Solid Magenta imparts no colour to Oil of Rosemary, but if Alcohol be present the dye dissolves.—*P.J.* (3) xx. 415.

French and Italian Oils have a Sp. gr. ·900 and are slightly dextro-rotatory.—*J.S.C.I.* '96, 925.

Preparation.

SPIRITUS ROSMARINI. SPIRIT OF ROSEMARY. (ALTERED.)

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

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

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

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

Foreign Pharmacopœias.—Official in Austr. and Swed., from leaves; Belg., Essentia Rosmarini, 1 in 100; Fr. (Teinture d'Essence de Romarin), and Norw., 1 in 50; Port. (Esperito d'Alecrim), and Span. (Alcohol de Romero), from flowering tops; Russ., 1 in 100; Mex., Compound Spirit from leaves; not in the others.

Not Official.

RUTÆ OLEUM.

OIL OF RUE.

The Oil distilled from the fresh herb of *Ruta graveolens*. According to Schimmel it has sp. gr. ·833—·840. Rotation +2° in 100 m.m. tube. It crystallises at 8° to 10° C. and gives a clear solution in 2 to 3 parts of Alcohol (70 p.c.).—*J.S.C.I.* '96, 925.

It was Official in B.P. '85.

Medicinal Properties.—Antispasmodic. A topical stimulant, rubefacient and vesicant. Administered in the form of enema for flatulent colic in children.

Dose.—1 to 4 minims.

Foreign Pharmacopœias.—Official in Belg., Essentia Rutæ; Fr., Huile Volatile de Rue; Port., Essencia de Arruda; Span., Esencia de Ruda; not in the others.

Not Official.

SABINÆ CACUMINA.

SAVIN TOPS.

The fresh and dried tops of *Juniperus Sabina*, collected in spring from plants cultivated in Britain.

It was Official in B.P. '85.

Medicinal Properties.—A powerful local and general irritant. The ointment is used for maintaining discharges from granulating or blistered surfaces. It is a powerful emmenagogue, but its use requires caution as it may cause inflammation of the abdominal and pelvic viscera.

Dose.—4 to 10 grains.

Antidotes.—Stomach tube, emetics; Castor oil, Linseed poultices to the abdomen, opiates and demulcents.

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

Preparations.

OLEUM SABINÆ.—The Oil distilled in Britain from fresh Savin. Soluble 4 in 1 of Alcohol (90 p.c.), in all proportions of Absolute Alcohol.

Dose.—1 to 4 minims; in **pill** with Soap and Liquorice powder, p. 484.

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

TINCTURA SABINÆ.—Savin Tops, dried and coarsely powdered, 1; Alcohol (60 p.c.), 8. Made by percolation.

Dose.—20 to 60 minims.

Foreign Pharmacopœias.—Official in Belg., Fresh herb 1, Alcohol (92°) 1, by weight; U.S. has a **Fluid Extract** 1 in 1; not in the others.

UNGUENTUM SABINÆ.—Fresh Savin Tops, bruised, 8; Yellow Beeswax, 3; Benzoated Lard, 16; melt the Lard and the Beeswax together on a water-bath, add the Savin, digest twenty minutes, strain and press through calico.

Foreign Pharmacopœias.—Official in Belg., Ext. Sabinæ 1, Simple Ointment 9; Dan., 1 in 4; Swed., Tops 4, Yellow Wax 3, Lard 12; not in the others.

SACCHARINUM. *See* GLUSIDUM.

SACCHARUM LACTIS.

MILK SUGAR.

B.P.Syn.—LACTOSE.

$C_{12}H_{22}O_{11},H_2O$, eq. 357·48.

A crystallised Sugar obtained from the Whey of Milk.

Solubility.—1 in 6 of cold Water; 1 in 1 of boiling Water; almost insoluble in Alcohol (90 p.c.).

Medicinal Properties.—Nutrient in various cases of extreme irritability of the stomach, as it does not ferment; it is used to mix with the food of children; dissolved in water, and mixed with cow's milk, it forms a good substitute for human milk. Has been found to act as a diuretic in cardiac dropsy. Useful for triturating with potent medicinal powders, in order to equally distribute the dose.

Dose.—Not given in B.P.; 60 to 120 grains or more in Water.

Official Preparations.—Used in the preparation of Extractum Belladonnæ Alcoholicum, Extractum Nucis Vomicæ, Extractum Physostigmatis, Extractum Strophanthi and Pulvis Elaterini Compositus.

Foreign Pharmacopœias.—Official in all. Fr. (Sucre de Lait), Ital. (Lattosio), Mex. (Azucar de leche); Port. (Assucar de Leite); Span. (Lactosa).

Description.—In crystals or in crystalline masses, greyish-white, hard, odourless, faintly sweet.

Tests.—It should not leave more than ·25 p.c. of ash when incinerated with free access of air. 1 gramme dissolved in 10 c.c. of Water gives a red colour with Solution of Phenol-phthalein after the addition of three drops of the Volumetric Solution of Sodium Hydroxide (limit of Lactic Acid).

SACCHARUM PURIFICATUM.

REFINED SUGAR.

B.P.Syn.—SUCROSE.

$C_{12}H_{22}O_{11}$, eq. 339·60.

A crystallised Sugar, obtained from the juice of the sugar-cane.

Solubility.—100 in 45 of Water, measures 113; 1 in 100 of Alcohol (90 p.c.).

Medicinal Properties.—Nutrient, demulcent, used in catarrhal affections in the form of candy, syrup, etc.; also in irritant corrosive poisoning. Employed almost entirely as a sweetening agent and as a preservative, and to assist the suspension of powders.

Official Preparation.—Syrupus. Sugar in some form is contained in all Syrups and Lozenges, several Confections, Mixtures, Pills and Powders.

Foreign Pharmacopœias.—Official in all except Norw. and Swed.; Fr., Sucre de Canne; Ital., Zucchero; Mex., Azucar de Cana; Port., Assucar; Span., Azucar.

Description.—Colourless and inodorous separate crystals. Readily and completely soluble in half its weight of Water, forming a clear bright syrup.

Tests.—When the syrup is heated to about 180° F. (82·2° C.) with Solution of Potassio-cupric Tartrate or with Solution of Copper Sulphate and excess of Solution of Potassium Hydroxide, there should not result more than a trace of a red or yellowish precipitate (absence of Glucose). Refined Sugar should yield no reaction with the tests for Calcium, Chlorides, and Sulphates.

Preparation.

SYRUPUS. SYRUP.

Refined Sugar, 10; Distilled Water, boiling, a sufficient quantity. Add the Refined Sugar to 5 of the boiling Distilled Water; heat until dissolved; make the weight of the product 15 by the addition of boiling Distilled Water. Sp. gr. 1·330. =(1 in $1\frac{1}{6}$).

It is convenient to remember that 7 measures of Syrup contain 6 of Sugar.

Foreign Pharmacopœias.—Official in all. Ital., Sciroppo Simplice; Port., Xarope Commun; Mex., Jarabe Comun; Span., Jarabe Simple.

Not Official.

SALEP.

The prepared tubers of *Orchis Morio*, and other species of *Orchis*.

Medicinal Properties.—Mucilaginous and nutrient.

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

Preparation.

MUCILAGO SALEP.—Powdered Salep 1: agitate well with cold Water 10; pour on to this, boiling Water 90, and stir till cold.

Foreign Pharmacopœias.—Official in Belg., Dutch, Ger., Norw., Russ., Swed. and Swiss., 1 in 100; Dan., Mixtura Saleb, same strength, but containing Syrup of Poppies.

Salib Misri, the Salep of the Indian Bazaars, is derived from a species of *Eulophia*.

SALICINUM.

SALICIN.

$C_6H_{11}O_5 \cdot O \cdot C_6H_4 \cdot CH_2OH$, eq. 283·99.

A crystalline glucoside obtained from the bark of various species of *Salix*, and of *Populus*.

The bark is obtained principally from Germany and America, that grown in this country, even from the same species, yielding little or no Salicin.—*C.D.* '87, i. 171.

Solubility.—1 in 28 of Water; 1 in 60 of Alcohol (90 p.c.); insoluble in Ether.

Medicinal Properties.—Antipyretic, tonic, and bitter stomachic; specially recommended in acute rheumatism. For the latter purpose it has been largely replaced by Sodium Salicylate, the action of which is more powerful, though not so well sustained, as Salicin; the Salicylate has also a greater tendency to cause cardiac depression, and is not so well tolerated by the stomach as Salicin.

Has been recommended for the prevention and cure of Influenza.

Salicin and Salicylates in psoriasis.—*L.* '95, i. 1421; *P.J.* '95, ii. 51.

Dose.—5 to 20 grains.

Prescribing Notes.—It is given in **cachets, mixtures,** or **pills.** A good pill can be made by adding Glucose, *q.s.*

Not Official.—Saligenin and Salix Nigra.

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

Description.—Colourless shining trimetric tabular crystals, with a very bitter taste.

Tests.—Coloured red by Sulphuric Acid. A small quantity heated with a little Potassium Bichromate, a few drops of Sulphuric Acid, and some Water, yields Salicylic Aldehyde, recognisable by its odour of meadow-sweet. The crystals melt when heated, and evolve Salicylic Aldehyde. On heating to redness in air they leave no residue (absence of mineral impurity).

