Not Official.

DUGONG OIL.

An Oil obtained in Australia from *Halicore Dugong*, Daub., by boiling the superficial fat. A substitute for Cod-Liver Oil, recommended at one time (*P.J.* (3) iii. 3, 100) as not being disagreeable in taste, but it does not possess this character now.

Not Official.

DULCAMARA.

The dried young Branches of *Solanum Dulcamara* (Bittersweet), from indigenous plants which have shed their leaves.

Fresh specimens have been found (*C.D.* '02, ii. 313; *Y.B.P.* '02, 491) to contain two alkaloids (Solanine and Solanidine), a glucoside (Solanein), and a bitter principle (Dulcamarin) of a glucosidal nature yielding on hydrolysis Dulcamaretin and Glucose.

Medicinal Properties.—Alterative and sedative. Used in cutaneous eruptions, chiefly of a scaly nature, as psoriasis and pityriasis, a decoction being applied externally, at the same time that it is used internally.

An alkaloid **Solanine** obtained from *Solanum nigrum*, *S. Dulcamara* and *S. tuberosum* (Potato plant), has been recommended as an analgesic.—*L.M.R.* '86, 496; '88, 242; *T.G.* '87, 56; '88, 630; *L.* '87, ii. 1097.

Foreign Pharmacopœias.—Official in Austr., Fr. (Douce-amère), Mex., Port. (Doce-amarga), and Span. Not in the others.

EXTRACTUM DULCAMARÆ FLUIDUM.—1 fl. oz. equals 1 oz. Dulcamara. Prepared with diluted Alcohol.—*U.S.P.* 1890.

Dose.—30 to 60 minims = 1·8 to 3·6 c.c.

Foreign Pharmacopœias.—Official in Mex.

A solid Extractum Dulcamara is official in Austr., Fr. and Mex.

INFUSUM DULCAMARÆ.—Dulcamara, 1; boiling Water, 10; infuse 1 hour.

Dose.—1 to 2 fl. oz. = 28·4 to 56·8 c.c.
This has been incorporated in the *B.P.C.*

Foreign Pharmacopœias.—Official in Fr. (1 in 50). Not in the others.

ELATERIUM.

ELATERIUM.

Fr., Elaterion; Ger., Elaterium; Ital., Elaterio; Span., Elaterio.

A sediment from the juice of the Fruit of *Ecballium Elaterium*.

It contains from 20 to 40 p.c. of Elaterin, to which principle the activity of the drug is due. It contains in addition a second crystallisable bitter principle, Prophetin, and the amorphous substances Ecballin or Elateric Acid, Hydroelaterin and Elateride, of which but little is at present known.

'Extractum Elaterii' was the official synonym in *B.P.* '85 for Elaterium.

Medicinal Properties.—The most powerful hydragogue cathartic, only used in special cases. Employed in cardiac or renal dropsy and in cerebral congestion. Its administration in a debilitated state of the system or in gastro-intestinal inflammation requires very great caution on account of the depression which it produces.

Dose.—$\frac{1}{10}$ to $\frac{1}{2}$ grain = 0·006 to 0·032 gramme.

Prescribing Notes.—*On account of the similarity in name to the active principle, care must be exercised to avoid confusion. The Pulvis Elaterini Compositus is often preferred; it is frequently given in the form of Pill with Compound Extract of Colocynth and Henbane. To prevent it causing persistent diarrhœa, it may be given with Henbane, especially in renal diseases; in cardiac cases it should be guarded by a stimulant to prevent too much depression.*

Official Preparations.—Elaterinum; **Elaterin** is contained in Pulvis Elaterini Compositus.

Not Official.—Pilula Elaterii Composita.

Antidotes.—The same as for Croton Oil (*q.v.* p. 460).

Foreign Pharmacopœias.—Official in Mex., Elaterio; Port., Extracto de Pepinos de S. Gregorio. Not in the others.

Descriptive Notes.—Two forms of Elaterium are met with in commerce, viz., English and Maltese.

The English form is very brittle, and consequently is usually met with in thin flakes or fragments $\frac{3}{4}$ inch to $\frac{1}{2}$ inch in width; the colour when fresh is green, soon becoming greyish, and when kept long or not kept dry it turns yellowish-grey. It should contain no Starch (*B.P.*); it yields up to 33 p.c. of Elaterin. The Maltese occurs in square cakes or tablets about 1 in. in diameter and rather more than $\frac{1}{12}$ in. in thickness, of a greenish-grey colour; it sometimes contains Starch and Calcium Carbonate, and yields about 27 p.c. of Elaterin.

The English drug is official.

Tests.—Elaterium should yield no marked effervescence on the addition of Hydrochloric Acid, indicating the absence of more than traces of Carbonates. When boiled with Water, cooled, and tested with Iodine Solution no decided blue coloration should be produced, indicating the absence of more than a trace of Starch. It is officially required to yield 50 p.c. of its weight to boiling Alcohol (90 p.c.), and when exhausted successively with Chloroform and Ether and the process repeated, it is required to yield 25 p.c. or not less than 20 p.c. of Elaterin. Good specimens of Elaterium yield from 30 to 40 p.c. of Elaterin.

Preparations.

ELATERINUM. Elaterin ($C_{20}H_{28}O_5$), eq. 345·60, occurs in small hexagonal scales or tables.

It is the active principle of Elaterium.

Solubility.—Insoluble in Water; sparingly in Alcohol (90 p.c.); 1 in 12 of Chloroform.

A recent figure obtained for Alcohol (90 p.c.) was 1 in 1100.

Dose.—$\frac{1}{400}$ to $\frac{1}{100}$ grain = 0·0016 to 0·0065 gramme.

Foreign Pharmacopœias.—Official in U.S. Not in the others.

Tests.—Elaterin when heated to 190° C. (374° F.) turns yellow, and melts at 216° C. (420·8° F.). No melting point is, however, given in the *B.P.* It should be neutral in reaction towards Litmus. A crimson colour rapidly changing to scarlet is produced on the addition of Sulphuric Acid to a solution of Elaterin in melted Phenol.

Sulphuric Acid colours it yellow, the colour gradually changing to scarlet. A crystal evaporated to dryness with a little Hydrochloric Acid leaves a residue which when washed with hot Water and subsequently treated with Sulphuric Acid produces a brownish-red colour. Mineral matter and alkaloids are the more commonly occurring impurities. The former may be detected by the residue left on the ignition of the sample with free access of air, the latter by the production of a precipitate when Tannic Acid Solution, Mercuric Chloride Test Solution, or Platinic Chloride Solution is added to a solution of the principle in Alcohol (90 p.c.).

PULVIS ELATERINI COMPOSITUS. Compound Powder of Elaterin.

Elaterin, 1; Milk Sugar, 39.

Dose.—1 to 4 grains = 0·06 to 0·24 gramme.

Foreign Pharmacopœias.—Official in U.S. (Trituratio Elaterini), Elaterin, 1; Milk Sugar, 9. Not in the others.

Not Official.

PILULA ELATERII COMPOSITA.—Elaterium, ¼ grain; Compound Extract of Colocynth, 2 grains; Calomel, 1½ grains; Capsicum, ½ grain; Syrup of Glucose *q.s.*—*St. Bartholomew's.*

Dose.—1 or 2 pills.

Not Official.

ELEMI.

A concrete, resinous exudation, the botanical source of which is undetermined, but is sometimes referred to *Canarium commune*, L. It has lately been attributed to *Canarium Luzonicum*, Miq.

It is imported from Manila.

When of good quality it is pale yellow of the consistence of stiff Honey and has a Fennel-like odour.

Brazilian and Yucatan Elemis are official in some of the Foreign Pharmacopœias, but are derived from other species of the same natural order *Burseraceæ*. They are usually more discoloured and harder, but have a similar odour.

Solubility.—The greater part is soluble in Alcohol (90 p.c.); wholly soluble in Ether.

Medicinal Properties.—The ointment is stimulant to indolent ulcers.

Foreign Pharmacopœias.—Official in Austr., Belg., Dutch, Fr., Mex. (Goma de Limon), Port., Span. and Swiss. Not in the others.

UNGUENTUM ELEMI.—Elemi, 1; Spermaceti Ointment, 4; melt, strain, and stir till cold.—*B.P.* 1885. (1 in 5)

This has been incorporated in the *B.P.C.*, using Unguentum Simplex.

Foreign Pharmacopœias.—Official in Mex., Span. and Swiss, 1 of Elemi and 1 of Turpentine in 4 of Ointment; Dutch, 3 of Elemi, 2 of Turpentine, in 10 of Ointment; Port., 2 of Elemi and 1 of Turpentine in 10. Not in the others.

Not Official.

EMBELIA.

The Fruit (including the dried Fruit and the Seeds) of *Embelia Ribes*, Burm. f., and of *Embelia robusta*, Roxb., are official in the *Ind.* and *Col. Add.* for India and the Eastern Colonies.

The powdered Seeds are used in India for tapeworm.—*L.* '87, ii. 199.

Dose.—60 to 240 grains = 4 to 16 grammes.

ACIDUM EMBELICUM.—Obtained from the Seeds. Insoluble in Water. It forms salts with Ammonium, Potassium, and Sodium.

AMMONII EMBELAS.—A tasteless crystalline salt, in red needles.

Dose.—3 to 6 grains = 0·2 to 0·4 gramme, in Honey or Simple Syrup.

Not Official.

EMBLICA.

The fruit of *Phyllanthus Emblica* L., (Emblic Myrobalan) has been used in Hindu medicine for a long time, as a diuretic and laxative. The fresh fruits preserved in Syrup are imported into this country.

Not Official.

EPHEDRINE HYDROCHLORIDE.

