in 2000) injected in gonorrhœa, *B.M.J.E.* '95, i. 60; *M.P.* '95, i. 431.

A suggested antidote for Morphine, *B.M.J.* '91, i. 649; *Pr.* lii. 122; *T.G.* '94, 260; '98, ii. 97.

Dose.—1 to 3 grains.

Prescribing Notes.—It can be made into a pill with Massa Paraffini. It is not given in solution on account of its disagreeable taste.

Incompatibles.—Animal or vegetable matters, and any reducing agent.

Official Preparation.—Liquor Potassii Permanganatis.

Foreign Pharmacopœias.—Official in U.S.; Austr., Kalium Hypermanganicum crystallisatum; Belg., Permanganas Potassæ; Dan., Norw. and Swed., Hypermanganas Kalicus; Dutch, Permanganas Kalicus; Fr., Permanganate de Potasse; Ger. and Jap., Kalium Permanganicum; Hung., Russ. and Swiss, Kalium Hypermanganicum; Ital., Permanganato di Potassio; Mex., Permanganato de Potasio; Port., Permanganato de Potassa; Span., Permanganato Potasico.

Description.—Dark purple slender prismatic iridescent crystals, with a sweet astringent taste.

Tests.—Soluble in 20 parts of cold Water, without action on Litmus. The crystals heated to redness decrepitate, evolve Oxygen, and leave a black residue from which Water extracts Potassium Hydroxide, the resulting solution affording the reactions characteristic of Potassium. It should yield no characteristic reaction with the tests for Lead, Arsenium, Iron, Aluminium, Calcium, Magnesium, Sodium, Ammonium, Carbonates, Chlorides, or Sulphates. Each gramme dissolved in Water and acidulated with 5 c.c. of Diluted Sulphuric Acid, should require for complete decolorisation 31·2 c.c. of an aqueous solution containing 62·58 grammes of pure crystallised Oxalic Acid per litre.

Preparation.

LIQUOR POTASSII PERMANGANATIS. Solution of Potassium Permanganate.

Dissolve 87½ grains of Potassium Permanganate in sufficient Dis-

tilled Water to produce 20 fl. oz. of the Solution; or 10 grammes to produce 1000 c.c.

Dose.—2 to 4 fl. drm.

110 minims contain 1 grain of Potassium Permanganate; 100 c.c. contain 1 gramme.

If this needs filtration, glass-wool is best for the purpose.

Diluted with 40 to 80 parts of Water, it is useful as a **gargle** or as a cleansing **wash** for foul ulcers, &c.

Foreign Pharmacopœias.—Official in Mex., 1 in 500; Span., 1 in 50; not in the others.

POTASSII SULPHAS.

POTASSIUM SULPHATE.

K_2SO_4, eq. 173·00.

Potassium Sulphate may be obtained by purifying the crude salt, or by the interaction of Sulphuric Acid and Potassium Chloride or certain other Potassium salts.

Potassium Sulphate was long known as **Sal Polychrestum,** and the Bisulphate (the residue from making Nitric Acid) as **Sal Enixum.**

Solubility.—1 in 10 of cold Water, 1 in 4 of boiling Water. Insoluble in Alcohol (90 p.c.).

Medicinal Properties.—Mild saline cathartic, usually operating without irritation. Generally given in combination with Rhubarb. A useful purgative in hepatic and dyspeptic affections.

Is an hepatic and intestinal stimulant of considerable power. Its action on the liver is, however, uncertain.—Dr. Rutherford.

Dose.—10 to 40 grains.

Official Preparations.—Used in the preparation of Pilula Colocynthidis Composita and Pulvis Ipecacuanhæ Compositus. Contained in Pilula Colocynthidis et Hyoscyami and Pilula Ipecacuanhæ cum Scilla.