Not Official.

SALIGENIN.—Obtained by the action of Formic Aldehyde on Phenol, or by the action of diluted mineral acids on Salicin. It has been recommended in acute rheumatism and in gout.—*P.J.* (3) xxv. 755, 1115; '95, ii. 175.

Dose.—4 grains.

SALIX NIGRA.—The bark of this tree has been recommended as a sexual and general sedative.—*B.M.J.* '87, ii. 237; *L.* '88, i. 869.

Its virtues are probably due to Salicin which exists in all species of Salix (Willow).

SALOL.

SALOL.

[NEW.]

$C_6H_4 \cdot OH \cdot COO \cdot C_6H_5$, eq. 212·47.

Salol or Phenyl Salicylate is prepared by the interaction of Salicylic Acid and Phenol, or of their Sodium salts with Phosphoryl Chloride or Carbonyl Chloride.

Solubility.—1 in 20 of Alcohol (90 p.c.), 2 in 1 of Ether, 3 in 1 of Chloroform. Insoluble in cold Water.

Medicinal Properties.—Antipyretic, antiseptic, and intestinal disinfectant. It passes through the stomach unchanged, and is decomposed in the duodenum by the alkali of the pancreatic juice. It has been recommended in acute and chronic rheumatism, in cholera, and in typhoid fever. The best antiseptic for intestinal dyspepsia and fermentation. Useful in diarrhœa. When given in excessive doses, or repeated frequently, has given rise to toxic symptoms.

Externally it is used as a substitute for Iodoform; combined with a blood tonic in the treatment of anæmia, *M.A.* '95, 103; and pernicious anæmia, *L.* '94, ii. 1274; in diarrhœa of phthisis, *Pr.* liii. 275; as a pill-coating, *B.M.J.E.* '94, i. 79, ii. 63; in choleraic diarrhœa, *T.G.* '94, 40.

In catarrh of the bladder.—*B.M.J.* '87, ii. 1438; good result in gonorrhœa.—*L.* '90, i. 644; an intestinal and urinary disinfectant.—*B.M.J.* '93, i. 643.

Owing to its low melting point it is useful in filling up irregular or superficial bone cavities; also as a stopping for carious teeth.—*B.M.J.E.* '96, i. 64; *P.J.* '95, ii. 216.

Formation of Salol calculus from its internal administration.—*B.M.J.* '97, ii. 78; *P.J.* '97, ii. 446.

Dose.—5 to 15 grains.

Prescribing Notes.—It is given in **cachets, mixtures, powders**, or Compressed Tablets. In mixtures it should be suspended with Mucilage of Acacia or Compound Tragacanth Powder.

Not Official.—Salol Camphor and Salophen.

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

Description.—Colourless crystals having a faint aromatic odour and very little taste. Almost insoluble in Water, soluble in 10 parts of cold Alcohol (90 p.c.), very soluble in boiling Alcohol (90 p.c.), also soluble in one third part of Ether or Chloroform, and in Fixed and Volatile Oils.

Tests.—Melting point 107·6°—109·4° F. (42°—43° C.). An alcoholic solution gives a white precipitate with Solution of Bromine. A violet coloration is produced on adding a few drops of dilute Test-solution of Ferric Chloride to the alcoholic solution. On melting together Salol and Sodium Hydroxide, and then acidulating with Hydrochloric Acid, a white precipitate is produced and Phenol is evolved. Water which has been shaken with Salol should not be

affected by Test-solution of Ferric Chloride (absence of free Salicylic Acid) and should yield no reaction with the tests for Sulphates or Chlorides. The alcoholic solution of Salol should be neutral to Litmus.

Not Official.

SALOL CAMPHOR.—Prepared by moistening 1 of Camphor with Alcohol and triturating it with 1½ Salol till a transparent liquid is obtained. Has been found useful in treatment of furuncles and carbuncles.—*B.M.J.E.* '95, ii. 84.

SALOPHEN.—The Salicylic Ester of Acetylparamidophenol. A white crystalline powder, insoluble in Water, soluble in Alcohol and Ether.

Medicinal Properties.—Analgesic and antipyretic. Has been recommended in acute and subacute rheumatism, and in neuralgia. Said to be useful in the nerve symptoms following influenza.—*L.* '94, ii. 455; *L.* '95, ii. 932; *B.M.J.E.* '94, i. 35; '95, i. 56; '95, ii. 4; '96, i. 20; '97, ii. 91; *M.P.* '94, i. 304; *Y.B.T.* '95, 454; *T.G.* '93, 28; *Pr.* lvi. 206; *P.J.* '95, ii. 343; '96, i. 179.

Dose.—10 to 30 grains, usually given in cachets.

SAMBUCI FLORES.

ELDER FLOWERS.

The flowers of *Sambucus nigra*, separated from the stalks.

Official Preparation.—Aqua Sambuci.

Foreign Pharmacopœias.—Official in all except Jap. and Norw.; Fr., Sureau; Ital., Sambuco; Port., Sabugueiro; Mex. and Span., Sauco.

Description.—Elder Flowers are small; calyx superior, five-toothed; corolla flat, rotate, deeply five-lobed, creamy-white, with five stamens inserted in the tube; anthers yellow. They have a slightly bitter taste, and a sweet, faint, not altogether agreeable odour.

Preparation.

AQUA SAMBUCI. ELDER-FLOWER WATER.

Fresh Elder Flowers, 1 (or an equivalent quantity of the Flowers preserved whilst fresh with Common Salt); Water, 5: distil 1. =(1 in 1).

Chiefly used for **lotions** and **collyria.**

Foreign Pharmacopœias.—Official in Belg., 3 in 10; Fr. (Eau de Sureau), with dried flowers, 1 in 4; Dan., 1 in 10, also Conc. 1 in 1; Port., 1 in 4; Span., 1 in 5; Swed., 1 in 3; Swiss, concentrated, 5 of fresh flowers or 1 of dried flowers in 1; not in the others.

SANTALI OLEUM.

OIL OF SANDAL WOOD.

B.P.Syn.—OIL OF SANTAL WOOD.

The oil distilled from the Wood of *Santalum album*.

Solubility.—In less than its own weight of Alcohol (90 p.c.).

Medicinal Properties.—Antiblenorrhagic; has been prescribed

extensively for subacute and chronic gonorrhœa; it is best taken about an hour and a half after meals.

Dose.—5 to 30 minims.

Prescribing Notes.—Generally given in **capsules** or in a **mixture** suspended with Mucilage. It is best taken in Capsules, as the taste is nauseous.

Not Official.—Capsules of Sandal Oil and Mistura Olei Santali.

Foreign Pharmacopœias.—Official in Austr., Dan., Norw., Span. (Esencia de Sandalo Cetrino), Swiss and U.S.; not in the others.

Description.—Somewhat viscid in consistence, pale yellow in colour, having a strongly aromatic odour and a pungent and spicy taste.

Tests.—Sp. gr. ·975—·980. It forms a clear solution with six times its volume of Alcohol (70 p.c.), (absence of Cedar Wood Oil). It rotates the plane of a ray of polarised light to the left, through an angle of not less than 16° and not more than 20° in a tube 100 millimetres long (absence of other varieties of Sandal Wood Oil).

Adulteration of Sandal Wood Oil with Oleum Cedri.—*C.D.* '94, ii. 460. With Castor Oil.—*Analyst* '95, 174; *P.J.* (3) xxv. 1167.

A suggested valuation of Sandal Wood Oil by means of its Santalol-contents, and a method for the determination of Santalol.—*P.J.* '95, ii. 118; *C.D.* '95, ii. 197; *C.D.* '98, i. 51.

A process by Schimmel is also given.—*J.S.C.I.* '97, 568.

With regard to the test for solubility in Alcohol, pure Sandal Wood Oil, which is old or has been badly preserved, may not give a clear solution.—*J.S.C.I.* '97, 168.

Not Official.

CAPSULES OF SANDAL OIL.—Containing 10 and 20 minims in each.

MISTURA OLEI SANTALI.—Oleum Santali m xxx; Mucilage of Acacia fl. ʒ i; Syrup fl. ʒ i; Tincture of Orange fl. ʒ ss.; Water to fl. ℥ i, for a dose three times a day.

SANTONINUM.

SANTONIN.

$C_{15}H_{18}O_3$, eq. 244·29

A crystalline principle, prepared from Santonica, the dried unexpanded flower-heads or capitula of *Artemisia maritima*.

Solubility.—Sparingly in Water; 1 in 350 of boiling Water; 1 in 40 of Alcohol (90 p.c.); 1 in 4 of boiling Alcohol (90 p.c.); 1 in 160 of Ether; 1 in 2 of Chloroform; about 1 in 400 of Olive Oil; slightly in Glycerin and in Solution of Potash.

Medicinal Properties.—Anthelmintic. Useful both for round worms and thread-worms. It frequently affects the vision, causing all objects to appear yellow or green; to avoid this unpleasantness, Santonin is given at night, the disturbance of vision then remains only for half an hour or so, after the patient awakes in the morning.