The Hydrochloride of an alkaloid obtained from *Ephedra vulgaris*, L., or *E. Helvetica*, C. A. Mey.

Has been recommended as a mydriatic in the form of a 5 p.c. solution.—*B.M.J.E.* '98, ii. 92.

The addition to it of 1 p.c. of Homatropine Hydrochloride enhances its action, and the mixture, which is supplied under the name '**Mydrine**' is a white powder readily soluble in Water; a 10 p.c. aqueous solution dilates the pupil moderately within a few minutes, without affecting the accommodation, and its effects pass away in two to four hours. It is useful in diagnostic examinations.—*L.* '98, ii. 24; *T.G.* '98, 757.

ERGOTA.

ERGOT.

Fr., Ergot de Seigle; Ger., Mutterkorn; Ital., Segala Cornuta; Span., Cornezuelo de Centeno.

The sclerotium of *Claviceps purpurea*, Tulasne, in the ovary of *Secale cereale*, L.*

The drug should be stored whole, should be well dried, and kept in airtight vessels and perfectly dry. The *U.S.P.* says that after being kept for one year it is unfit for use.

The two principal varieties of Ergot are Spanish and Russian. They contain respectively about 0·2 and 0·25 p.c. of Ergotinine, and although the former contains somewhat less Ergotinine than the latter, it is usually considered the best. Ergot yields its virtues to Water and to Alcohol.

Ergot contains, in addition to the crystalline alkaloid Ergotinine discovered by Tanret, a second alkaloid Ergotoxine discovered by Barger and Carr of the Wellcome Physiological Research Laboratories, and described by them at the British Association meeting at

* Ergot is common on grasses, and if it occurs in the pastures where cattle feed, it is said to occasion dry gangrene, causing them to lose their hoofs and horns.

York in 1906 (*C.N.* '06, 89; *B.M.J.* '06, ii. 1792). The latter alkaloid, although itself amorphous, forms a number of crystalline salts. It is claimed to be the most important if not the one essential active principle, whilst the pure crystalline Ergotinine is almost if not quite physiologically inactive. Tanret (*J. Pharm. Chemie*, '06 [vi.], 24, 397–403; *J.C.S. Abs.*, '06, i. 979; *Y.B.P.* '07, 62) takes exception to the application of the name Ergotoxine to the amorphous body accompanying crystalline Ergotinine, which he discovered and named amorphous Ergotinine, and also strongly controverts the statement that crystalline Ergotinine is almost physiologically inactive, alleging in support the constant therapeutic employment of the base. Barger and Carr point out (*J.C.S. Trans.* '07, 340) that Tanret himself attributed the variation in the specific rotation of amorphous Ergotinine to varying amounts of crystallised Ergotinine contained in it, and that he therefore had not prepared the pure alkaloid. As to the physiological activity, they refer the reader to the experiments of H. H. Dale, published in the *Jour. Physiol.* '06, 34, 163. According to Barger and Carr (*J.C.S. Trans.* '97, 339), Acetic Anhydride converts the crystalline into the amorphous alkaloid, the change being brought about by the removal of a molecule of Water and not by the introduction of an Acetyl group, and support the suggestion of Kraft's that the amorphous is the Hydrate of the crystalline alkaloid, and this theory is regarded as definitely established by their analysis. Hydroergotinine, discovered independently by Kraft (*J.C.S. Abs.* '06, i. 979), is considered (*J.C.S. Trans.* '07, 341) to be undoubtedly identical with Ergotoxine. Cornutine does not occur as such in Ergot, but is an artificial decomposition product of Ergotinine. The Picrosclerotine of Dragendorff and the Secaline of Jacobi are regarded as other names for Tanret's alkaloid.

Ergot also contains Ergotinic Acid (the Sclerotic Acid of Dragendorff and the Ergotic Acid of Wenzell), Sphacelinic Acid or Sphacelotoxin, Ergosterol, Trehalose, and Mannite. Colouring matters, *e.g.*, Sclererythrin, Scleroiodin, Scleroxanthin and its anhydride Sclerocrystallin, Picrosclerotine, and Fusco-sclerotic Acid, are present, and about 33 p.c. of fixed oil, which can be extracted with Ether, Petroleum Ether, and to a great extent by hydraulic pressure.

Medicinal Properties.—Ecbolic; used in obstetric practice to contract the uterus, assist expulsion of placenta, and prevent or stop post-partum hæmorrhage. Employed in uterine hæmorrhage from other causes, such as fibroid tumour; and in subinvolution of the uterus; also, but with doubtful success, in hæmoptysis, hæmatemesis, hæmaturia, and epistaxis. Efficacious in flatulent dilatation of stomach; in acute myelitis and in paraplegia of inflammatory origin; in night sweats of phthisis. Deep intramuscular injection gives most rapid action in critical cases. Injections into the sphincter are valuable in prolapsus ani. After elaborate investigations, Kobert recommends freshly-powdered Ergot for certainty of action.

The uses of this valuable drug have been increased by its employment *L.* '04, ii. 1395) in preventing shock in abdominal surgery. 30 minims of a

specially-prepared Ergot, in which from $\frac{1}{60}$th to $\frac{1}{30}$th grain of Strychnine or $\frac{1}{30}$th grain Sparteine is dissolved, are injected three times daily, for two or three days before operation. In chorea 1 to 1½ drm. of the liquid extract with 2 minims of Liquor Strychninæ have been given thrice daily (*B.M.J.* '05, i. 354), or 1 drachm liquid extract and 3 minims of Liquor Arsenicalis.—*B.M.J.* '05, i. 354.

It is this drug which has given the best results (*L.* '05, i. 851), and which seems to solve the difficulty of the treatment of surgical shock. 2 grammes of a specially-prepared Ergot diluted with 20 c.c. of normal saline solution, 5 to 10 c.c. injected at a time. Its great advantage over Adrenalin is that its action is more prolonged, one dose being sufficient to keep up the blood pressure for some time.

The best remedy for intestinal hæmorrhage.—*T.G.* '07, 324.

In hiccough (*L.* '85, ii. 276); in periodic neuralgia (*T.G.* '94, 343); in diabetes insipidus, 30-minim doses of the Liquid Extract every three hours.—*L.M.R.* '80, 231, 446; '81, 12.

In chorea 1-drm. doses of the Liquid Extract given every four hours.—*B.M.J.* '03, ii. 133.

Ammoniated Tincture stated to be an active preparation, and to have proved useful in obstinate cases of uterine hæmorrhage when other Ergot preparations have failed.—*C.D.* '01, i. 324, 663.

Dose.—20 to 60 grains = 1·3 to 4 grammes.

Prescribing Notes.—*The unpleasant taste of the preparations of Ergot is improved by Tincture of Orange and Chloroform Water, or better by Tincture of Orange and Cinnamon Water. The Infusion and Hypodermic Injection should be made fresh as required. When the extract is ordered in pills, Powdered Liquorice Root added q.s. makes a good pill.*

The prescriber has three fluid extracts to choose from: (1) *B.P. which is exhausted by cold Water;* (2) *U.S.P. by diluted Alcohol mixed with Acetic Acid;* (3) *Liquor Ergotæ Ammoniatus (not official) by Ammoniated diluted Alcohol. The official Tinctura Ergotæ Ammoniata is similar to the last, but much weaker.*

It is often desired to give Iron with Ergot, which produces an unsightly ink-like mixture and a precipitate. This can be avoided by adding 6 grains of Citric Acid to 1 fl. drm. of Tincture of Perchloride of Iron.

Incompatibles.—Astringents, metallic salts.

Official Preparations.—Extractum Ergotæ, Extractum Ergotæ Liquidum, Infusum Ergotæ, Tinctura Ergotæ Ammoniata. Injectio Ergotæ Hypodermica is made with Extractum Ergotæ.

Not Official.—Discs of Ergotin, Extractum Ergotæ, Extractum Fungi Secalis Fluidum, Extractum Secalis Cornuti, Extractum Secalis Cornuti Cornutino-Sphacelinicum, Fluidextractum Ergotæ, Liquor Ergotæ Ammoniatus, Mistura Ergotæ, Mistura Ergotæ Ammoniata, Mistura Ergotæ et Ferri, Pilula Ergotini, Tinctura Ergotæ, Vinum Ergotæ, Acidum Sclerotic um, Cornutine Citrate, Ergotin (various), Ergotinine, Ergot Aseptic, Ergotoxine, Ergotoxine Hydrochloride, Ergotoxine Phosphate.

Foreign Pharmacopœias.—Official in Austr., Belg., Dan., Dutch, Ger., Hung., Jap., Norw., Russ., Swed. and Swiss (Secale Cornutum); Fr. (Ergot de Seigle); Ital. (Segala Cornuta); Mex. (Cuernecillo de Centeno); Port. (Cravagem de Centeio); Span. (Cornezuelo de Centeno); U.S. (Ergota).

The *Brussels Conference* agreed that Ergot should be not more than one year old, and kept whole.

Descriptive Notes.—Ergot is the compact horny mycelium or spawn of the small fungus, *Claviceps purpurea*, Tulasne, and is developed on, and takes the place of, the growing ovary of the rye plant. The fungus itself resembles a minute mushroom in shape, without gills, but with cavities containing ascospores, in its cap or head. It cannot be developed from the Ergot of commerce, the vitality of which is destroyed by drying, but can readily be grown on damp sand in

spring from the mature but undried Ergot. As met with in commerce Ergot may vary in size according to the variety, but averages about ½ to ¾ of an inch (12 to 19 mm.) and 1 to 2 lines in diameter. The official description limits it to ⅓ to 1½ inch (1 to 4 cm.) in length, but does not give the diameter, which varies from ½ to 4 lines. There are three principal varieties in commerce, viz., Spanish, German or Austrian, and Russian, and occasionally a variety from the Canary Islands. The Spanish is the largest and most highly priced, the German comes next in size, and then the Russian, the Canary kind containing a larger number of small specimens than the Russian. English Ergot is not known in retail commerce; it is probably mixed with the foreign drug in this country, being separated from the cereal by millers. The activity of Ergot appears to depend more upon the method of preservation than upon the particular variety employed.