Foreign Pharmacopœias.—Official in U.S.; Belg., Sulphas Potassæ; Dan., Dutch, Norw. and Swed., Sulphas Kalicus; Fr., Sulfate de Potasse; Ger., Hung., Jap., Russ. and Swiss, Kalium Sulfuricum; Ital., Solfato di Potassio; Mex., Sulfato de Potasio; Port., Sulfato de Potassa; Span., Sulfato Potasico; not in Austr.

Description.—In colourless, hard rhombic prisms, terminated by six-sided pyramids.

Tests.—Decrepitates strongly when heated. The salt affords the reactions characteristic of Potassium and of Sulphates. Each gramme dissolved in Water and acidulated with Hydrochloric Acid, gives, with Solution of Barium Chloride, a white precipitate, which, when washed and dried, should weigh 1·339 grammes. It should not yield any characteristic reaction with the tests for Lead, Copper, Arsenium, Iron, Aluminium, Zinc, Calcium, Magnesium, Sodium, Ammonium, or Nitrates, and only the slightest reactions with the tests for Chlorides. The aqueous solution has no action on Litmus (absence of Acid Potassium Sulphate).

POTASSII TARTRAS.

POTASSIUM TARTRATE.

$(CHOH)_2(COOK)_2$, H_2O, eq. 242·46.

Normal Potassium Tartrate is obtained by neutralising Acid Potassium Tartrate with Potassium Carbonate.

Solubility.—10 in 6 of Water. Insoluble in Alcohol (90 p.c.).

Medicinal Properties.—A mild, saline purgative, operating without much pain, and producing watery stools. In smaller doses, antacid, diuretic and alterative.

Dose.—30 to 240 grains.

Foreign Pharmacopœias.—Official in Belg., Tartras Potassæ; Dan., Norw. and Swed., Tartras Kalicus; Fr., Tartrate de Potasse Neutre; Ger., Hung., Jap., Russ. and Swiss, Kalium Tartaricum; Ital., Tartrato Neutro di Potassio; Mex., Tartrato de Potasio Neutro; Port., Tartarato de Potassa; Span., Tartarato Potasico; not in Austr., Dutch or U.S.

Description.—In small colourless four- or six-sided prisms.

Tests.—It affords the reactions characteristic of Potassium and of Tartrates. Each gramme of the dry salt, heated to redness till gases cease to be evolved, should leave an alkaline residue, which, when treated with Water, filtered, and well washed, yields a clear solution requiring for exact neutralisation 8·4 c.c. of the Volumetric Solution of Sulphuric Acid. It should yield no characteristic reaction with the tests for Lead, Copper, or Iron, and only the slightest reactions with the tests for Calcium, Magnesium, Sodium, Chlorides, or Sulphates. The aqueous solution has no action on Litmus (absence of Acid Potassium Tartrate).

POTASSII TARTRAS ACIDUS.

ACID POTASSIUM TARTRATE.

B.P.Syn.—Bitartrate of Potassium; Purified Cream of Tartar.

$(CHOH)_2\,COOH{\cdot}COOK$, eq. 186·75.

It is obtained from the crude Cream of Tartar which is deposited during the fermentation of grape juice, and from the lees of wine.

Solubility.—1 in 200 of cold Water, 1 in 16 of boiling Water. Insoluble in Alcohol (90 p.c.).

Medicinal Properties.—Cathartic, diuretic, and refrigerant. Much used in febrile and dropsical affections; in chronic cardiac and hepatic diseases; combined with Sulphur it is useful in hæmorrhoids.

Dose.—20 to 60 grains.

Official Preparations.—Contained in Confectio Sulphuris, Trochiscus Sulphuris, and Pulvis Jalapæ Compositus. Used in the preparation of Acidum Tartaricum, Antimonium Tartaratum, Ferrum Tartaratum, Potassii Tartras and Soda Tartarata.

Not Official.—Soluble Cream of Tartar.