Santonin has been recommended as an emmenagogue, but writers differ as to its efficacy.—*L.* 85, ii. 430; 86, i. 61, 132, 286; *M.A.* '95, 192.

Dose.—2 to 5 grains.

Prescribing Notes.—2 to 3 grains for children, in Castor Oil, in which it is readily soluble. About three doses are sufficient; one every other night, followed by a brisk cathartic the morning after each dose.

Official Preparation.—Trochiscus Santonini.

Not Official.—Suppositorium Santonini.

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

Description.—Colourless flat rhombic prisms, feebly bitter, fusible and volatile when gently heated.

Tests.—Sunlight renders it yellow. Added to warm Alcoholic Solution of Potassium Hydroxide, it yields a violet-red colour. It is not dissolved by diluted mineral acids. Heated to redness, with free access of air, it burns without leaving any residue (absence of mineral impurity).

In consequence of several accidents due to the contamination of Santonin with Strychnine the German and U.S.P. include a test for the latter substance.—*Allen.*

Preparation.

TROCHISCUS SANTONINI. Santonin Lozenge.

Santonin, 1 grain (·0648 gramme). Mix with the Simple Basis to form a Lozenge.

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

Foreign Pharmacopœias.—Official in Austr., Belg., Ger. and Ital., $\frac{2}{3}$ grain; Dan., Russ., Swed., Swiss and U.S., $\frac{1}{2}$ grain; Dutch, $\frac{3}{4}$ grain; Fr. and Port., $\frac{1}{4}$ grain; Jap., about $\frac{1}{5}$ grain; Mex. (Pastillas), $\frac{3}{8}$ grain; Norw., $\frac{3}{8}$ grain; Span., $\frac{1}{3}$ grain in each lozenge; not in Hung.

Not Official.

SUPPOSITORIUM SANTONINI (*G.H.*).—Santonin 3 grains, Oil of Theobroma 10 grains.

SAPO ANIMALIS.

CURD SOAP.

Soap made with Sodium Hydroxide and a purified animal fat consisting principally of stearin; containing about 30 p.c. of Water.

For the purposes of powdering it is not affected injuriously by drying at a temperature of 212° F. (100° C.).

Solubility.—Sparingly in Water; 1 in 1½ of boiling Water; partially in Alcohol (90 p.c.); almost entirely 1 in 2 of boiling Alcohol (90 p.c.).

Official Preparations.—Used in the preparation of Extractum Colocynthidis Compositum, Linimentum Potassii Iodidi cum Sapone, and Pilula Scammonii Composita.

Foreign Pharmacopœias.—Official in Austr., Sapo Medicinalis; Belg., Sapo Animalis; Dan. and Norw., Sapo Butyraceus; Fr., Savon Animal; Hung., Sapo Albissimus Droguistarum; Ital., Sapone Animale; Port., Sabao Animal; Russ., Sapo Butyrinus, Sapo Sebacinus; Mex., and Span., Jabon Animal; Swed., Sapo Butyrinus; Swiss, Sapo Stearinicus; Ger., Jap. and Russ., Sapo Medicatus, made with Lard and Olive Oil; not in Dutch or U.S.

Description.—White or with a very light greyish tint; dry; nearly inodorous; becomes horny and pulverisable when kept in dry warm air. Easily moulded when heated. Soluble in Alcohol (90 p.c.), especially on warming. Sparingly soluble in cold Water; soluble in hot Water.

Tests.—5 grammes of the dried and powdered Soap, digested in boiling Alcohol (90 p.c.), filtered while hot, and the filter washed thoroughly with more of the boiling Alcohol, yield a filtrate which should not afford a red or pink coloration with Solution of Phenol-phthalein (limit of alkaline Hydroxide); and the filter, when washed with hot Water, will yield a solution which, on adding Solution of Phenol-phthalein, should not require more than 3 c.c. of Deci-normal Volumetric Solution of Sulphuric Acid to discharge the resulting red colour (limit of alkaline Carbonate). It does not impart a greasy stain to white unglazed paper (absence of free oil and fat). Incinerated it yields an ash which does not deliquesce (absence of Potassium Soap). It should lose about 30 p.c. of moisture when dried at 230° F. (110° C.).

Preparation.

EMPLASTRUM SAPONIS.

Formerly made with Curd Soap; now made with Hard Soap. *See* SAPO DURUS.

SAPO DURUS.

HARD SOAP.

Soap made with Sodium Hydroxide and Olive Oil; containing about 30 p.c. of Water.

Solubility.—The greater part is soluble 1 in 20 of Water; entirely 1 in 1½ of boiling Water; 1 in 2 of boiling Alcohol (90 p.c.).

We found that of 30 grains of White Castile Soap digested for four days in 1 ounce of cold Alcohol (90 p.c.), only 24 grains were dissolved; when heated it all dissolved.

Medicinal Properties.—Laxative and antacid. Combined with Rhubarb, it is administered as an antacid in dyspepsia attended with constipation. Large and frequent doses are most effective in removing gall-stones; used as a laxative suppository.

The **Liniment** is used as a counter-irritant and deobstruent and is useful in sprains and rheumatic pains, and stiffness of joints.

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

Prescribing Notes.—Best given in **wafer paper** or in **cachets.**

Official Preparations.—Emplastrum Saponis, and Pilula Saponis Composita. Contained in Emplastrum Resinæ, Pilula Aloes Barbadensis, Pilula Aloes et Asafetidæ, Pilula Aloes Socotrinæ, Pilula Cambogiæ Composita, Pilula Rhei Composita, Pilula Scillæ Composita. Used in the preparation of Hydrargyri Oleas and Unguentum Zinci Oleatis. Soap Plaster is contained in Emplastrum Calefaciens, and Emplastrum Cantharidis.

Foreign Pharmacopœias.—Official in Austr. and Hung., Sapo Venetus; Belg. and Dutch, Sapo Medicatus; Dan., Sapo Medicatus and Sapo Albus Oleaceus; Norw., Sapo Albus Oleaceus; Russ., Sapo Hispanicus Albus; Span., Jabon de

Sosa; Swed., Sapo Albus Hispanicus; Swiss, Sapo Oleaceus; U.S., Sapo. With **Almond Oil**—Fr., Savon Médicinal; Hung., Sapo Medicinalis; Ital., Sapone Medicinale; Mex., Jabon Medicinal; Port., Sabao Vegetal; Span., Jabon Amigdalino. With **Lard** and **Olive Oil**—Ger., Jap., and Russ., Sapo Medicatus.

Description.—Greyish-white, dry, inodorous; becomes horny and pulverisable when kept in dry warm air. Easily moulded when heated. Soluble in Alcohol (90 p.c.), especially on warming.

Tests.—It should not contain more alkaline Hydroxide or Carbonate than is allowed under 'Sapo Animalis.' It does not impart a greasy stain to white unglazed paper (absence of free oil). Incinerated it yields an ash which does not deliquesce (absence of Potassium Soap). It should lose about 30 p.c. of moisture when dried at 230° F. (110° C.).

Aqueous Soap Solution is alkaline to most indicators, *see* Acidum Oleicum.

If a solution of 5 grammes of Soap in 50 c. c. of Water be mixed with 3 c. c. of decinormal Oxalic Acid, the subsequent addition of a few drops of Phenolphthalein *T.S.*, should produce no pink or red tint (limit of alkalinity).—*U.S.P.*

Preparations.

EMPLASTRUM SAPONIS. Soap Plaster. (Modified.)

Hard Soap, 6; Lead Plaster, 36; Resin, 1. Melt each ingredient separately at a low temperature; mix; evaporate, with constant stirring, to a proper consistence. =(1 of Soap in $7\frac{1}{6}$).

Now made with Hard Soap instead of Curd Soap.

Foreign Pharmacopœias.—Emplastrum Saponis—Belg., 1 in 15; U.S., 1 in 10; Emplastrum Saponatum—Austr., 1 in 6; Dan., 1 in 11; Ger., 1 in 17; Hung., about 1 in $15\frac{1}{2}$; Norw., about 1 in 17; Russ., 1 in $17\frac{1}{2}$; Swiss, 1 in 10; Emplastrum Saponaceum—Swed., 1 in 9; Emplâtre de Savon—Fr., 1 in 18; Emplasto de Jabon—Mex., 1 in 18; Emplastro de Sabao—Port., 1 in $12\frac{1}{2}$; Emplasto de Jabon—Span., about 1 in 16; not in Dutch, Ital. or Jap.

LINIMENTUM SAPONIS. *See* Sapo Mollis.

PILULA SAPONIS COMPOSITA. *See* Opium.

SAPO MOLLIS.

SOFT SOAP.

Soap made with Potassium Hydroxide and Olive Oil.

Solubility.—1 in 4 of Water; 1 in 1 of boiling Water; almost entirely 1 in 1 of Alcohol (90 p.c.).

Official Preparation.—Linimentum Saponis. Contained in Linimentum Terebinthinæ. **Soap Liniment** is contained in Linimentum Opii.

Not Official.—Mollin.

Foreign Pharmacopœias.—Official in Austr., Dutch, Ger., Jap., Russ. and Swiss, Sapo Kalinus; Ger. and Swiss, also Sapo Kalinus Venalis; Belg., Russ., Swed. and Hung., Sapo Kalinus Albus and Sapo Kalinus Venalis; Ital., Sapone di Potassa; U.S., Sapo Mollis; not in the others.