It should be hard and dry. It is longitudinally furrowed on each side, violet-black externally, and pinkish-white within, with a short fracture often irregularly cracked. Specimens that are flexible have a mouldy odour, and are much cracked, usually due to exposure to damp before drying, or are infested with powder-like mites, should be rejected. If dried over lime or in a current of warm air, and kept in stoppered bottles from which air is excluded by Vaseline around the stoppers, it will keep good for some months, but should only be powdered when required for use. It should not be kept longer than a year (*P.G.* and *U.S.P.*), and should not give off an ammoniacal or rancid odour when 10 parts of boiling Water are poured over it (*P.G.*).

Tests.—Ergot possesses a peculiar and disagreeable odour, and if it be reduced to powder and the powder is moistened with Potassium Hydroxide Solution, this odour is intensified. Good Ergot leaves from 3 to 5 p.c. of ash when ignited with free access of air. Six samples examined in the author's laboratory left from 2·15 to 2·96 p.c., with an average of 2·75 of ash on incineration. The cold Water extract varied from 11·04 to 13·4 p.c., with an average of 12·3 p.c.

Preparations.

EXTRACTUM ERGOTÆ.—Extract of Ergot. *B.P.Syn.*—Ergotin.

100 of Ergot exhausted by percolating with Alcohol (60 p.c.). Evaporate percolate to 25 and mix it with an equal quantity of Distilled Water, filter; add 4·7 of diluted Hydrochloric Acid, and after 24 hours filter, wash the residue in the filter until free from acid; add 2 of Sodium Carbonate to the filtrate mixed with the washings, and evaporate the whole to a soft extract.

Dose.—2 to 8 grains = 0·13 to 0·52 gramme.

The corresponding preparation to this in *B.P.* '85 was prepared from Liquid Extract of Ergot and Rectified Spirit.

Extractum Ergotæ (*U.S.P.*) is practically the same as *B.P.*, except that Glycerin is added towards the end of the process. It is an alcoholic extract of Ergot treated with diluted Hydrochloric Acid to precipitate Sclererythrin, the characteristic colouring matter of Ergot, neutralised with Monohydrated

Sodium Carbonate and evaporated as directed in *U.S.P.* One would gather from the note in the *B.P.C.* that *U.S.P.* employed less than half the *B.P.* quantity of Sodium Carbonate, but this is not so; Sodium Carbonate should read Monohydrated Sodium Carbonate, then the quantities are nearly the same.

Extractum Secalis Cornuti (*Ger.*).—2 of Ergot macerated in 4 of Water, twice, the liquors mixed and evaporated to 1; mixed with 1 of Alcohol (90 p.c.), filtered after 3 days, and evaporated to a thick extract.

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

The *Brussels Conference* agreed to prepare a watery extract and make up with Alcohol (60 p.c.).

EXTRACTUM ERGOTÆ LIQUIDUM. Liquid Extract of Ergot. *N.O.Syn.*—Extractum Secalis Cornuti Fluidum.

Macerate 20 of crushed Ergot in 100 of Distilled Water for 12 hours, strain; repeat the maceration with a further 50 of Distilled Water and strain, press the marc, strain the fluid, mix it with the other fluid portions and evaporate to 14; when cold add 7½ of Alcohol (90 p.c.) and after one hour filter. (In practice it is better to allow it to stand for several hours.) (1 in 1)

Dose.—10 to 30 minims = 0·6 to 1·8 c.c.

60 minims = 3·6 c.c., is not infrequently prescribed.

Tests.—Liquid Extract of Ergot has a specific gravity of 1·015 to 1·025; contains from 13 to 16 p.c. w/v of total solids and about 32 p.c. w/v of Absolute Alcohol.

Fluidextractum Ergotæ (*U.S.P.*).—Percolate 100 of Ergot (in No. 60 powder) with 2 of Acetic Acid (*U.S.P.*) mixed with 98 of Alcohol (49 p.c.); continue the percolation with Alcohol (49 p.c.) until exhausted; reserve the first 85, evaporate the remainder to a soft extract, dissolve this in the reserved portion and make up to 100 with Alcohol (49 p.c.).

Foreign Pharmacopœias.—Austr. (Extractum Fungi Secalis Fluidum). The fat is extracted from 100 of Ergot with Petroleum Ether, and after drying the marc, it is percolated with a mixture of Glycerin 5, Alcohol 20, Water 20, to produce 100; Belg., Dan., Ger., Norw., Swed. and Russ., Extract with **Hydrochloric Acid** and dilute Alcohol; Fr., exhausted with Water, and Tartaric Acid; Mex. (Extracto Fluido de Curnecillo de Centeno), with **Acetic Acid** and dilute Alcohol; Swiss and U.S. percolated with dilute Alcohol acidified with **Acetic Acid**; Dutch, with dilute Alcohol and Tartaric Acid; Jap., with a mixture of Alcohol 2, Water 8. Not in the others.

The *Brussels Conference* agreed that the strength should be 100 p.c.

INFUSUM ERGOTÆ. Infusion of Ergot.

Infuse 1 of freshly crushed Ergot with 20 of boiling Distilled Water for 15 minutes and strain.

Dose.—1 to 2 fl. oz. = 28·4 to 56·8 c.c.

Used also as an injection for gleet.

INJECTIO ERGOTÆ HYPODERMICA. Hypodermic Injection of Ergot. *B.P.Syn.*—Hypodermic Injection of Ergotin.

Extract of Ergot, 100 grains; Phenol, 3 grains; Distilled Water, 220 minims, or a sufficient quantity. Mix the Phenol with the Distilled Water; boil for a few minutes; cool; add the Extract of

Ergot, and, if necessary, sufficient recently boiled and cooled Distilled Water to produce 330 minims of the Injection. (1 in 3)

The above is the official wording, but it is not clear why the Water should be boiled *after* the addition of the Phenol. It would be better to dissolve both the Ergot and the Phenol in the previously Sterilised Water.

Dose, *by subcutaneous injection.*—3 to 10 minims = 0·18 to 0·6 c.c.

This injection should be recently prepared. 3·3 minims = 1 grain of Extract of Ergot.

Foreign Pharmacopœias.—Official in Port. (Soluto de Ergotino com Glycerino), Ergotin 1, Glycerin 4, Water 5; all by weight; Span. (Inyeccion Hipodermica de Ergotina), Ergotin 1 gramme, Glycerin 2 grammes, Water *q.s.* to 10 c.c. Mex. and Span. have Injection Ergotinine.

TINCTURA ERGOTÆ AMMONIATA. Ammoniated Tincture of Ergot.

Ergot, in No. 20 powder, 5; Solution of Ammonia, 2; Alcohol (60 p.c.), *q.s.* to yield 20. (1 in 4)

Dose.—30 to 60 minims = 1·8 to 3·6 c.c.

Foreign Pharmacopœias.—A simple tincture is official in Dutch, Mex. and Port., 1 in 5; all by weight. Not in the others; U.S. (Vinum Ergotæ), 1 in 5.

Tests.—Ammoniated Tincture of Ergot has a specific gravity of 0·930 to 0·938; contains from 3 to 5 p.c. of total solids and about 52 p.c. w/v of Absolute Alcohol.

Not Official.

DISCS OF ERGOTIN $\frac{1}{3}$ grain = 0·02 gramme, and $\frac{1}{4}$ grain = 0·016 gramme are prepared for hypodermic use.

PILULA ERGOTINI.—Ergotin 2 grains, Liquorice Powder 3 grains.

LIQUOR ERGOTÆ AMMONIATUS.—A liquid Extract of Ergot (1 in 1), prepared with ammoniated diluted Alcohol.

Dose.—10 to 60 minims = 0·6 to 3·6 c.c.

B.P.C. gives the following formula, under the title **Extractum Ergotæ Ammoniatum Liquidum,** but adds that although four times the strength of the official tincture, it is not very active:—100 of Ergot in No. 20 powder is percolated with a mixture of Solution of Ammonia 10, and Alcohol (60 p.c.) 70; continue the percolation with Alcohol (60 p.c.) until exhausted; reserve the first 85, evaporate the remainder to 15 and mix.

MISTURA ERGOTÆ.—Liquid Extract of Ergot, 30 minims; Diluted Sulphuric Acid, 10 minims; Chloroform Water, to 1 fl. oz.—*St. Thomas's.*

This has been incorporated in the *B.P.C.*

Liquid Extract of Ergot, 30 minims; Syrup of Ginger, 30 minims; Infusion of Orange Peel, to $\frac{1}{2}$ fl. oz.—*London.*

MISTURA ERGOTÆ AMMONIATA.—Liquid Extract of Ergot, 20 minims; Ammonium Carbonate, 3 grains; Emulsion of Chloroform, 15 minims; Camphor Water, to 1 fl. oz.—*University.*

Liquid Extract of Ergot, 4; Ammonium Carbonate, $\frac{5}{8}$; Emulsion of Chloroform, 3; Camphor Water, *q.s.* to produce 100.—*B.P.C. Supplement.*

MISTURA ERGOTÆ ET FERRI.—Liquid Extract of Ergot, 30 minims; Solution of Ferric Chloride, 15 minims; Citric Acid, 5 grains; Chloroform Water, to 1 fl. oz.—*Guy's.*

TINCTURA ERGOTÆ.—Ergot, 5; Proof Spirit, 20.—*B.P.* 1885.