Foreign Pharmacopœias.—Official in all; Austr. and Hung., Kalium hydrotartaricum; Belg., Bitartras Potassæ depuratus; Dan., Norw. and Swed., Bitartras Kalicus; Dutch, Tartras Kalicus Acidus; Fr., Tartrate de Potasse Acide; Ger. and Swiss, Tartarus depuratus; Ital., Tartrato Acido di Potassio; Jap., Kalium Bitartaricum; Mex., Tartrato de Potasio Acido; Port., Bitartrato de Potassa; Russ. Kali Bitartaricum depuratum and Purum; Span., Cremor Tartaro; U.S., Potassii Bitartras.

Description.—A gritty white powder, or fragments of cakes crystallised on one surface, with an acid taste.

Tests.—It affords the reactions characteristic of Potassium and of Tartrates. Each gramme of the dry salt should require for neutralisation at least 5·2 c.c. of the Volumetric Solution of Sodium Hydroxide. It should yield no characteristic reaction with the tests for Lead, Copper, or Iron, and only the slightest reaction with the tests for Calcium, Magnesium, Sodium, Chlorides, or Sulphates. The total amount of impurities should not exceed 2½ p.c. of the dried salt.

The term 'slightest reaction' appears to be defined in this instance by the total limit of 2½ p.c. on the dried salt. No limit is given to the quantity of moisture. The direct titration of a sample should be supplemented by a determination of the alkalinity of the soluble ash. A sample containing a judicious proportion of Potassium Acid Sulphate might pass the direct titration test, but would show a reduced alkalinity of the soluble ash. In a pure sample the amount of Volumetric Solution of Sodium Hydroxide required for direct titration should be equal to the amount of Volumetric Solution of Sulphuric Acid required to neutralise the soluble ash, working on the same weight of substance in each case.

A process for the exhaustive examination of Cream of Tartar.—*Analyst* '96, 174, 209; *P.J.* '96, ii. 3, 116.

Not Official.

TARTARUS BORAXATUS. TARTRATE BORICO-POTASSIQUE. SOLUBLE CREAM OF TARTAR.—Soluble Cream of Tartar is a white amorphous powder soluble in its own weight of water. The proportions are:—

Belg., Dan., Fr., Norw. and Swed., Potassium Acid Tartrate 2, Borax 1; Dutch, Ger., Swiss. and Russ., Potassium Acid Tartrate 5, Borax 2; dissolve the Borax and the Acid Tartrate in water by the aid of heat, and evaporate to dryness; Span., Potassium Acid Tartrate 4, Boric Acid 1; Mex. (Tartrato borico-potasico), Potassium Bicarbonate 10, Tartaric Acid 10, Boric Acid 5; Port., with Boric Acid and Potassium Acid Tartrate, but no quantities given.

Medicinal Properties.—Same as Cream of Tartar.

PRUNI VIRGINIANÆ CORTEX.

VIRGINIAN PRUNE BARK.

[NEW.]

The bark of *Prunus serotina*, collected in autumn.

In addition to astringent Tannins, this bark contains **Amygdalin** and **Emulsin**, which on treatment with water develop Hydrocyanic Acid (in a similar manner to the Cherry-Laurel), to which the sedative effect of its preparations are probably due.

Medicinal Properties.—Sedative. Highly useful in full doses for resultless hacking cough in phthisis and chronic bronchitis. The Syrup is also useful as a flavouring vehicle for nauseous medicines.

Official Preparations.—Syrupus Pruni Virginianæ and Tinctura Pruni Virginianæ.

Foreign Pharmacopœias.—Official in U.S.; not in the others; U.S. has also an **Infusion** and **Fluid Extract.**

Description.—In curved pieces or irregular fragments one-twelfth of an inch (two millimetres) or more in thickness. Young bark is frequently covered with a smooth, thin, reddish-brown, papery cork, or, if this has been removed, exhibits a greenish-brown inner layer; it is marked with transversely elongated lenticels, and breaks with a short granular fracture. The outer surface of old bark is usually rough and nut-brown in colour. The inner surface is finely striated or fissured and reticulated; the fractured surface is reddish-grey. The bark contains numerous groups of sclerenchymatous cells of characteristic irregular shape. Taste astringent, aromatic, and bitter; the odour, which is developed upon maceration in Water, resembles that of the bitter almond.