Description.—Yellowish-white, sometimes yellowish-green, almost inodorous, of an unctuous consistence.

Tests.—Readily soluble in Alcohol (90 p.c.) especially on warming; the liquid, on filtration, yielding not more than 3 p.c. of residue (limit of Potassium Carbonate, insoluble Soaps, &c.). It should not contain more alkaline Hydroxide or Carbonate than is allowed under 'Sapo Animalis.' It does not impart an oily stain to paper (absence of free oil). Incinerated it yields an ash which is very deliquescent, and which should afford no reaction with the tests for Copper.

Preparation

LINIMENTUM SAPONIS. Liniment of Soap. (Altered.)

Soft Soap, 2 oz.; Camphor, 1 oz.; Oil of Rosemary, 3 fl. drm.; Alcohol (90 p.c.), 16 fl. oz.; Distilled Water, 4 fl. oz. Dissolve the Soap in the Distilled Water; dissolve the Camphor and Oil of Rosemary in the Alcohol; mix the solutions; set aside for one week; filter.

Now made with Alcohol (90 p.c.) instead of Rectified Spirit, and Soft Soap is used in place of Hard Soap.

Linimentum Saponis.

U.S., Soap, 70 grammes; Camphor, 45 grammes; Oil of Rosemary, 10 c.c.; Alcohol (94°), 750 c.c.; Water to make 1000 c.c.

Linimentum Saponis Mollis.

U.S., Soft Soap, 650 grammes; Oil of Lavender, 20 c.c.; Alcohol, 300 c.c.; Water to make 1000 c.c.

Linimentum Saponis Camphoratum. All the following are by weight:

Swed., Sap. Alb. Hisp., 10; Camphor, 5; Alcohol (64°), 100; Ol. Rosmar., 1.

Liniment Savonneux.

Fr., Tincture of Soap (1 to 5), 10; Alcohol (80°), 9; Expressed Oil of Almonds, 1.

Liniment Savonneux Camphré.

Fr., Tincture of Soap (1 to 5), 10; Tincture of Camphor (1 to 9), 9; Expressed Oil of Almonds, 1.

Linimentum Saponato-Camphoratum.

Austr., Sap. veneti, 8; Sap. communis, 16; Alcohol (70°), 100; Ol. Lavand., 1; Ol. Rosmarini, 1; Liq. Ammoniæ, 4; Camphor, 2; Alcohol (90°), *q.s.*

Ger., Sap. Medic., 80; Camphor, 20; Alcohol (90°), 840; Ol. Thymi, 4; Ol. Rosmar., 6; Liq. Ammoniæ, 50.

Hung., Sap. Alb., 24; Alcohol (70°), 100; Camphor, 2; Ol. Lavand., 1; Ol. Rosmarini, 1; Liq. Ammoniæ, 4.

Jap., Sapo Kalinus, 10; Water, 15; Liq. Ammoniæ, 2; Spirit (90°) 70; Camphor, 2; Ol. Menthæ, 1.

Russ., Sap. Medicati, 40; Camphor, 10; Alcohol (90°), 420; Ol. Citri, 2; Ol. Rosmar., 2; Ol. Thymi, 1; Liq. Ammoniæ, 25.

Linimentum Saponato-Camphoratum Liquidum.

Russ., Spirit Saponati, 175; Spirit Camphor, 60; Liquor Ammoniæ, 12; Ol. Rosmarini, 2; Ol. Thymi, 1.

Linimento di Sapone con Canfora.

Ital., Sapo Animalis, 15; Alcohol, 125; Camphor, 12; Oil of Rosemary, 5; Solution of Ammonia, 5.

Linimentum Opodeldoc.

Norw., Sap. Butyr., 8; Camphor, 2; Alcohol (90°), 84; Sol. Ammon., 4; Ol. Rosmar., 1; Ol. Thymi, 1.

Swed., Sap. Butyr., 30; Camphor, 10; Alcohol (90°), 250; Ol. Thymi, 2; Ol. Rosmar., 3; Sol. Ammon., 15.

Balsamo Opodeldoc Liquido.

Span., Soda Soap, 50; Camphor, 25; Alcohol (85°), 500; Ol. Rosmar., 8; Ol. Thymi, 4; Liq. Ammon., 20.

Balsamo de Opedeldoc Concreto.

Mex., Sapo Animal, 30; Camphor, 24; Liq. Ammoniæ, 10; Ol. Rosmar., 6; Ol. Thymi, 2; Alcohol (90°), 250.

Balsamo Opodeldoc Solido.

Span., Animal Soap, 30; Camphor, 24; Alcohol (90°), 250; Ol. Rosmar., 6; Ol. Thymi, 2; Liq. Ammon., 10.

Balsamum Opodeldoc Liquidum.

Belg., Spirit Saponis, 725; Spirit Camphor, 225; Liquor Ammoniæ, 30; Ol. Rosmarini, 15; Ol. Thyme, 5.

Balsamum Opodeldoc Solidum

Belg., Sap. Animal., 20; Camphor, 16; Liquid Ammonia, 5; Alcohol (92°), 155; Ol. Rosmar., 3; Ol. Thymi, 1.

Baume Opodeldoc.

Fr., Sap. Animal., 15; Camphor, 12; Alcohol (90°), 125; Liq. Ammon., 5; Ol. Rosmar., 3; Ol. Thymi, 1.

Baume Opodeldoc Liquido.

Fr., Sap. Dur., 10; Camphor, 9; Alcohol (80°), 100; Ol. Rosmar., 2; Ol. Thymi, 1; Liq. Ammon., 3.

Opodeldoc.

Dan., Sapo Butyr., 100; Camphor, 15; Solution of Ammonia, 50; Oil of Rosemary, 10; Oil of Thyme, 10; Spirit (90 p.c.) to make 1000.

Port., Sap. Animal., 16; Camphor, 16; Alcohol (85°), 158; Ol. Lavand., 1; Ol. Rosmar., 1; Liq. Ammon., 8.

Swiss, Lard or Butter, 10; Alcohol (95 p.c.), 5; Sol. Caustic Soda, 5; Saponify and add, Alcohol 162; Camphor, 5; Ol. Rosmar., 2; Ol. Thymi, 1; Liq. Ammon., 10.

Opodeldoc Liquidum.

Swiss, Spirit of Soap, 136; Spirit of Camphor (1 to 9), 48; Ol. Rosmar., 2; Ol. Thymi, 1; Liq. Ammon., 13.

Sapo Aromaticus.

Dutch, Sap. Med., 14; Alcohol (70°), 80; Camphor, 2; Oil of Rosemary, 1; Liq. Ammon., 3.

Spiritus Saponis Camphoratus.

Dan., Caustic Potash, 20; Water, 40; Olive Oil, 100; Spirit, 500; Camphor, 25; Ol. Rosmar., 10; Ol. Thymi, 10; Water to make 1000.

Norw., Sap. Alb., 15; Camphor, 3; Alcohol (64°), 80; Ol. Origani, 1; Ol. Rosmar., 1.

Tintura de Jabon Alcanforada.

Mex., Soap, 6; Alcohol (80°), 200; Camphor, 6; Ol. Rosmar., 1½; Ol. Thymi, 1½; Liq. Ammon., 6.

Not Official.

MOLLIN.—A Soft Soap containing 17 p.c. of uncombined fat and 30 p.c. of Glycerin.

It has been recommended as a basis for ointments.

SARSÆ RADIX.

SARSAPARILLA.

The dried root of *Smilax ornata*. Imported from Costa Rica and commonly known as Jamaica Sarsaparilla.

Medicinal Properties.—Alterative and tonic. Opinions differ as to its efficacy in secondary syphilis, chronic rheumatism and skin diseases. It is given alone or in combination with other remedies such as Potassium Iodide.

Incompatibles.—Alkalis; they accelerate its decomposition.

Official Preparations.—Extractum Sarsæ Liquidum, Liquor Sarsæ Compositus Concentratus.

Foreign Pharmacopœias.—Official in all; Fr., Salsepareille; Ital., Salsapariglia; Port., Salsaparrilha; Mex. and Span., Zarzaparrilla.

Description.—Very long, nearly cylindrical, tough, flexible roots of a greyish-brown or dark reddish-brown colour, folded together and bound with a root of the same plant into bundles of about eighteen inches (half a metre) in length, and four or five inches (ten to twelve and a half centimetres) in diameter. The roots are usually three-sixteenths of an inch (five millimetres) in thickness, are deeply wrinkled longitudinally, and provided with numerous rootlets. The transverse section usually exhibits a reddish-brown cortex and yellowish-white wood. The cells of the endodermis are nearly square in transverse section and uniformly thickened. Sarsaparilla has no odour, and only a slightly bitter taste.

Preparations.

EXTRACTUM SARSÆ LIQUIDUM.—Liquid Extract of Sarsaparilla. (Altered.)