This has been incorporated in the *B.P.C.*

VINUM ERGOTÆ.—Fluid Extract of Ergot, 20; Alcohol (95 p.c.), 5; White Wine, 75.—*U.S.P.*

This has been incorporated in the *B.P.C.*, using Detannated Sherry.

ACIDUM SCLEROTICUM.—A weak acid principle obtained from Ergot by Dragendorff. It is used **hypodermically** $\frac{1}{3}$ to $\frac{3}{4}$ grain = 0·021 to 0·05 gramme, dissolved in Distilled Water or Thymol Water.

CORNUTINE CITRATE.—A soluble salt of an alkaloid which is stated by Kobert to be the active principle of Ergot. A brown powder, which is used in obstetric practice.

Dose.—$\frac{1}{12}$ to $\frac{1}{6}$ grain = 0·0054 to 0·01 gramme, or subcutaneously $\frac{1}{32}$ to $\frac{1}{8}$ grain = 0·002 to 0·008 gramme.

Given in $\frac{1}{100}$ grain hypodermically to contract uterus in a case of eclampsia. —*L.* '99, i. 1430.

A soluble **Cornutine Hydrochloride** has also been prepared.

ERGOTININE.—An alkaloid obtained from Ergot. Long white crystals which have a tendency to darken on exposure to light and air.

Solubility.—According to Barger and Carr 1 part by weight of Ergotinine dissolves in 312 parts by weight of Absolute Ethyl Alcohol at 10° C. (50° F.) and in 292 parts by weight at 18° C. (64·4° F.). It is soluble 1 in 1020 parts by weight of Absolute Ether, 1 in 91 parts by weight of Ethyl Acetate, 1 in 26 parts by weight of Acetone, 1 in 77 parts by weight of boiling Benzene, 1 in 52 parts by weight of boiling Ethyl Alcohol, and 1 in 56 parts by weight of boiling Methyl Alcohol. It is stated by these authors to be extremely soluble in cold Chloroform, moderately so in Amyl Alcohol or Xylene, and insoluble in Petroleum Ether.

These figures also appear in the *B.P.C.*, but the abstractor has failed to note that all the fluids are by weight, and not by measure; and '1 in 91 parts by weight of Ethyl Alcohol' has been incorrectly copied as '1 in 91 by volume of Ethyl Acetate.'

Foreign Pharmacopœias.—Official in Fr. (Ergotinine Cristallisée), Span. and Mex.

Tests.—Ergotinine melts according to Barger and Carr at 229° C. (444·2° F.). Its solution in Ethyl Alcohol is strongly dextrogyrate, the rotation of a saturated solution in this solvent at 10° C. (50° F.) being + 338°, but the rotation is effected by prolonged boiling.

Ergotinine is precipitated by the usual alkaloidal reagents such as Potassio-mercuric Iodide Solution, Iodo-potassium Iodide Solution, Gold Chloride Solution, Platinum Chloride Solution, Bromine Water, Tannic Acid Solution and Picric Acid Solution. The addition of concentrated Sulphuric Acid to a solution of Ergotinine in Ether or in Ethyl Acetate produces a transitory orange coloration changing to blue. When the alkaloid is dissolved in concentrated Sulphuric Acid and a little anhydrous Ferric Chloride is added, a pale yellow coloration passing through orange, crimson and green to a permanent dark blue is produced.

A soluble **Ergotinine Citrate** has also been prepared.

ERGOTOXINE.—This alkaloid was discovered by Barger and Carr, and is described by them as a light white powder.

Solubility.—It is more soluble in organic solvents than Ergotinine, notably in cold Alcohol. It is also soluble in Sodium Hydroxide solution. It is but slightly soluble in Ether.

Tests.—Ergotoxine, according to the above-named authors, begins to soften about 155° C. (311° F.) and gradually melts at 162° to 164° C. (323·6° to 327·2° F.). The rotation of an alcoholic solution varies with the method of preparation. Ergotoxine is precipitated by the usual alkaloidal reagents, *e.g.*, Potassio-mercuric Iodide Solution, Iodo-potassium Iodide Solution, Auric Chloride Solution, Platinic Chloride Solution, Picric Acid Solution, Phosphomolybdic Acid, Bromine Water and Tannic Acid Solution. The addition of Concentrated Sulphuric Acid to a solution of Ergotoxine in Ethyl Acetate or Ether gives rise to a transitory orange coloration, changing to blue. The addition of anhydrous

Ferric Chloride to a trace of the alkaloid dissolved in concentrated Sulphuric Acid gives a pale yellow coloration changing through orange, crimson and green to a permanent dark blue.

ERGOTOXINE HYDROCHLORIDE.—This salt was prepared by Barger and Carr, and is described by them as forming minute diamond-shaped plates, and very thin and very long square-ended needles. It melts at 205° C. (401° F.). It is considered very unstable and therefore very difficult to purify.

ERGOTOXINE PHOSPHATE.—This salt is described as the most easily purified of the Ergotoxine salts; it is stated to crystallise in groups of needles, and when pure in isolated needles.

Solubility.—Barger and Carr state that 1 part of Ergotoxine Phosphate dissolves in 313 parts by weight of cold, and in 14 parts by weight of boiling Alcohol (90 p.c.).

Tests.—Ergotoxine Phosphate melts according to the above-named authors at 186° to 187° C. (366·8° to 368·6° F.). A 1 p.c. solution of the salt in cold Distilled Water forms a typical colloidal solution. If an equal volume of Normal Volumetric Hydrochloric, Oxalic, Phosphoric, or Acetic Acid Solutions are added to the solution, the degree of precipitation is in the order named, the Hydrochloric Acid forms a thick jelly, so that the tube can be inverted without the contents escaping, whilst in the case of the Acetic Acid, the solution remains fluid.

A normal and an acid **Ergotoxine Oxalate** have been prepared by Barger and Carr, the former described by them as elongated rectangular plates possessing a melting point of 179° C. (354·2° F.), the latter as minute prisms possessing a similar melting point.

ERGOTIN.—This is a synonym for *B.P.* Extract of Ergot; there are also the following commercial varieties:—

Ergotinum Bonjean.—An aqueous reddish-brown Extract, purified by Alcohol. 1 part Extract = 5 to 6 parts Ergot.

Dose.—1½ to 4½ grains = 0·1 to 0·3 gramme.

Ergotinum Bonjean Depuratum pro Injectione.—A purified liquid for injection, 1½ parts = 1 part Ergotin Bonjean.

Dose.—1½ to 4½ grains = 0·1 to 0·3 gramme.

Ergotin Bombelon Fluidum (Cornutinæ Ergotas).—A brownish-black liquid.

Dose.—30 minims = 1·8 c.c. per os, 3½ to 8 minims = 0·2 to 0·5 c.c. subcutaneously.

Ergotin Bombelon Spissum.—Soft Extract. Administered internally in Pill form or in Solution. Ergot Bombelon Spissum, 10 grammes (or 154 grains); Aqua Laurocerasi, 7·5 grammes (or 2 fl. drm.); Alcohol (90 p.c.), 2·5 grammes (or 42 minims); 4 to 15 drops.

Ergotinum Denzel Fluidum.—A purified Extract.

Dose.—3 to 10 grains = 0·2 to 0·65 gramme.

Ergotinum Kohlmann Fluidum.—Brownish-black fluid, miscible with Water.

Daily Dose.—60 to 75 grains = 4 to 5 grammes.

Ergotinum Purum Dialysatum Wernich Spissum.—A dialysed aqueous Extract of Ergot, purified by treatment with Ether and Alcohol. Soluble in Water.

Dose.—10 to 30 grains = 0·65 to 2 grammes.

Ergotinum Purum Dialysatum Wernich Fluidum.—2 parts = 1 part of the above preparation.

Dose.—10 to 60 grains = 0·65 to 4 grammes.

Ergotinum Purum Dialysatum Wernich Siccum.

Dose.—22 grains = 1·4 gramme.

Ergotinum Purum Siccum Wiggers.—A reddish-brown powder, soluble in Water.

Dose.—$\frac{1}{3}$ to $1\frac{1}{2}$ grain = 0·02 to 0·1 gramme.

Ergotin Yvon.—A brownish-black fluid, prepared from fat-free Ergot by exhaustion with dilute Tartaric Acid solution.

Dose.—10 to 20 drops internally per os; 1 c.c. = 16 minims hypodermically.

EXTRACTUM SECALIS CORNUTI CORNUTINO-SPHACELINICUM (KOBERT).—An Extract which combines the action of **Cornutine** and **Sphacelinic Acid,** an alkaloid and a resinous body, obtained by Kobert from Ergot. It is prepared by exhausting Ergot with strong Alcohol, and evaporating the liquid to an Extract, the fatty Oil being removed by Ether.

ERGOT ASEPTIC.—A sterilised concentrated preparation prepared from physiologically standardised Ergot, put up in bulbs containing 1 c.c. representing 2 grammes or 30 grains Ergot.

Not Official.

ERIGERONTIS CANADENSIS OLEUM.

OIL OF CANADIAN FLEABANE.

A colourless, or pale yellow, mobile liquid, distilled from the fresh flowering Herb *Erigeron Canadense*, L., which grows abundantly in American Mint fields.

It has a tendency to darken in colour and to become viscid on exposure to air, and rapidly becomes resinified. It should be kept in well-stoppered glass bottles of a dark amber tint, in a cool atmosphere and protected as far as possible from the light.

It consists almost entirely of Dextro-limonene.

Medicinal Properties.—Diuretic, tonic, and astringent. Chiefly employed for arresting internal hæmorrhage.

Dose.—5 to 10 minims = 0·3 to 0·6 c.c. every two or three hours.