Determination of the glucoside by its conversion into Hydrocyanic Acid.—*A.J.P.* '95, 535.

Preparations.

SYRUPUS PRUNI VIRGINIANÆ. SYRUP OF VIRGINIAN PRUNE. (NEW.)

Virginian Prune Bark, in No. 20 powder, 3; Refined Sugar, in coarse powder, 15; Glycerin, 1¼; Distilled Water, a sufficient quantity. Moisten the Virginian Prune Bark with Distilled Water; set aside for twenty-four hours in a closed vessel; pack in a percolator; gradually add Distilled Water until a quantity of 9 of percolate has been collected; dissolve the Refined Sugar in the liquid, by agitation, without heat; add the Glycerin; strain; pour sufficient Distilled Water over the strainer to produce 20 of the Syrup.

Dose.—½ to 1 fl. drm.

Foreign Pharmacopœias.—Official in U.S., Wild Cherry 15, Sugar 70, Glycerin 15, Water to make 100.

TINCTURA PRUNI VIRGINIANÆ. TINCTURE OF VIRGINIAN PRUNE. (NEW.)

Virginian Prune Bark, in No. 20 powder, 4; Alcohol (90 p.c.), 12½; Distilled Water, 7½. Mix the powder with the Distilled Water; set aside in a closed vessel for twenty-four hours; add the Alcohol, and complete the maceration process.

Dose.—½ to 1 fl. drm.

PRUNUM.

PRUNES.

The dried ripe fruits of *Prunus domestica*.

Imported from the South of France.

Medicinal Properties.—Nutritious and demulcent. Rarely prescribed, though often used in domestic medicine as a laxative.

Official Preparation.—Contained in Confectio Sennæ.

Foreign Pharmacopœias.—Official in Belg., Pulpa Prunorum; Fr., Prunier Commun; Mex., Ciruelo de Espana; Port., Ameixas Passadas; Span., Ciruelo; U.S.; not in the others.

Description.—Somewhat ovoid or oblong, about one inch and a-quarter (three centimetres) long, black, shrivelled; pulp brownish, without marked odour, but with a sweet and bland acidulous taste.

PTEROCARPI LIGNUM.

RED SANDERS-WOOD.

B.P.Syn.—Red Sandal-Wood.

The heart-wood of *Pterocarpus santalinus*.

From Madras and Ceylon. Used solely as a colouring agent.

Official Preparation.—Used in the preparation of Tinctura Lavandulæ Composita.

Foreign Pharmacopœias.—Official in Austr., Belg., Dan., Jap. and Swed., Lignum Santali Rubrum; Dutch, Lignum Santalinum; Fr., Santal Rouge; Port., Sandalo Rubro; Span., Sandalo Rojo; U.S., Santalum Rubrum; not in Ger., Hung., Ital., Mex., Norw., Russ. or Swiss.

Description.—Red Sanders Wood is imported in large heavy logs, dark reddish-brown or blackish-brown externally, and internally, if cut transversely, deep blood-red, variegated with zones of a lighter colour. It has a very slight astringent taste, and when warmed exhales a faint aroma. The colouring matter is soluble in Alcohol (90 p.c.), but only sparingly soluble in Water.

Not Official.

PULSATILLA.

The herb of *Anemone Pulsatilla* and *Anemone pratensis* collected soon after flowering. It should be carefully preserved and not kept longer than one year.

Medicinal Properties.—Has been used in dysmenorrhœa with various results. Has been recommended in orchitis and epididymitis, but in experiments at the Lock Hospital it was found to be valueless.—*L.* '89, ii. 216.

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

Preparation.

TINCTURA PULSATILLÆ.—Carefully dried Herb, 1; Alcohol (60 p.c.) to percolate, 10.

Unless the herb is very finely powdered, it answers better to soak it in warm Water for a day and then add Alcohol to bring the mixture to the strength of Alcohol (60 p.c.).

Dose.—5 to 30 minims.