Sarsaparilla, in No. 40 powder, 20; Alcohol (20 p.c.) a sufficient quantity; Glycerin, 2. Divide the Sarsaparilla into three portions. Moisten one portion with 4 of the Alcohol; pack in a percolator; set aside for twenty-four hours; percolate with the Alcohol until a quantity of 4 is obtained. Moisten the second portion of the drug with this liquid; pack in a percolator; set aside for twenty-four hours; percolate with a menstruum obtained by further percolation of the first portion; continue until a quantity of 4 is obtained. Moisten the third portion of the drug with this liquid; pack in a percolator; set aside for twenty-four hours; percolate with a menstruum obtained by successive percolation through the first and second portions as directed above; collect 18 from the third percolator; add the Glycerin. The product should measure 20. =(1 root in 1).

Now made by repercolation with diluted Alcohol as suggested in *Companion*, and Glycerin is used in place of Sugar.

Dose.—2 to 4 fl. drm.

Foreign Pharmacopœias.—Official in Mex., and U.S., 1 in 1; not in the others; Belg., Fr., Mex., Port. and Span., have a **solid extract.**

LIQUOR SARSÆ COMPOSITUS CONCENTRATUS.—Concentrated Compound Solution of Sarsaparilla. (New.)

Sarsaparilla, cut transversely and bruised, 20; Sassafras Root, in

shavings, 2; Guaiacum Wood, in shavings, 2; Dried Liquorice Root, bruised, 2; Mezereon Bark, cut small, 1; Alcohol (90 p.c.), 4½; Distilled Water, a sufficient quantity. Infuse the Sarsaparilla in three successive portions of 100 of the Distilled Water, for one hour each, at 160° F. (71·1° C.). Boil the other solid ingredients with Distilled Water until exhausted. Rapidly concentrate the mixed infusion and decoction until, when cold, the liquid measures 16; add the Alcohol; set aside for at least fourteen days; filter. The product should measure 20. =(1 in 1).

Dose.—2 to 8 fl. drm.

This formula is practically the same as that which has been given in preceding editions of *Companion*, under the heading, 'Extractum Sarsæ Liquidum Compositum;' the ingredients are similar to those of Decoctum Sarsæ Compositum, B.P. '85.

Foreign Pharmacopœias.—U.S. (Extractum Sarsaparillæ Fluidum Compositum), ingredients similar but half strength, and contains Glycerin; U.S. has also a Compound Decoction, 1 in 10; Port., Compound Decoction, 1 in 20; Austr. and Ger., Decoctum Sarsaparillæ Compositum Fortius, Austr. also Mitius; Belg., Hung., and Swed., Decoctum Zittmanni Fortius and Mitius; Mex., Tisana de Zittmann; Span., Cocimiento Edulcorante de Zarzaparrilla.

SASSAFRAS RADIX.

SASSAFRAS ROOT.

The dried root of *Sassafras officinale.*

It contains a Volatile Oil which is largely distilled in America; the yield is about 2 p.c. The bulk of the Oil consists of **Safrole**, $C_{10}H_{10}O_2$, a compound also extracted from Oil of Camphor. It is much used for scenting soaps.

Medicinal Properties.—Aromatic, stimulant, diaphoretic, alterative. Used as an adjuvant to other medicines in chronic rheumatism, syphilis, and chronic cutaneous diseases.

Official Preparation.—Contained in Liquor Sarsæ Compositus Concentratus.

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

Description.—In large branched pieces more or less covered with bark. Bark rough and greyish-brown, or rusty-brown, externally; internally smooth, glistening, and rusty-brown, with an agreeable aromatic odour, and a peculiar aromatic somewhat astringent taste. Wood soft, light in weight, greyish-yellow or greyish-red, with taste and odour similar to those of the bark, but more feeble.

SCAMMONIÆ RADIX.

SCAMMONY ROOT.

The dried root of *Convolvulus Scammonia.*

From Syria and Asia Minor.

Official Preparation.—Used in the preparation of Scammoniæ Resina.

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

Description.—Brownish-grey or yellowish-grey, tapering, or nearly cylindrical roots, varying usually from one to three inches (two and a half to seven and a half centimetres) or more in diameter. The Root is frequently contorted and the surface longitudinally furrowed. It is enlarged at the crown, and bears the remains of slender aerial stems. The fracture is very coarsely fibrous; internally the colour is light or dark grey. The section exhibits an abnormal wood, consisting of numerous irregularly arranged wood bundles, and, when examined under the microscope, appears beset with Starch grains of characteristic shape, and, especially in the cortical region, with resin-cells. Odour characteristic; taste at first somewhat sweet, afterwards slightly acrid.

Test.—It yields to Alcohol (90 p.c.) a resin which should have the properties of Scammony Resin.

Note on a sample of Scammony.—*P.J.* '97, i. 245.

SCAMMONIÆ RESINA.

SCAMMONY RESIN.

O.M.P.—Scammony Root, in coarse powder 8; Alcohol (90 p.c.) a sufficient quantity; Distilled Water, a sufficient quantity. Exhaust the Scammony Root with the Alcohol by percolation; place the resulting Tincture in a still; recover the greater part of the Alcohol; slowly pour the liquid which remains after the distillation of the Tincture into three times its volume of the Distilled Water, constantly stirring; allow the mixture to stand for the Resin to subside; then wash the Resin on a filter with boiling Distilled Water and dry it on a water-bath.

Solubility.—It is soluble in almost all proportions of Alcohol (90 p.c.) or Ether; also soluble in Solution of Potash.

Medicinal Properties.—An energetic cathartic. May be used when brisk action is needed, as in cerebral congestion and severe dropsy, but on account of its griping properties it is rarely used alone. In combination it promotes the action of other medicines, whilst its own harshness is mitigated. A good vermifuge for thread-worms.

Is a powerful intestinal, but a feeble hepatic stimulant.—Dr. Rutherford.

Dose.—3 to 8 grains.

Official Preparations.—Pilula Scammonii Composita and Pulvis Scammonii Compositus. Contained in Extractum Colocynthidis Compositum, Pilula Colocynthidis Composita, and Pilula Colocynthidis et Hyoscyami.

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

Description.—In brownish translucent pieces, brittle, resinous in fracture, and of a sweet fragrant odour. It does not, alone, form an emulsion with Water.

Tests.—Its solution in Alcohol does not give a blue colour with Test-solution of Ferric Chloride, or with Solution of Hydrogen Peroxide (absence of Guaiacum Resin). Ether dissolves it almost entirely (distinction from Jalap Resin).

Preparations.

PILULA SCAMMONII COMPOSITA. Compound Scammony Pill. (Modified.)

Scammony Resin, 1; Jalap Resin, 1; Curd Soap, in powder, 1; Tincture of Ginger, 3. Add the Tincture of Ginger to the Soap and Resins; dissolve with the aid of slight heat; evaporate on a water-bath until the mass has acquired a suitable consistence for forming pills.

Much weaker in Ginger than B.P. '85.

Dose.—4 to 8 grains.

Foreign Pharmacopœias.—Official in Belg. (Pilulæ Hænii), Scammony 1, Resin of Jalap 1, Soap 1, Pill of Aloes with Hellebore 2; not in the others.

PULVIS SCAMMONII COMPOSITUS. Compound Powder of Scammony.

Scammony Resin, in powder, 4; Jalap, in powder, 3; Ginger, in powder, 1. Mix. =(1 in 2).

Dose.—10 to 20 grains.

Foreign Pharmacopœias.—Official in Port. (Po de Escamonea Composto), Scammony 5, Jalap 4, Ginger, 1; not in the others.

SCAMMONIUM.

SCAMMONY.

A Gum Resin obtained by incision from the living root of *Convolvulus Scammonia*, known in commerce as Virgin Scammony.

Chiefly from Smyrna, in Asia Minor.

Solubility.—Almost entirely dissolved in boiling diluted Alcohol.

Medicinal Properties.—Similar to those of Scammony Resin, but Scammony emulsifies with Water, the Resin does not.

Dose.—5 to 10 grains.

Foreign Pharmacopœias.—Official in Fr., Ital., Mex., Port. and Span. (Escamonea), Swed., Swiss and U.S.; not in the others.

Description.—Scammony is usually imported in flattened cakes or irregular pieces of varying sizes. It is brown, dark grey, or nearly black externally, and often covered with a greyish-white powder. It is very brittle, and the freshly exposed surface is glossy, resinous, more or less porous, and of a uniform dark-brown or nearly black colour; in thin fragments the drug is brown and more or less translucent. It is easily reduced to an ash-grey powder, and forms an emulsion with Water. It has a characteristic odour and acrid taste.

Tests.—It should afford only the slightest reactions with the tests for Starch, and should yield at least 70 p.c. of Resin soluble in Ether, and not more than 3 p.c. of ash on incineration. An alcoholic solution should not afford a blue colour with Test-solution of Ferric Chloride (absence of Guaiacum Resin).

In estimating the resin soluble in Ether, it is recommended to use a light Ether

(sp. gr. ·717), and to break up the residue after evaporating the Ether, and again heat to avoid error due to Resin holding down the Ether.—*P.J.* (3) xxi. 477.

It would probably be better to dry the Scammony, extract with Ether, and weigh the residue.

Has been adulterated with Resin prepared from the root, which can be detected by odour and colour on comparison with a genuine specimen.—*P.J.* (3) xiv. 397.

SCILLA.

SQUILL.