Foreign Pharmacopœias.—Official in U.S. Not in the others.

Tests.—Erigeron Oil has a specific gravity of 0·850 to 0·870, an optical rotation of not below + 45°, and the greater part of the oil distils about 175° C. (347° F.). It should be soluble in an equal volume of Alcohol (94·9 p.c.).

Not Official.

ERYTHROL TETRANITRATE.

TETRANITRIN.

A colourless, crystalline solid melting at 61° C. (141·8° F.) prepared from Erythrol (a tetratomic Alcohol). When kept in a dark and moderately cool place it is fairly stable, but if exposed to warmth, and especially sunlight, it rapidly undergoes decomposition. It is liable to explode on percussion, and should be handled with great care.

It is but slightly soluble in Water, but dissolves readily in Alcohol (90 p.c.) and in Ether.

It is a vaso-dilator and belongs to the group of which Glycerol Trinitrate (Nitroglycerin) may be regarded as the typical representative. Blood pressure experiments show that it has a less marked but more prolonged action than that substance.—*B.M.J.* '95, ii. 1213; '97, i. 907; '98, i. 18, 37, 248; ii. 936.

A list of cases treated with Erythrol Tetranitrate.—*B.M.J.* '99, ii. 1259. Dangers.—*M.P.* '99, 338.

Dose.—$\frac{1}{2}$ to 1 grain, in alcoholic solution or in the form of tablets.

Tablets are made containing $\frac{1}{6}$, $\frac{1}{4}$, $\frac{1}{3}$ and 1 grain.

Not Official.

ERYTHROPHLÆUM.

CASCA BARK. SASSY BARK.

The Bark of the *Erythrophlæum guineense*, Don. Introduced as a cardiac tonic in 1877.

An Ordeal Bark used in West Africa. It yields an alkaloid **Erythrophlæine**, the **Hydrochloride** of which is soluble in Water.

B.P.C. Formulary 1894 had a **Tincture** (1 in 10), dose 5 to 10 minims = 0·3 to 0·6 c.c., but it was omitted from the 1901 edition; it is now re-introduced in *B.P.C.* 1907.

ETHYL NITRITIS LIQUOR.

See under SPIRITUS ÆTHERIS NITROSI.

EUCAINE. *See* COCAINE, p. 413.

EUCALYPTI GUMMI.

EUCALYPTUS GUM.

A ruby-coloured exudation, or so-called Red Gum, from the bark of *Eucalyptus rostrata* and some other species of Eucalyptus. Imported from Australia.

Under the name of Gummi Rubrum, this has been 'Not Official' in the *Companion* since 1871.

Medicinal Properties.—Astringent, principally used in diarrhœa, dysentery, and relaxed throat.

This Gum adheres with great pertinacity to the mucous surfaces, and it is probably on this account that its astringency is more effective than that of Catechu, Kino, etc., although it contains less astringent matter.

The **Fluid Extract** is an excellent styptic; injected into the nostril, at once stays bleeding of the nose; a tablespoonful in a pint of Water forms an astringent **injection** for the vagina or rectum; it also forms an astringent **lotion** for the eyes.

Dose.—2 to 5 grains = 0·13 to 0·32 gramme.

Prescribing Notes.—*Given in the form of* **cachets** *or in* **pills** *massed with Dispensing Syrup q.s. The Tincture mixes with Water and does not require Mucilage.*

Official Preparation.—Trochiscus Eucalypti Gummi.

Not Official.—Extractum Gummi Rubri Liquidum, Extractum Eucalypti Gummi Liquidum, Suppositoria Gummi Rubri, Syrupus Gummi Rubri, Syrupus Eucalypti Rostratæ, Syrupus Eucalyptus Compositus, Tinctura Gummi Rubri, Tinctura Eucalypti Gummi, Trochiscus Eucalypti Compositus, Trochiscus Gummi Rubri (*Squire*).

Descriptive Notes.—Although one variety of Eucalyptus Kino is known as Red gum in commerce, it is incorrectly styled gum in the *B.P.* and indeed it is often called in retail commerce by the more appropriate name of Eucalyptus Kino. The *B.P.* states that it is obtained from the bark of *Eucalyptus rostrata*, Schlecht., and some

other species. The one named in the *B.P.* is unfortunately a species which does not yield the best kind. According to Mr. H. G. Smith (*P.J.* (4), 23, p. 101) *Eucalyptus calophylla*, R. Br., yields the best obtainable in commercial quantities, the kino of *E. rostrata* being not so astringent, and its Tincture gelatinises. Eucalyptus kinos contain two tannins, one giving a green colour with Ferric Chloride, and not gelatinising, and the other giving a purple colour and gelatinising when kept (*See Proc. Roy. Soc. N.S. Wales, June and Aug.*, 1904). The fragments or grains are described in the *B.P.* as transparent and ruby red, somewhat tough, adhering to the teeth and tinging the saliva red. It should be soluble to the extent of 80 to 90 p.c. in cold Water and almost entirely in 90 p.c. Alcohol. The Eucalyptus kino of commerce is often blackish and opaque and consists of the natural product of the trees, but there is a preparation obtainable which is made in Australia by boiling down the fresh juice collected from incisions made in the bark of the tree. This is usually distinguished under the name of 'red gum' in commerce and the *B.P.* characters apply to it. The tincture does not gelatinise. It is used especially in 'red gum' lozenges on account of its purity and ready solubility. Eucalyptus Gum or Kino that is allowed to dry on the tree or is picked out of the wood is often largely insoluble in Water, owing apparently to the action of an oxydase which is only destroyed by boiling.

Preparation.

TROCHISCUS EUCALYPTI GUMMI.—Eucalyptus Gum Lozenge.

1 grain of Eucalyptus Gum, in each, with Fruit basis.

Not Official.

EXTRACTUM GUMMI RUBRI LIQUIDUM.—Red Gum, 7; Water, 21 dissolve, strain, and add Alcohol (90 p.c.), 1.

Dose.—30 to 60 minims = 1·8 to 3·6 c.c., in a wineglassful of Water.

EXTRACTUM EUCALYPTI GUMMI LIQUIDUM.—Dissolve 5 of Red Gum in 13 of Distilled Water; strain, and add 2 of Alcohol (90 p.c.) and sufficient Distilled Water to produce 20.

This has been incorporated in the *B.P.C.* from the *B.P.C. Formulary* 1901.

SUPPOSITORIA GUMMI RUBRI.—Powdered Red Gum, 5 grains; Extract Nux Vomica, 1 grain; Cocoa-nut Stearin, *q.s.* to make one suppository.

SYRUPUS GUMMI RUBRI.—Liquid Extract, 20; Sugar, 12; dissolve.

Dose.—30 to 60 minims = 1·8 to 3·6 c.c.

This has been incorporated in the *B.P.C.* under the title **Syrupus Eucalypti Gummi.**

SYRUPUS EUCALYPTI ROSTRATÆ.—Red Gum of *Eucalyptus rostrata*, 800 grains; Boiling Distilled Water, 9½ oz.; Refined Sugar, 16 oz.; Oil of Eucalyptus, 30 minims; Mucilage of Acacia, 4 fl. drm.—*Pharmacy Board of Victoria* (*C.D.* '06, i. 110).

Dose.—30 to 60 minims = 1·8 to 3·6 c.c.

This has been incorporated in the *B.P.C.* with slight alteration of the quantitie as follows:—

Syrupus Eucalypti Compositus.—Eucalyptus Gum from *Eucalyptus*

Rostrata, 7½; Oil of Eucalyptus, ½; Refined Sugar, 60; Mucilage of Gum Acacia, 2; Distilled Water, *q.s.* to produce 100.—*B.P.C.*

TINCTURA GUMMI RUBRI.—Gum, 1; Alcohol (90 p.c.), 4; digest and strain. Mixes with Water without becoming turbid.

Dose.—20 to 40 minims = 1·2 to 2·4 c.c.
1 part of this with 6 or 8 of Water for a **gargle.**

Tinctura Eucalypti Gummi (*B.P.C.*)—Eucalyptus Gum, 25; Alcohol (45 p.c.), *q.s.* to make 100.

TROCHISCUS EUCALYPTI COMPOSITUS.—2 grains of Potassium Chlorate, ¼ grain of Powdered Cubebs and 1 grain of Red Gum in each.—*Throat.*

TROCHISCUS GUMMI RUBRI (*Squire*).—Made with Rose Paste. This lozenge, which has been in use for about forty years, differs in appearance and flavour from that now introduced into the *B.P.*

Useful for relaxed throat. They have also been recommended as a preventive of sea-sickness.

EUCALYPTI OLEUM.

OIL OF EUCALYPTUS.

A colourless, or pale yellow, oily, limpid liquid, having a characteristic aromatic odour. It should contain at least 50 p.c. of Eucalyptol, and but very little Phellandrene. It is the volatile Oil distilled from the fresh Leaves of *Eucalyptus globulus*, and other species of *Eucalyptus*.

For many years the Oil from *E. amygdalina* was the most esteemed variety, and was included in *B.P.* '85, but it is now excluded by the tests given in *B.P.* '98.

The chief constituent of the Oil is Eucalyptol (Cineol), which in good Oils amounts to from 50 to 70 p.c. It also contains the Terpene, Dextro-pinene, in the crude Oil various Aldehydes, principally Valeric, Butyric, and Capronic Aldehydes, and in the higher boiling point fraction a lævogyrate Ester, yielding on saponification a lævogyrate Alcohol.

Solubility.—3 in 1 (or less) of Alcohol (90 p.c.), in all proportions of Absolute Alcohol; 1 in 38 of Alcohol (60 p.c.), (Amygdalina Oil, 1 in 175).