PULVERES.

POWDERS.

The following Powders are contained in the British Pharmacopœia, the formulas of which will be found under the names of the substances from which they are prepared:—

	Proportions of active ingredients in the whole.
PULVIS AMYGDALÆ COMPOSITUS	8 in 13.
PULVIS ANTIMONIALIS	Oxide 1 in 3
PULVIS CATECHU COMPOSITUS	1 in 2½.
PULVIS CINNAMOMI COMPOSITUS	1 in 3.
PULVIS CRETÆ AROMATICUS	about 1 in 4.
PULVIS CRETÆ AROMATICUS CUM OPIO	Opium 1 in 40.
PULVIS ELATERINI COMPOSITUS	1 in 40.
PULVIS GLYCYRRHIZÆ COMPOSITUS	Senna 1 in 6.
PULVIS IPECACUANHÆ COMPOSITUS	Opium 1 in 10.
PULVIS JALAPÆ COMPOSITUS	1 in 3.
PULVIS KINO COMPOSITUS	Opium 1 in 20.
PULVIS OPII COMPOSITUS	Opium 1 in 10.
PULVIS RHEI COMPOSITUS	1 in 4½.
PULVIS SCAMMONII COMPOSITUS	1 in 2.
PULVIS SODÆ TARTARATÆ EFFERVESCENS	
PULVIS TRAGACANTHÆ COMPOSITUS	1 in 6.

PYRETHRI RADIX.

PYRETHRUM ROOT.

The dried root of *Anacyclus Pyrethrum*.

Collected chiefly in Algeria.

Medicinal Properties.—It is powerfully stimulant to the salivary glands, causing a copious flow of saliva, and, on that account, is used as a masticatory in dryness of the mouth and throat. The Tincture is used on cotton-wool for relieving toothache, or when diluted as a mouth-wash.

Official Preparation.—Tinctura Pyrethri.

Not Official.—Trochisci Pyrethri.

Foreign Pharmacopœias.—Official in Austr., Belg., Fr. (Pyrethre Officinal), Mex. (Peritre de Africa), Port. (Pyrethro), Span. (Pelitre), and U.S., same as Brit.; Dan. and Swed., use the root of *Anacyclus officinarum*; not in the others.

Description.—In unbranched pieces, usually varying from two to four inches (five to ten centimetres) in length, and half an inch (twelve millimetres) or more in thickness; nearly cylindrical or frequently tapering towards both extremities, the crown often bearing a tuft of nearly colourless hairs. The outer surface is brown and longitudinally wrinkled. The fracture is short; the fractured surface shows the wood to be traversed by large medullary rays in which, as in the cortex, numerous dark resin-ducts are scattered. The root has a distinct characteristic odour and pungent taste, exciting, when chewed, a copious flow of saliva.

An investigation into the active constituent of Pellitory.—*J.C.S. Trans.*, '95, 100.

Preparation.

TINCTURA PYRETHRI. Tincture of Pyrethrum. (Modified.)

Pyrethrum Root, in No. 40 powder, 4; Alcohol (70 p.c.) a sufficient quantity. Moisten the powder with 3 of the Alcohol, and complete the percolation process. The resulting Tincture should measure 20.

Now made with Alcohol (70 p.c.) in place of Rectified Spirit.

Foreign Pharmacopœias.—Official in Belg., Dan., Fr. and Span., 1 and 5 (by weight); Mex. and U.S., 1 in 5; not in the others.

Not Official.

TROCHISCI PYRETHRI (*T.H.*)—Contain one grain in each.

Not Official.

PYRETHRI FLORES.

Syn.—Insect Powder.

The powder of the flower-heads, obtained in the Caucasus, from *Pyrethrum roseum* and *P. carneum*, and in Dalmatia from *Pyrethrum cinerariæfolium*.

The active principle is an Ether-soluble Resin, not a volatile Oil.—*C.D.* '90, ii. 285.

Foreign Pharmacopœias.—Official in Fr.; Mex. (Péritre del Caucaso); not in the others.