The bulb of *Urginea Scilla*, divested of its dry membranous outer scales, cut into slices, and dried.

From the Mediterranean coasts.

Two active principles have been extracted from Squill, Scillitoxin (Scillain) and Scillipicrin, both of which strongly affect the heart, but their actions are antagonistic.

Medicinal Properties.—A stimulant expectorant, diuretic and cardiac tonic, acting similarly to Digitalis. It increases the secretion of the bronchial mucous membrane and aids the expectoration of mucus. The Tincture diluted with Water may be taken frequently to relieve the cough of chronic bronchitis (contra-indicated in acute bronchitis). As an expectorant, it is also used with Ipecacuanha and Ammonia. In dropsy, especially if cardiac in origin, it is combined with Blue Pill and Digitalis.

Toxic effects causing death in two children.—*P.J.* (3) xvi., 828, 832; (3) xvii., 227.

Dose.—1 to 3 grains.

Official Preparations.—Acetum Scillæ, Oxymel Scillæ, Pilula Scillæ Composita, and Tinctura Scillæ. Contained in Pilula Ipecacuanhæ cum Scilla. The **Vinegar** is used in the preparation of Syrupus Scillæ.

Foreign Pharmacopœias.—Official in all; Fr., Scille; Mex. and Span., Escila.

Description.—The slices of the inner scales usually present the form of curved strips, frequently tapering towards both ends; they are yellowish-white or somewhat pinkish, from about one to two inches (two and a-half to five centimetres) long, somewhat translucent, brittle and easily pulverisable when quite dry, but tough and flexible when moist. Inodorous, disagreeably bitter.

Preparations.

ACETUM SCILLÆ. VINEGAR OF SQUILL.

Squill, bruised, 2½; Diluted Acetic Acid, 20, or a sufficient quantity. Exhaust the Squill by the process of maceration as directed for Tinctures. The resulting Vinegar of Squill should measure 20.

=(1 in 8).

It is conveniently filtered through Talc.

Dose.—10 to 30 minims.

Foreign Pharmacopœias.—Official in Austr., Dan., Dutch, Fr., Ger.,

Hung., Ital., Norw., Port., Russ., Swed., Swiss and U.S., 1 in 10; Mex., Vinagre Escilitico, 1 and 10; Belg., about 1 in 12; Span., 1 in 12: all by weight except U.S.

OXYMEL SCILLÆ. Oxymel of Squill. (Altered.)

Squill, bruised, 2½; Acetic Acid, 2½; Distilled Water, 8; Clarified Honey, liquefied, a sufficient quantity. Digest the Squill for seven days in a mixture of the Acetic Acid and Distilled Water. Press strongly; filter. Mix the product, which should measure approximately 10, with about 27 (by measure) of the Clarified Honey, or sufficient to produce Oxymel of Squill having the sp. gr. 1·320.

Now made direct from Squill, Acetic Acid and Distilled Water instead of Vinegar of Squill; the Clarified Honey is now *measured*, instead of *weighed* as in B.P. '85.

Dose.—½ to 1 fl. drm.

Foreign Pharmacopœias.—Official in Austr., Ger., Ital. and Russ., Vinegar of Squill 1, Honey 2; Dan. and Norw., Vinegar of Squill, 35, Honey to make 100; Span. and Swed., Vinegar of Squill 1, Honey 3; Dutch, Vinegar of Squill 2, Sugar 1, Honey 1; Fr., Mex. (Oximiel Escilitica), and Port., Vinegar of Squill 1, Honey 4; Hung., Extract of Squill 2, Honey 320, Strong Acetic Acid (96 p. c.) 3, Dilute Acetic Acid 4; Swiss, Vinegar of Squill 3, Sugar 3, Honey 4: all by weight. Not in Belg., Jap. or U.S.

PILULA SCILLÆ COMPOSITA. Compound Squill Pill. (Altered.)

Squill, in powder, 1¼; Ginger, in powder, 1; Ammoniacum, in powder, 1; Hard Soap, in powder, 1; Syrup of Glucose (by weight), 1 or a sufficient quantity. Mix to form a mass.

=(about 1 in 4).

Now 1 in 4 instead of 1 in 5, and made with Syrup of Glucose in place of Treacle.

Dose.—4 to 8 grains.

Foreign Pharmacopœias.—Official in Belg., 1 in 7; not in the others.

SYRUPUS SCILLÆ. Syrup of Squill. (Modified.)

Vinegar of Squill, 20; Refined Sugar, 38. Dissolve the Refined Sugar in the Vinegar of Squill by the aid of gentle heat. The product should weigh 58.

Quantity of Sugar reduced from 40 to 38.

Dose.—½ to 1 fl. drm.

Foreign Pharmacopœias.—Official in Belg., Vinegar of Squill 347, Sugar 653; Russ., Squill 1, Water 12, Spirit 1, Sugar 18; Swed., Squill 2, Ginger 1, Hyssop 4, Peppermint Water 35, Sugar 63: all by weight; U.S., Vinegar of Squill 45, Sugar 80; Water to measure 100. Not in the others.

TINCTURA SCILLÆ. Tincture of Squill. (Altered.)

Squill, bruised, 4; Alcohol (60 p.c.), 20. Prepare by the maceration process.

=(1 in 5).

Now 1 in 5 instead of 1 in 8, and Alcohol (60 p.c.) used in place of Proof Spirit.

Dose.—5 to 15 minims.

Foreign Pharmacopœias.—Official in Belg., Fr., Ger., Jap., Mex., Port., Russ., Span., Swed. and Swiss, 1 in 5: all by weight. U.S., 15 in 100. Not in the others.

SCOPARII CACUMINA.

BROOM TOPS.

The fresh and the dried tops of *Cytisus scoparius*.

Medicinal Properties.—Diuretic and in large doses cathartic. Employed in dropsical complaints, especially if cardiac, and often prescribed along with Potassium salts and Digitalis; in renal dropsy it is contra-indicated if there be acute nephritis.

Official Preparations.—Infusum Scoparii and Succus Scoparii.

Not Official.—Sparteina, Sparteinæ Sulphas, Sparteine Periodide.

Foreign Pharmacopœias.—Official in Port., Giesta; U.S., Scoparius; not in the others.

Description.—The stem is dark green with long, straight, slender, alternate branches; the latter, like the upper part of the stem, are winged, tough, flexible and glabrous. The leaves, when present, are small, sessile and simple above, stalked and trifoliate below. The taste is bitter and nauseous; the odour of the fresh Tops, especially when bruised, is characteristic, but when dry the drug is almost odourless.

Preparations.

INFUSUM SCOPARII. Infusion of Broom. (New).

Broom Tops, dried and bruised, 2; Distilled Water, boiling, 20. Infuse in a covered vessel for fifteen minutes; strain.

Dose.—1 to 2 fl. oz.

This preparation has been introduced in place of the Decoction of Broom of the British Pharmacopœia of 1885.

SUCCUS SCOPARII. Juice of Broom. (Modified).

Bruise Fresh Broom Tops; press out the juice; to every 3 volumes of juice add 1 of Alcohol (90 p.c.); set aside for seven days; filter.

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

Dose.—1 to 2 fl. drm.

Not Official.

SPARTEINA ($C_{15}H_{26}N_2$, eq. 232·53).—A liquid alkaloid, heavier than Water, obtained from Broom.

Practically insoluble in Water, soluble in Alcohol, Ether, and Chloroform.

SPARTEINE PERIODIDE.—$C_{15}H_{26}N_2.2HI.I_3$, containing 43·7 p.c. of loosely-combined Iodine. A diuretic in combination with Iodine.

SPARTEINÆ SULPHAS ($C_{15}H_{26}N_2.H_2SO_4.5H_2O$, eq. 419·27).—Colourless crystals, readily soluble in Water.

Medicinal Properties.—Cardiac tonic and diuretic. Useful in mitral disease. It slows and strengthens the pulse. Its action is more rapid and less persistent than that of Digitalis.—*B.M.J.* '86, i. 1246; '88, i. 363; *L.* '87, ii. 203; *P.J.* xvi. 543; *Pr.* li. 213; as a preliminary to chloroform anæsthesia.—*B.M.J.E.* '94, 11. 48; *T.G.* '95, 40.

Dose.—$\frac{1}{4}$ to 2 grains.

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

Hypodermic Lamels $\frac{1}{2}$ grain of Sparteine Sulphate in each.

A small quantity of the salt, mixed in a porcelain capsule with one-third of its weight of Chromic Acid and gently warmed, gives a green coloration due to the reduction of the Acid and emits a distinct odour of Conine.—*P.J.* '95, ii. 482; '97, ii. 203.

It is rather a peculiar fact that although Sparteine is dibasic, only half the Acid is indicated by titration with Alkali and Phenol-phthalein in aqueous solution, but when the Sparteine Sulphate is dissolved in Alcohol (Absolute or 90 p.c.), the full quantity is shown.

Not Official.

SCOPOLA.

The dried rhizome of *Scopolia carniolica*, known also on the continent as *Scopolia Atropoides*.

The experiments of Dunstan and Chaston (*P.J.* (3) xx. 461) following those of Schmidt (*P.J.* (3) xix. 245), show the alkaloid to be **Hyoscyamine** of which a sample contained ·43 p. c.