These figures have been incorporated in the *B.P.C.*

Medicinal Properties.—It is a powerful antiseptic and deodoriser; antipyretic. It is used as an inhalation in cases of pulmonary gangrene, phthisis, influenza, and coryza; and internally or by inhalation to relieve the cough in chronic bronchitis, phthisis, and asthma. Mixed with Iodoform as an application to hard and soft chancres, and as urethral suppository in gonorrhœa. Given internally for chronic inflammation of the bladder.

The following prescription of Sir R. Douglas Powell (*Edin. Med. Jour.* '05, 465) is of great service in relieving the troublesome cough of phthisis; Eucalyptus or Pine Oil, 3 drm.; Oil of Bitter Almonds, 1 drm; Spirits of Chloroform (double strength), 1 oz. Ten to 15 drops to be inhaled after the first morning coughing, in the middle of the day, and in the evening.

Alarming symptoms (*L.* '05, ii. 963) following the internal administration of a teaspoonful of the oil, taken plain to relieve an ordinary cold. Recovery.

A case of poisoning by Eucalyptus Oil. Recovery.—*B.M.J.* '06, i. 1085.

With Chloroform very successful in ankylostomiasis; also in killing tape- and thread-worms.—*L.* '06, i. 285.

Inhalation in whooping-cough.—*B.M.J.* '86, i. 430. As a disinfectant, as a throat and nose spray, and as an inunction in scarlet fever.—*L.* '95, i. 861.

An infusion (60 grains in 6 oz. of the leaves) twice daily in the treatment of diabetes.—*B.M.J.* '02, i. 1295; ii. 1884; *P.J.* '02, ii. 113.

Dose.—$\frac{1}{2}$ to 3 minims = 0·03 to 0·18 c.c.

Prescribing Notes.—*Given in the form of emulsion with Mucilage of Acacia and Water, or taken on Sugar. Used as an* **inhalation** *or* **spray.** *May be mixed with equal parts of Olive Oil for a* **liniment**; *1 to 3 or 4 of Olive Oil as an antiseptic inunction in scarlet fever.*

Official Preparation.—Unguentum Eucalypti.

Not Official.—Fluidextractum Eucalypti, Tinctura Eucalypti, Eucalyptus Gauze, Eucalyptus Wool and Lint, Pastille of Eucalyptus, Pastille of Eucalyptol, Nebula Eucalypti, Nebula Eucalypti et Pini, Nebula Eucalypti et Menthol et Cocainæ, Parogenum Eucalyptolis, Pessus Eucalypti, Vapor Eucalypti, Vasolimentum Eucalyptoli, Eugol, Eucalypteol, Eucalyptol, Phellandrene, Oleum Eucalypti Maculatæ var. Citriodora, Eudesmol.

Foreign Pharmacopœias.—Official in Fr. (Essence d' Eucalyptus), sp. gr. 0·910 to 0·930; Hung., sp. gr. 0·914; Jap., sp. gr. not given; Mex. (Aceite Volatil de Eucalipto), sp. gr. 0·905; Norw., sp. gr. 0·915 to 0·925; U.S., sp. gr. 0·905 to 0·925 at 25° C. (77° F.). Not in the others. The Leaves are official in Belg., Dutch, Fr., Hung., Ital., Jap., Mex., Port., Span., Swiss and U.S.

Descriptive Notes.—The Eucalyptus Oil of commerce is derived chiefly from *E. globulus*, Labill. in Tasmania and California, etc., and from *E. amygdalina*, Labill., *E. cneorifolia*, DC., *E. dumosa*, A. Cunn., and *E. oleosa*, F.v.M., in South Australia.

The oil of *E. amygdalina* was that originally used in medicine in Australia. It has not the Cummin flavour and odour due to Aromadendral which characterises the last three. The oil of *E. globulus* unless rectified has an unpleasant odour. Most of the oils of commerce have been rectified to free them from irritating Alcohols and Aldehydes and colouring matter, but will, nevertheless, if kept with access of air in bottles half full, in course of time resinify and thicken. Oil of *E. globulus*, adulterated with Castor Oil, has been met with in commerce.

Tests.—Eucalyptus Oil has a specific gravity, according to Baker and Smith, from 0·900 to 0·925; the official figures are 0·910 to 0·930; the *U.S.P.* gives 0·905 to 0·925 at 25° C. (77° F.). The Report of the Committee of Reference in Pharmacy suggests that the specific gravity should be raised to 0·910. It is difficult to gauge what this means, as the minimum specific gravity is already given as 0·910. The optical rotation in a tube of 100 mm. is officially required to be from + 10° to − 10°. The *B.P.* does not include a process for the quantitative determination of the Eucalyptol (Cineol), but contents itself with the statement that it should become semi-solid on being stirred, when cold, with a third or half its volume of Phosphoric Acid (sp. gr. 1·75). It must be conceded that the methods available for the quantitative determination of Eucalyptol in Eucalyptus Oils are not strictly accurate. The Phosphoric Acid method for all practical purposes is sufficiently accurate to enable the comparative values of the oils to be judged. The method has been

found most useful in arranging the several members of the genus into groups.

The Phosphoric Acid method for the determination of Eucalyptol in Eucalyptus Oils was originally discovered by Mr. L. R. Scammell, of Adelaide, South Australia, in 1892, and was the outcome of an investigation on various samples of cheap oils then being placed on the market. For about two years the process was used by Messrs. Faulding and Co. for the manufacture of Eucalyptol which they shipped to England. In 1894 the process was patented by Mr. Scammell, as Faulding's Process in England, France, Germany, and America, as well as in the Australian Colonies. With this method available, it was possible to introduce a standardised oil containing a guaranteed quantity of Eucalyptol.

The method adopted was to prepare the Eucalyptol Phosphate in a perfectly dry powdery condition by repeatedly pressing it between fresh absorbent paper, well breaking up the cake between each pressing, until finally no moisture could be detected. Eucalyptol Phosphate thus prepared was weighed in the tared vessel in which it was to be decomposed, and from which evaporation of the Eucalyptol was not possible. Cold Water was then added, and sufficient time allowed for the Phosphate to be perfectly decomposed without heating, usually over night. The whole was then transferred to a narrow burette, graduated in $\frac{1}{10}$ of a c.c. The aqueous portion was then separated, and this, together with the warm Water used in washing the Eucalyptol, transferred to a 100 c.c. flask. When the Eucalyptol had cooled down to the room temperature, it was measured, the remaining Water run into the flask, the Eucalyptol passed through a dry filter, and the specific gravity taken, from which the weight of the Eucalyptol was calculated. The dilute acid in the flask was then made up to the mark, and 10 c.c. titrated with Semi-normal Sodium Hydroxide Solution, using Phenolphthalein Solution as indicator, and checking the results by a Lead determination.

To obtain good results with the Phosphoric Acid method, it was found necessary to keep the temperature of the bath as low as possible, using iced Water if necessary, and to add the acid slowly by drops, well incorporating it with the oil. As the compound became solid it was well broken up with the rod, and ample time given for complete crystallisation to take place. Excess of Phosphoric Acid was used over that required theoretically, assuming the richest oil to contain about 73 p.c. of Eucalyptol; the determinations were made upon 10 grammes of oil.

The Phosphoric Acid method of determination is adopted by the *U.S.P.*, and a description of the process will be found under Oil of Cajuput, p. 279. An alternative method of determination is by means of Hydrobromic Acid. Absolutely anhydrous gaseous Hydrobromic Acid is passed through a measured quantity of 10 c.c. of the oil dissolved in 40 c.c. of Petroleum Ether and maintained at a freezing temperature, until a precipitate is no longer formed. The white precipitate of Cineol Hydrobromide is transferred to a pressure filter and washed with cold Petroleum Ether. The filtrate and washings

are further treated with Hydrobromic Acid, any precipitate being separately collected and added to the bulk precipitate. The Petroleum Ether is removed from the Cineol Hydrobromide by allowing it to remain for a quarter of an hour in a vacuum. It should then be rinsed with a little Alcohol into a Cassia flask and decomposed with Water. The Cineol is brought into the graduated neck of the flask and the volume read off. The figure so obtained multiplied by 10 yields the percentage by volume present in the oil. Schimmel & Co. consider the Phosphoric Acid method unreliable and useless, and give a caution against its adoption. They are also of opinion that the Hydrobromic Acid cannot lay claim to reliability either, and suggest Resorcin as suitable substance for making the determination. A measured quantity of 10 c.c. of the oil is mixed in a Cassia flask with sufficient 50 p.c. Resorcin Solution to about four-fifths fill the flask. After being thoroughly shaken for 5 minutes, the uncombined oily portions are brought into the neck of the flask by adding a further quantity of the Resorcin Solution, and the volume read off. The figure multiplied by 10 yields the percentage by volume of oily constituents other than Eucalyptol (Cineol), the latter being determined by difference. Oils very rich in Cineol require to be diluted beforehand with an equal volume of Turpentine Oil in order to prevent crystallisation of the Cineol Resorcin.

It is pointed out (*C.D.* '08, i. 55) that within certain limits the Phosphoric Acid method proposed by Scammell gives very fair results. It is that usually adopted for the determination of Cineol. The Resorcin process is dealt with in the same reference, the opinion expressed being that it gives very disappointing results, an oil showing a Cineol content of 65 p.c. w/v by the Phosphoric Acid method indicating 82 p.c. w/v by the Resorcin method, whilst samples of Cajeput oils showing 48 to 52 p.c. w/v by the Phosphoric Acid, indicated 80 to 84 p.c. w/v by the Resorcin method. Until further important information is forthcoming, the new process cannot be accepted as giving even approximate results.