Keeps away troublesome insects.

Preparation.

TINCTURA PYRETHRI FLORUM.—The flower heads, in powder, 1; Alcohol (60 p.c.) to percolate 4.

Diluted 1 to 10 of Water forms a **lotion** to keep away insects.

Not Official.

PYRIDIN.

C_5H_5N, eq. 78·49.

A base obtained from the products of the destructive distillation of bones.

Commercially it always contains Picoline. In its cruder forms it is employed in Germany for 'denaturating' Alcohol, corresponding to 'Methylating' in this country.

Solubility.—It is miscible with Water, Alcohol (90 p.c.), Ether, and the fixed Oils.

Medicinal Properties.—Useful in the treatment of asthma; 4 or 5 grammes (62 to 77 grains) are allowed to evaporate from a flat dish in a small room, the patient being exposed to its vapour for 1½ hours three times a day.—*B.M.J.* '85, ii. 1074; *T.B.T.* '95, 41.

Is most beneficial in cardiac dyspnœa, emphysema and angina pectoris.—*L.* '88, i. 437; '88, ii. 438; *B.M.J.* '93, ii. 856.

If the vapour be inhaled in quantity, it produces headache.

Like Nicotine, it is a good insecticide.

Description.—A colourless volatile liquid with a powerful and a peculiar odour. Its aqueous solution gives a strong alkaline reaction to Litmus, but is best titrated by Methyl-orange. When pure, it has no action on Phenol-phthalein.

It yields a crystalline but deliquescent salt with Hydrochloric Acid.

Tests.—Sp. gr. ·980. Boils about 116° C. Added to a solution of Copper Sul-

phate, it gives a bluish-green precipitate, soluble in excess to a dark blue liquid, similar to that produced by Ammonia.

It should not redden Phenol-phthalein (absence of Ammonia), should have little or no action on Potassium Permanganate. A solution of Pyridine (½ p.c.) should give a crystalline precipitate, becoming almost semi-solid with an equal volume of saturated solution of Picric Acid.

Not Official.

PYRODIN.

An impure Acetylphenylhydrazine. Derived from Coal Tar.

A white crystalline powder, soluble 1 in 50 of Water.

Medicinal Properties.—A powerful antipyretic. It has been given in doses of 8 to 12 grains once in the 24 hours, but great caution must be exercised, as toxic effects have been produced.—*L.* '88, ii. 1149, 1195; *B.M.J.* '88, ii. 1470.

2 grains per diem given as a maximum dose, lest toxic symptoms should arise.—*Y.B.T.* '90, 311; should be reckoned as a poisonous rather than as a therapeutic agent (Stockman).—*B.M.J.* '98, ii. 1054; decidedly harmful (Leech).—*B.M.J.* '98, ii. 1056.

PYROXYLINUM.

PYROXYLIN.

N.O.Syn.—Gossypium Fulminans. Lana Collodii. Colloxylinum.

Pyroxylin is Dinitrocellulose $C_6H_8(NO_2)_2O_5$. Gun Cotton is Trinitrocellulose $C_6H_7(NO_2)_3O_5$ and is not soluble in any mixture of Alcohol and Ether.

O.M.P.—Cotton, 1; Sulphuric Acid, 5; Nitric Acid, 5; Distilled Water, a sufficient quantity. Mix the Acids in a porcelain mortar, immerse the Cotton in the mixture, and after it is thoroughly wetted by the Acids stir it for three minutes with a glass rod; wash the product with Distilled Water until free from acid; drain on filtering paper, and dry the Pyroxylin on a water-bath.

Official Preparations.—Used in the preparation of Collodium, and Collodium Vesicans. Of **Collodium**, Collodium Flexile.

Not Official.—Celloidin, Photoxylin.