The further investigations of Schmidt on this root resulted in the separation of a quantity of **Hyoscine** (Scopolamine) in a crystallisable condition hitherto unobtainable, and so clearing up all questions regarding the formula and properties of this base, *C.D.* '92 i., 771, *see* also Hyoscine, p. 363. Hesse succeeded in isolating a compound which he called 'Atroscine' from commercial Scopolamine Hydrobromide, but Schmidt points out that this substance closely resembles inactive Scopolamine, which has precisely the same physiological action as the active modification.—*J.C.S. Abs.* '96, i. 655, 712; '97, 1. 385. *See also* Hyoscine Hydrobromide, p. 363.

Medicinal Properties.—It has the same properties as Belladonna and Hyoscyamus.

This drug has not 'taken' in British practice, but it is used on an immense scale in America for the preparation of what is termed 'Belladonna' Plaster.

Action of Scopolamine Hydrochloride on the eye.—*Pr.* liv. 469; *T.G.* '93, 338, 781; '94, 423, 480, 652, 680; *B.M.J.* '94, ii. 497.

Foreign Pharmacopœias.—Official in Jap. (Herb and Root), as an Extract, Plaster, Tincture and Ointment; not in the others.

SENEGÆ RADIX.

SENEGA ROOT.

The dried root of *Polygala Senega*.

From North America.

Medicinal Properties.—A stimulating expectorant, moderately diaphoretic and diuretic. Chiefly used in chronic bronchitis, combined with Ammonium Carbonate and Spirit of Chloroform.

Official Preparations.—Infusum Senegæ, Liquor Senegæ Concentratus, and Tinctura Senegæ.

Not Official.—Syrupus Senegæ.

Foreign Pharmacopœias.—Official in all; Fr., Polygala de Virginie; Ital., Poligala Virginiana; Mex., and Span., Poligala.

Description.—Greyish or brownish-yellow slender roots usually

varying from two to four inches (five to ten centimetres) in length, enlarged at the top into a knotty crown which bears the bases of numerous slender aerial stems. The roots are frequently curved or contorted, sparingly branched, keeled, longitudinally wrinkled, and sometimes transversely wrinkled. They break with a short fracture. A section exhibits a horny translucent cortex free from starch grains, and a white, frequently irregularly developed, wood. The Root has a distinctive odour; the taste is at first somewhat sweet but afterwards acrid.

Methyl Salicylate has been detected in Senega Root, and the Swiss Pharmacopœia employs the detection of its presence in the Ether Extract, as a test of identity.—*P.J.* (3) xxv. 1195. A new adulterant of Senega Root.—*P.J.* '96, 1. 290.

Preparations.

INFUSUM SENEGÆ. Infusion of Senega.

Senega Root, in No. 10 powder, 1; Distilled Water, boiling, 20. Infuse in a covered vessel for half an hour; strain. =(1 in 20).

Dose.—½ to 1 fl. oz.

Foreign Pharmacopœias.—Official in Fr., Tisane de Polygala, 1 in 100; not in the others.

LIQUOR SENEGÆ CONCENTRATUS. Concentrated Solution of Senega. (New.)

Senega Root, in No. 20 Powder, 10; a mixture of two parts of Alcohol (20 p.c.) and 1 part of Alcohol (45 p.c.) 25, or a sufficient quantity. Moisten the Senega with 4 of the menstruum; pack in a closed percolator; set aside for three days; percolate with the remaining menstruum, added in ten equal portions at intervals of twelve hours; continue percolation with more menstruum until the product measures 20.

Dose.—½ to 1 fl. drm.

TINCTURA SENEGÆ. Tincture of Senega. (Altered.)

Senega Root, in No. 40 powder, 4; Alcohol (60 p.c.) a sufficient quantity. Moisten the powder with 4 of the Alcohol, and complete the percolation process. The resulting Tincture should measure 20. =(1 in 5).

Now 1 in 5 instead of 1 in 8, and Alcohol (60 p.c.) used instead of Proof Spirit.

Dose.—½ to 1 fl. drm.

Foreign Pharmacopœias.—Official in Fr., Mex., and Russ. 1 in 5, by weight; Swiss and U.S., **Fluid Extract,** 1 in 1; not in the others.

Not Official.

SYRUPUS SENEGÆ.

Austr., Ger. Jap., and Russ.—Senega 5, Alcohol (90°) 5, Water 45; digest two days, strain, express, and filter 40, to which add Sugar 60.

Dan. and Norw., 1 in 25; Hung., 1 in 27; Ital., 1 in 30; Span., 1 in 33; Swed., 1 in 28; all by weight.

Mex. (Jarabe de Poligala), Extract ½; Alcohol (60°), 9½; Syrup, 90.

Swiss.—Fluid Extract of Senega, 1; Syrup, 19.

U.S.—Fluid Extract of Senega, 160; Water of Ammonia, 4; Sugar, 600; Water to measure 1000.

SENNA.

SENNA.

The British Pharmacopœia recognises two kinds, **Alexandrian Senna** and **East Indian Senna**.

When Senna is ordered in the Pharmacopœia, either East Indian Senna or Alexandrian Senna may be used.

Distinction between Alexandrian and Indian Senna and their adulteration with powdered Chestnut leaves.—*A.J.P.* '96, 585; '97, 298; *Analyst* '97, 41.

Medicinal Properties. — An efficient purgative in cases of occasional or habitual constipation. Given in large doses, it is apt to produce griping and nausea; it is therefore best administered with aromatics, as in the valuable **Compound Liquorice Powder.**

The different kinds of Senna, freed from stalks, are of nearly equal medicinal value.

Is an hepatic stimulant of feeble power.—Dr. Rutherford.

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

Official Preparations.—Confectio Sennæ, Infusum Sennæ, Liquor Sennæ Concentratus, Syrupus Sennæ, and Tinctura Sennæ Composita. Contained in Pulvis Glycyrrhizæ Compositus. The **infusion** is used in the preparation of Mistura Sennæ Composita.

Not Official.—Extractum Sennæ Fructuum Fluidum and Acidum Catharticum.

Foreign Pharmacopœias.—Official in all; Fr., Séné; Ital., Sena; Port., Senne; Mex. and Span., Sen.

SENNA ALEXANDRINA. Alexandrian Senna.

The dried leaflets of *Cassia acutifolia.*

Description.—Pale greyish-green, thin, brittle leaflets, usually varying from three-quarters to one inch and a quarter (twenty to thirty-two millimetres) in length. They are mostly lanceolate, sometimes oval-lanceolate, in outline, acute, entire, and unequal at the base, the greatest diameter being frequently below the middle of the leaflet. The surface is usually very finely pubescent, and the veins on the under surface are distinct. The epidermis bears one-celled, thick-walled hairs. The odour is faint but characteristic; the taste mucilaginous and somewhat unpleasant.

SENNA INDICA. East Indian Senna. *B.P. Syn.*—Tinnivelly Senna.

The dried leaflets of *Cassia angustifolia.* From plants cultivated in Southern India.

Description.—Usually varying from one to two inches (two and a half to five centimetres) in length, lanceolate, acute, the greatest diameter being usually near the middle of the leaflet; unequal at the base, thin, entire, yellowish-green and smooth above, somewhat duller beneath, and glabrous or slightly pubescent. In odour and taste very similar to Alexandrian Senna.

Preparations.

CONFECTIO SENNÆ. Confection of Senna. *N.O.Syn.*—Lenitive Electuary.

Senna, in fine powder, 7; Coriander Fruit, in fine powder, 3;

Figs, 12; Tamarinds, 9; Cassia Pulp, 9; Prunes, 6; Extract of Liquorice, 1; Refined Sugar, 30; Distilled Water, a sufficient quantity. Boil the Figs and Prunes gently with 24 of Distilled Water in a covered vessel for four hours; add more Distilled Water to make up the quantity to its original volume, and then incorporate the Tamarinds and Cassia Pulp; digest for two hours; rub the softened pulp of the fruits through a hair sieve, rejecting the seeds and other hard parts; to the pulp thus obtained add the Refined Sugar and Extract of Liquorice, dissolving them by the aid of gentle heat; while the mixture is still warm, add to it gradually the mixed Senna and Coriander powders; mix the whole thoroughly; make the weight of the resulting Confection 75, either by evaporation or by the addition of more Distilled Water. =(1 in 11 nearly).

Dose.—60 to 120 grains.

Foreign Pharmacopœias.—Official in all except Dan. and Mex., but differing in composition.

INFUSUM SENNÆ. Infusion of Senna.

Senna, 2 oz.; Ginger, sliced, ½ oz. (55 grains); Distilled Water, boiling, 20 fl. oz. Infuse in a covered vessel for fifteen minutes; strain. =(1 in 10).

Time reduced to fifteen minutes.

From 20 fl. oz. of Infusion only 14 fl. oz. drain out.

Dose.—½ to 1 fl. oz.; as a draught, 2 fl. oz.