The objections to the Resorcin process recorded *C.D.* '08, i. 55, have been acknowledged (*C.D.* '08, i. 265) by Wiegand and Lehmann of Schimmel's laboratory, who state that the error is due to the influence of the terpenes and other bodies in the oil which do not distil between 170° and 190° C. (338° and 374° F.). The process originally recommended has been modified so as to permit of its use for the estimation of Cineol. 100 c.c. of the oil are distilled from a Ladenburg 3-bulb flask, in such a manner that approximately 1 drop passes over every second. The Cineol content of the principal fraction boiling between 170° and 190° C. (338° and 374° F.), is then determined in the manner described above in detail. The Cineol content ascertained in the fraction is then re-calculated for the original oil, and the total content in p.c. by volume is thus obtained.

The *U.S.P.* requires the oil to contain not less than 50 p.c. w/v of Cineol. The inclusion in the *B.P.* of an assay process indicating not less than 55 p.c. of Eucalyptol has been recommended. Phellandrene, if present in the oil, may be detected by mixing the sample with

twice its volume of Glacial Acetic Acid and a saturated solution of Sodium Nitrite. If Phellandrene be present, a crystalline mass will be formed.

Preparation.

UNGUENTUM EUCALYPTI. EUCALYPTUS OINTMENT.

Oil of Eucalyptus (by weight), 1; Hard Paraffin, 4; Soft Paraffin, White, 5.

Now 1 in 10 instead of 1 in 5.

The Leaves and Oil of *E. amygdalina* are recommended by Bosisto for making the ointment.

Not Official.

FLUIDEXTRACTUM EUCALYPTI (*U.S.*).—Eucalyptus in No. 40 powder, 100; percolate with a mixture of Alcohol (95 p.c.), 75, and Water, 25; reserve the first 90 and evaporate the remainder to a soft extract, dissolve this in the reserved portion, and add enough menstruum to produce 100.

TINCTURA EUCALYPTI.—Eucalyptus Leaves, in No. 20 powder, 1; Alcohol (60 p.c.), to percolate 5, *B.P.C.* The *B.P.C. Formulary* of 1901 employed Alcohol 90 p.c.; the foreign Pharmacopœias use an intermediate strength. *U.S.P.* fluid extract about 70 p.c. Alcohol.

Dose.—15 to 120 minims = 0·9 to 7·1 c.c.

Foreign Pharmacopœias.—Official in Belg., Dutch, Fr., Hung., Ital., Mex., Port., Span. and Swiss, 1 in 5; Dutch, Hung. and Swiss with Alcohol (70 p.c.); Belg., Ital. and Mex. with Alcohol (80 p.c.). Not in the others.

Eucalyptus Gauze contains about 6 p.c. of the Oil; **Eucalyptus Wool** and **Lint** 5 p.c. and 10 p.c.; **Pastille of Eucalyptus** containing 1 minim of Oil is made, also **Pastille of Eucalyptol** containing $\frac{1}{2}$ minim of Eucalyptol, and both of these with Cocaine $\frac{1}{20}$ grain of the Hydrochloride, also the above with $\frac{1}{30}$ grain of Menthol in each.

NEBULA EUCALYPTI.—Oil of Eucalyptus, 20 minims; Liquid Paraffin, to 1 fl. oz.—*Throat.*

Oil of Eucalyptus, 1; Liquid Paraffin, *q.s.* to produce 20.—*B.P.C.*

Nebula Eucalypti et Pini.—Oil of Eucalyptus, 5; Oil of Pine, 7·5; Liquid Paraffin, *q.s.* to produce 100.—*B.P.C.*

Nebula Eucalypti et Mentholis et Cocainæ.—*See* p. 405.

PESSUS EUCALYPTI.—Oil of Eucalyptus, 15 minims; Oil of Theobroma, to 2 fl. drm.

VAPOR EUCALYPTI.—Oil of Eucalyptus, 20 minims; Light Magnesium Carbonate, 10 grains; Water, to 1 fl. oz. Mix a teaspoonful in a pint of Water at 140° F. for each inhalation.—*Throat.*

This has been incorporated in the *B.P.C.*

VASOLIMENTUM EUCALYPTOLI.—Eucalyptol, 20; Liquid Vasoliment, 80.—*Hager.*

Parogenum Eucalyptolis (Eucalyptol Vasoliment).—Eucalyptol, 20; Parogen, 80.—*B.P.C.*

Eugol is a liquid containing Beta-naphthol, Boric Acid, Menthol, Thymol, Eucalyptol, Gaultheria, and Hamamelis.—*B.M.J.* '98, i. 702; *L.* '98, i. 37.

Eucalypteol (Eucalyptene Bichloride).—A crystalline substance, almost insoluble in Water, melting at 50° C. (122° F.) and boiling at 115° C. (239° F.).

Dose.—5 grains = 0·32 gramme, as an internal antiseptic. 30 grains in Olive Oil may be given as an enema in diarrhœa.

EUCALYPTOL. (Crystallisable).—A definite chemical body ($C_{10}H_{18}O$, eq. 152·98), obtained from Eucalyptus Oil by a freezing process, or by separation as

Eucalyptol Phosphate and subsequent decomposition of this salt by hot Water. It is liquid at ordinary temperatures, but crystallises about 0° C. (32° F.). It should be kept in well-closed glass bottles of a dark amber tint and protected as far as possible from the light. It is identical with an oxidised compound obtained from Oil of Cajuput and a number of other essential oils, consequently the names **Cineol** and **Cajuputol** have also been applied to it.

Dose.—1 to 3 minims = 0·06 to 0·18 c.c.

Official in Fr., Belg., Ital., Port., Span., Swed., Swiss and U.S.

Tests.—Eucalyptol has a specific gravity of 0·928 to 0·930; *U.S.P.* 0·925 at 25° C. (77° F.), *Fr. Codex* (1908) 0·940 at 0° C. (32° F.). It boils at 176° to 177° C. (348·8 to 350·6° F.); *Fr. Codex* 176° C. (348·8° F.). It is optically almost inactive. It is liquid at ordinary temperatures, but crystallises about 0° C. (32° F.). When placed in a freezing mixture and gradually mixed with an equal volume of Phosphoric Acid (1·75 sp. gr.) it sets to a solid white crystalline mass. No diminution in volume should occur when the sample is shaken with an equal volume of Sodium Hydroxide Solution. It dissolves readily in Alcohol (90 p.c.), forming a solution which should be neutral in reaction to Litmus paper, and which should yield no brownish or violet colour on the addition of a drop of Ferric Chloride T.S.

The percentage of Cineol (Eucalyptol) may be determined by the Phosphoric Acid process given under Oil of Eucalyptus.

PHELLANDRENE.—A lævogyrate terpene, occurring in the Oil from *E. amygdalina*. Its presence can readily be detected by the formation of a crystalline nitrosite when the Oil is treated with Nitrous Acid.

OLEUM EUCALYPTI MACULATÆ VAR. CITRIODORA.—A pale yellow oily liquid with a pleasant citronella-like odour. Sp. gr. 0·870 to 0·905. It contains from 84 to 90 p.c. Citronellal, $C_{10}H_{18}O$.

EUDESMOL.—A crystalline Camphor from Eucalyptus Oil.

EUONYMI CORTEX.

EUONYMUS BARK.

Fr., Fusain Noir Pourpré; Ger., Spindlebaum; Ital., Evonimus; Span., Bometero.

The dried Root-bark of *Euonymus atropurpureus* Jacq.

Medicinal Properties.—Tonic, cathartic, and diuretic. The dry extract is a powerful cholagogue and purgative; useful in chronic constipation and torpid liver.

Prescribing Notes.—*Dried* **Extract** *in one form or another has been known for many years as* **Euonymin**; *usually given in the form of* **pills** *with Extract of Henbane; if prescribed alone, a little Soap, ⅛ grain in a 2 or 3 grain pill, and Alcohol (90 p.c.) q.s. makes a good mass. Also prescribed with Iridin, the dose of which is the same.*

Official Preparation.—Extractum Euonymi Siccum.

Not Official.—Elixir Euonymini Comp., Extract Euonymi, Fluidextractum Euonymini, Liquor Euonymini, Liquor Euonymini et Pepsini, Liquor Euonymin Bismuth Pepsin cum Iridino, Pilula Euonymini et Cascara, Tinctura Euonymi.

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

Descriptive Notes.—It is probable that a part of the bark of commerce is derived from *E. americanus* L., which has warty fruits and almost sessile, thick leaves. The root-bark usually occurs in small curved or slightly quilled pieces 1½ to 2 inches (37 to 50 mm.)

long and $\frac{1}{12}$ to $\frac{1}{6}$ of an inch (2 to 4 mm.) thick and 12 to 15 mm. in width, of an ashy or brownish-grey colour externally, with scattered patches of soft cork, and occasional small transverse scars and darker lines or patches. The inner surface is pale, of a light brown colour, and the fracture is short and yellowish, with projecting silky threads, more evident when the fractured edges are gently separated. The taste is bitter, somewhat acrid, and mucilaginous. Although only the root-bark is official, both in the *B.P.* and the *U.S.P.*, that of the stem is also sold either separately or mixed with it. It can be distinguished by occurring in longer, thin quills, with a greenish cortical portion, a fibrous bast, and more fibrous fracture.

The bark of *Alstonia scholaris*, R. Br., has been offered for Euonymus, but it is twice as thick, and its transverse fracture does not show cottony threads but small granular masses of stone cells.

Preparation.

EXTRACTUM EUONYMI SICCUM. Dry Extract of Euonymus.

Exhaust Euonymus Bark by percolation with Alcohol (45 p.c.); evaporate the percolate to dryness, and to each 4 of product add 1 of Calcium Phosphate. As it is hygroscopic, it should be kept in stoppered bottles.

Dose.—1 to 2 grains = 0·06 to 0·13 gramme.