Foreign Pharmacopœias.—Official in Belg. (Pyroxylum), no formula given; Dutch, Ger., Ital. (Cotone Collodio), Russ. and Swiss.—Purified Cotton 55, Crude Nitric Acid (sp. gr. 1·380) 400, Crude Sulphuric Acid (sp. gr. 1·830) 1000; Fr. (Fulmicoton).—Cotton Wool 11, Nitric Acid 100, Sulphuric Acid 200; Mex. (Piroxilina).—Cotton 1, Nitre 20, Sulphuric Acid 30; Port. (Algodao Polvora), and Span. (Pyroxilina).—Cotton 1, Nitre 20, Pure Sulphuric Acid (sp. gr. 1·84) 30; Swed., Cotton 1, Crude Nitric Acid (sp. gr. 1·382—1·390) 9, Crude Sulphuric Acid (sp. gr. 1·833) 18; U.S. (Pyroxylinum), Cotton 1, Nitric Acid 14, Sulphuric Acid 22. All by weight except U.S. Not in Austr., Dan., Hung., Jap., or Norw.

Tests.—Readily soluble in a mixture of equal volumes of Ether and Alcohol (90 p.c.). It leaves no residue after ignition (absence of mineral impurity).

It is also soluble in Acetone, which might be used as a cheap and effective solvent for making Collodion; it forms a 10 p.c. solution very easily.

It sometimes decomposes on keeping, with disengagement of Nitrous fumes and becomes insoluble.

The safest and best plan for its preservation is to moisten the dry material with an equal weight of Methylated Spirit and preserve in a well-stoppered jar; when required for use it is quickly and easily dried.—*P.J.* '96, ii. 110; *C.D.* '96, ii. 207.

Not Official.

CELLOIDIN.—Sold in cakes or shavings. When dissolved in a mixture of Absolute Alcohol and Ether it is used for embedding histological specimens previous to cutting sections.

PHOTOXYLIN.—A nitrated wood pulp prepared in St. Petersburg. When made into Collodion it is stated to give a tougher film than Pyroxylin on evaporation.—*L.* '87, i. 1253; *B.M.J.* '88, i. 555.

QUASSIÆ LIGNUM.

QUASSIA WOOD.

The wood of the trunk and branches of *Picræna excelsa*.

From Jamaica.

Medicinal Properties.—Possesses in a high degree the properties of the simple bitters, without astringency. Particularly adapted as a tonic in dyspepsia and in the debility which succeeds acute disease; containing no Tannin, it is a compatible vehicle for Iron preparations. The infusion is also used as an anthelmintic enema in threadworm.

A few chips of Quassia or a weak infusion used in the morning bath is a protection against the annoying insects found in our cornfields.—*L.* '84, ii. 306. A strong infusion to destroy fleas.—*L.* '95, i. 1018.

Official Preparations.—Infusum Quassiæ, Liquor Quassiæ Concentratus, Tinctura Quassiæ.

Foreign Pharmacopœias.—Official in U.S., same as Brit.; Austr., Belg., Dan., Norw., Span., and Swed., use *Quassia amara;* Dutch, Fr., Ger., Ital., Jap., Mex. (Cuasia), Port., Russ. and Swiss, use both; not in Hung.

Description.—Quassia wood is imported in logs of varying length, frequently exceeding six inches (fifteen centimetres) in diameter. The Wood is yellowish-white, tough and dense, but easily split. The longitudinal section exhibits elongated cells containing single crystals of Calcium Oxalate. The transverse section exhibits medullary rays mostly two or three cells in width. The Wood is inodorous, but has an intense, purely bitter taste.

Preparations.

INFUSUM QUASSIÆ. Infusion of Quassia. (Altered.)

Quassia Wood, finely rasped, 88 grains; Distilled Water, cold, 20 fl. oz. Infuse in a covered vessel for fifteen minutes; strain.

=(about 1 in 100).

Now 1 in 100 instead of 1 in 80, and the time is reduced.

Dose.—½ to 1 fl. oz.

Foreign Pharmacopœias.—Official in Fr. (Quassia Amara), 1 in 200; Span. (Tinct. Acuosa de Quassia Amarga), 1 in 100; not in the others.