Fr., a powder; U.S., an extract.

Not Official.

EXTRACTUM EUONYMI (*U.S.*).—100 of fluid extract is evaporated to dryness, and when powdered mixed with sufficient powdered Liquorice to make 25 by weight.

FLUIDEXTRACTUM EUONYMINI (*U.S.*).—100 of Euonymus in No. 40 powder is exhausted by a mixture of Alcohol (95 p.c.), 80; and Water, 20; reserve the first 80 of percolate, evaporate the remainder to a soft extract, which dissolve in the reserved portion, and make up to 100.

LIQUOR EUONYMINI.—Euonymin, 32 grains; Oil of Coriander, 2 minims; Alcohol (45 p.c.), 1 fl. oz.—*Bournemouth Formulary.*

Dose.—15 to 30 minims = 0·9 to 1·8 c.c.

Dry Extract of Euonymus, 6; Oil of Coriander, 0·75; Alcohol (45 p.c.), *q.s.* to produce 100.—*B.P.C.*

LIQUOR EUONYMIN ET PEPSINI.—Soluble Scale Pepsin, 32 grains; Dilute Hydrochloric Acid, 80 minims; Solution of Euonymin, 4 fl. drm.; Alcohol (45 p.c.), 4 fl. drm.; Chloroform Water, *q.s.* to make 2 fl. oz.—*Bournemouth Formulary.*

LIQUOR EUONYMIN CUM PEPSINO.—Tincture of Euonymus, 2½ fl. oz.; Pepsin, in scales, 240 grains; Diluted Hydrochloric Acid, 3 fl. drm.; Glycerine, 3 fl. oz.; Distilled Water, to 20 fl. oz.—*A.Ph.F.*

This has been incorporated in the *B.P.C.* under the title **Elixir Euonymi et Pepsinæ**, the figures being 12·5, 2·75, 2·0, 15, 100 respectively.

LIQUOR PEPSINI BISMUTHI ET EUONYMI CUM IRIDINO.—Glycerole Pepsin (Armour), 2½ fl. oz.; Ammonio Citrate of Bismuth, 320 grains; Tincture of Euonymus (*B.P.C.*), 400 minims; Iridin, 16 grains; Tincture of Cochineal *q.s.*; Simple Elixir, *q.s.* to make 20 fl. oz.—*Armour's Form.*, also *P.J.F.*

Elixir Euonymi Compositum.—Tincture of Euonymus, 4; Iridin, $\frac{1}{5}$; Stronger Glycerine of Pepsine, $12\frac{1}{2}$; Bismuth and Ammonium Citrate, $3\frac{1}{2}$; Solution of Cochineal *q.s.*; Simple Elixir, *q.s.* to produce 100.—*B.P.C.*

PILULÆ EUONYMINI ET CASCARÆ.—Euonymin, 12 grains; Extract of Cascara, 36 grains; Green Extract of Hyoscyamus, 12 grains; Iridin, 12 grains; Extract of Nux Vomica, $1\frac{1}{2}$ grains. Divide in 24 pills.—*Pharm. Form.*

Pilulæ Cascaræ et Euonymini.—Extract of Cascara Sagrada, $\frac{1}{2}$ grain; Euonymin, $\frac{1}{4}$ grain; Green Extract of Hyoscyamus, $\frac{1}{4}$ grain for 1 pill.—*B.P.C.*

TINCTURA EUONYMI.—Euonymus Bark, in No. 20 powder, 4; Alcohol (90 p.c.), sufficient to percolate 20.—*B.P.C. Formulary* 1901.

Dose.—10 to 40 minims = 0·6 to 2·4 c.c.

This has been incorporated in the *B.P.C.*

Not Official.

EUPATORIUM.

THOROUGHWORT. BONESET.

The dried leaves and flowering tops of *Eupatorium perfoliatum* L. A perennial plant indigenous to the United States; and is official in *U.S.P.*

Medicinal Properties.—A bitter tonic and diaphoretic. In large doses, emetic and aperient. Has been used in bronchial catarrh, influenza, and muscular rheumatism.

FLUIDEXTRACTUM EUPATORII (*U.S.*).—A 1 in 1 fluid extract of the above prepared by percolation with Alcohol (49 p.c.).

Dose.—20 to 60 minims = 1·2 to 3·6 c.c.

Not Official.

EUPHORBIUM.

The concrete resinous Juice of *Euphorbia resinifera*, Berg. (a native of Morocco), and other species. Official in Austr., Belg., Dan., Fr., Ger., Hung., Ital., Mex., Norw., Port., Span., Swed. and Swiss. It was formerly official in London, Edinburgh and Dublin Pharmacopœias. It contains an acrid Resin. It is a powerful irritant and vesicant, and is used principally in veterinary medicine. It is noticed here because it is official in most of the Foreign Pharmacopœias. A Tincture, 1 in 5, is official in Port.

It must not be confounded with the following:—

EUPHORBIA PILULIFERA.—A plant growing in Queensland and tropical America. The herb is collected when in flower and carefully dried. It yields its virtues to Alcohol and to Ether.

Given in spasmodic asthma and bronchial affections; in coryza and hay fever; and in spasmodic dyspnœa of whatever origin.—*L.* '85, ii. 86; *T.G.* '85, 92; *M.A.* '93, 260; '94, 20; *Y.B.T.* '94, 32.

EXTRACTUM EUPHORBIÆ PILULIFERÆ.—Obtained by the evaporation of the following Tincture.

Dose.—$\frac{1}{2}$ to 1 grain = 0·032 to 0·065 gramme.

TINCTURA EUPHORBIÆ PILULIFERÆ.—Euphorbia in No. 20 Powder, 1; Alcohol (60 p.c.), to percolate, 5. *B.P.C. Formulary* 1901, incorporated in the *B.P.C.* under the title **Tinctura Euphorbiæ.**

Dose.—10 to 30 minims = 0·6 to 1·8 c.c., well diluted with Water.

Foreign Pharmacopœias.—Not in any.

Not Official.

EXALGIN.

METHYLACETANILIDE.

$C_6H_5N(CH_3)CH_3CO$, eq. 148·01.

Long, colourless prismatic needles, or in tabular crystals.

It may be prepared by the action of Acetyl Chloride on Monomethylaniline.

Solubility.—1 in 50 of Water, 1 in 2 of Alcohol (90 p.c.), 1 in 4 of Alcohol (60 p.c.), 1 in 2 of Chloroform, 1 in 10 of Ether.

In hot Water Exalgin is very apt to form supersaturated solutions, which when cold will not separate even when stirred or scratched, but set solid at once on the addition of a fragment of a crystal.

Medicinal Properties.—In small doses it acts as an analgesic without producing ill effects, giving the best results in neuralgia and toothache. It is also slightly antipyretic.—*B.M.J.* '90, i. 344, 558; '90, ii. 735; *P.J.* (3) xix. 781, 861; *T.G.* '89, 339, 534, 746, 797; *L.* '89, i. 658; '90, ii. 845; '92, i. 1174, 1175; '93, i. 785. In large doses it possesses toxic properties.

Severe toxic symptoms in an asthmatic woman after taking one dose of 5 grains.—*L.* '95, i. 1307.

Case of poisoning by large dose (150 grains); recovery. Treatment consisted of 30 grains Salicylic Acid by nasal tube, and of hypodermic injection of $\frac{1}{50}$ grain Atropine, followed by two injections of $\frac{1}{100}$ grain.—*L.* '99, ii. 890.

Dose.—$\frac{1}{2}$ to 1 grain = 0·032 to 0·065 gramme, was found sufficient by Fraser; but larger doses, 4 to 8 grains = 0·26 to 0·52 gramme, have been given in France.

Prescribing Notes.—*May be given in Mixtures, previously dissolving it in a little Alcohol or Tincture before adding the Water. A nice* **pill** *mass is made by adding Glucose q.s. or $\frac{1}{2}$ grain Compound Tragacanth Powder to each 3 grains of Exalgin and Dispensing Syrup q.s. It may also be conveniently given in* **cachets.** *Compressed Tablets are also prepared.*

Foreign Pharmacopœias.—Official in Fr. (Methylacetanilide), Mex. and Span. Not in the others.

Tests.—Exalgin possesses a melting point of 101° C. (213·8° F.) and a boiling point of about 245° C. (473° F.). When boiled with Sodium Hydroxide solution it is decomposed with difficulty, but is completely decomposed by concentrated Hydrochloric Acid with formation of Acetic Acid and Methylaniline. When a small quantity is boiled with Hydrochloric Acid, and the cooled mixture is treated with an excess of Ammonia Solution, no violet coloration should be produced on the addition of Chlorinated Lime Solution. When boiled with a few drops of Chloroform and some Alcoholic Potassium Hydroxide Solution, no odour of Phenyl-isonitrile is evolved. Exalgin dissolves readily in Chloroform, and this fact enables it to be distinguished from Acetanilide and Phenacetin; when 1 gramme of the sample is treated with 2 c.c. of Chloroform, the Exalgin is dissolved. A chloroformic solution of Exalgin remains clear when diluted with 10 times its volume of Petroleum Ether, whereas solutions of Acetanilide and Phenacetin become turbid. 0·5 gramme should leave no weighable residue when heated with free access of air.

MISTURA METHYLACETANILIDI.—Methylacetanilide, 3 grains; Syrup of Orange, 1 fl. drm.; Chloroform Water (*B.P.* '85) to 1 fl. oz.

FEL BOVINUM PURIFICATUM.

PURIFIED OX BILE.

Evaporate 20 fl. oz. of fresh Ox Bile to 5 fl. oz., and mix it with 10 fl. oz. of Alcohol (90 p.c.); separate the precipitate, and reduce the clear fluid to a thick extract.