Foreign Pharmacopœias.—Official in Austr. (Inf. Sennæ c. Manna), about 1 in 8; Belg., 1 in 10; Dan., Ger., Norw., Port., Russ., Swed. and Swiss (Compound), 1 in 10; Norw., has also Simple Infusion, 1 in 10; Dutch, 1 in 25; also Compound with Anise Fruit, Rochelle Salt and Liquorice; Hung. (Infusum Laxativum), 1 in 10, with Manna; Ital., 1 in 15; Jap. with Manna; U.S., *see* below; not in the others.

LIQUOR SENNÆ CONCENTRATUS. Concentrated Solution of Senna. (New.)

Senna, in No. 5 powder, 20; Tincture of Ginger, 2½; Alcohol (90 p.c.), 2; Distilled Water, a sufficient quantity. Divide the Senna into three equal portions; slightly moisten one portion with Distilled Water; pack in a percolator; set aside for twenty-four hours; pass Distilled Water through it until 5 are obtained. Slightly moisten the second portion of Senna with this liquid; pack in a percolator; set aside for twenty-four hours; percolate with the remainder of the liquid obtained from the first portion, and also with an additional 5 obtained by passing more Distilled Water through the first portion. Repeat the process with the third portion of the Senna, and continue successive percolation through the three portions, until a quantity of 16 has been collected from the third percolator. Heat the liquid to 180° F. (82·2° C.) for five minutes; cool; add the Alcohol and Tincture of Ginger, previously mixed; set aside for seven days; filter. The product should measure 20.

Dose.—½ to 1 fl. drm.

MISTURA SENNÆ COMPOSITA. Compound Mixture of Senna. *B.P.Syn.*—Black Draught. (Altered.)

Magnesium Sulphate, 5; Liquid Extract of Liquorice, 1; Compound Tincture of Cardamoms, 2; Aromatic Spirit of Ammonia, 1; Infusion of Senna, a sufficient quantity. Dissolve the Magnesium Sulphate in 10 of the Infusion of Senna; add the mixed Liquid Extract of Liquorice, Compound Tincture of Cardamoms, and Aromatic Spirit of Ammonia; and enough Infusion of Senna to produce 20 of the Compound Mixture. =(1 of Magnesium Sulphate in 4).

Now 1 in 4 instead of 1 in 5½. Tincture of Senna omitted, Compound Tincture of Cardamoms increased, and Aromatic Spirit of Ammonia added.

Dose.—*As a draught*, 1 to 2 fl. oz.

(U.S. Infusum Sennæ Comp.—Senna 6, Manna 12, Magnesium Sulphate 12, Fennel 2, Boiling Water 80, Water sufficient to measure 100 when cold.)

SYRUPUS SENNÆ. Syrup of Senna. (Altered.)

Senna, 40 oz.; Oil of Coriander, 10 minims; Alcohol (90 p.c.), 40 minims; Refined Sugar, in powder, 50 oz.; Alcohol (20 p.c.), 70 fl. oz. Moisten the Senna with 40 fl. oz. of the Alcohol; pack tightly in a vessel which can afterwards be closed; set aside for three days; press strongly; reserve the liquid obtained; break up the marc; moisten it with 15 fl. oz. of the Alcohol; set aside for 24 hours; press strongly; add the liquid obtained to the portion previously reserved; break up the marc; mix it with the remainder of the Alcohol; set aside for three hours; press again; evaporate the resulting liquid until it is reduced to such a volume that when added to the reserved liquid the whole shall measure 40 fl. oz. Mix the evaporated liquid with the reserved liquid; heat the product in a covered vessel to 180° F. (82·2° C.) for a few minutes; set aside for twenty-four hours; filter; pass Distilled Water through the filter until the filtrate measures 40 oz.; add the Refined Sugar, and dissolve in a covered vessel by the aid of gentle heat; cool; add the Oil of Coriander dissolved in the Alcohol (90 p.c.); shake well. The product should weigh 5 lbs. 12 oz.

=(1 in $2\frac{3}{5}$).

Process entirely altered and more Ol. Coriandri used.

Dose.—½ to 2 fl. drm.

Foreign Pharmacopœias.—Official in Austr., with Aniseed and Manna; Belg., with and without Manna; Dan., Norw., Russ., and Swed., with Fennel and Manna; Dutch, with simple Syrup; Ger. and Russ., with Fennel; Hung., Syrupus Mannatus, with Aniseed and Manna; Ital., with Manna and Anise; Jap., Senna only; Mex., Jarabe de Sen; U.S. similar to B. P.; not in Fr., Port., Span. or Swiss.

TINCTURA SENNÆ COMPOSITA. Compound Tincture of Senna. (Altered.)

Senna, broken small, 4; Raisins of commerce, freed from seeds, 2; Caraway Fruit, bruised, ½; Coriander Fruit, bruised, ½; Alcohol (45 p.c.), 20. Prepare by the maceration process. =(1 in 5).

Now 1 in 5 instead of 1 in 8, and Alcohol (45 p.c.) used in place of Proof Spirit.

Dose.—½ to 1 fl. drm. for repeated administration; for a single administration, 2 to 4 fl. drm.

Foreign Pharmacopœias.—Official in Belg., Fr., Mex., and Swiss, 1 in 5, by weight; not in the others.

Not Official.

EXTRACTUM SENNÆ FRUCTUUM FLUIDUM.—Exhaust Senna pods with cold Water and evaporate the resulting liquid *in vacuo*, so that one of Fluid Extract shall equal 1 of Senna pods.

Senna Pods have been revived as an agreeable aperient.—*L.* '89, ii. 164.

ACIDUM CATHARTICUM.—According to Stockman, Cathartic Acid is a coloured glucoside. In the free state it is easily decomposed. It acts locally as an irritant and hence as a purgative when introduced into the alimentary canal.—*P.J.* (3) xv. 751.

Bourgoin and Bouchut, in a lengthy investigation on Senna and Cathartic Acid, conclude, 'As a general result of this enquiry it appears that the best preparation is the Infusion of Senna.'—*P.J.* (3) ii. 223.

SERPENTARIÆ RHIZOMA.

SERPENTARY RHIZOME.

The dried rhizome and roots of *Aristolochia Serpentaria*, or of *Aristolochia reticulata*.

From the southern parts of North America.

Medicinal Properties.—A bitter stomachic and tonic. Used in dyspepsia associated with nervous depression and in chronic rheumatism and gout.

Dose.—Not given in B.P.; 10 to 15 grains.

Official Preparations.—Infusum Serpentariæ, Liquor Serpentariæ Concentratus, and Tinctura Serpentariæ. Used in the preparation of Tinctura Cinchonæ Composita.

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

Description.—The rhizome of Aristolochia Serpentaria is tortuous and slender; about one inch (two and a-half centimetres) in length and one-eighth of an inch (three millimetres) in diameter, bears on its upper surface the remains of aerial stems, and on its under surface numerous wiry interlacing roots, often about three inches (seven and a-half centimetres) in length. Both rhizome and roots are dull yellowish-brown in colour, have a characteristic camphoraceous odour, and a strong aromatic bitter taste.

The rhizome and roots of Aristolochia reticulata resemble the foregoing, but are longer and thicker and the roots are straighter than those of Aristolochia Serpentaria.

Preparations.

INFUSUM SERPENTARIÆ. Infusion of Serpentary. (Altered.)

Serpentary Rhizome, in No. 10 Powder, 1; Distilled Water, boiling, 20. Infuse in a covered vessel for fifteen minutes; strain. =(1 in 20.)

Now 1 in 20 instead of 1 in 40, and time reduced to fifteen minutes.

Dose.—½ to 1 fl. oz.

(Not in the other Pharmacopœias.)

LIQUOR SERPENTARIÆ CONCENTRATUS. CONCENTRATED SOLUTION OF SERPENTARY. (NEW).

Serpentary Rhizome, in No. 40 Powder, 10; Alcohol (20 p.c.), 25; or a sufficient quantity. Moisten the Serpentary with 5 of the Alcohol; pack in a closed percolator; set aside for three days; percolate with the remaining Alcohol, added in ten equal portions at intervals of twelve hours; continue percolation with more Alcohol until the product measures 20.

Dose.—½ to 2 fl. drm.

TINCTURA SERPENTARIÆ. TINCTURE OF SERPENTARY. (ALTERED.)

Serpentary Rhizome, in No. 40 Powder, 4; Alcohol (70 p.c.) a sufficient quantity. Moisten the powder with 4 of the Alcohol, and complete the percolation process. The resulting Tincture should measure 20. =(1 in 5).

Now 1 in 5 instead of 1 in 8 and Alcohol (70 p.c.) used in place of Proof Spirit.

Dose.—½ to 1 fl. drm.

Foreign Pharmacopœias.—Official in U.S., 1 in 10, also **Fluid Extract**; Mex., 1 in 5; not in the others.

SEVUM PRÆPARATUM.

PREPARED SUET.

The internal fat of the abdomen of the sheep, *Ovis Aries*, purified by melting and straining.

Official Preparation.—Used in the preparation of Unguentum Hydrargyri.

Foreign Pharmacopœias.—Official in Belg., Norw. and Swiss, Sebum; Dan. and U.S., Sevum; Fr., Suif de Mouton; Ger. and Hung., Sebum ovile; Ital., Grasso di Montone; Jap., Sebum Bovinum; Mex., Port. and Span., Sebo; Russ., Sebum Bovinum Depuratum; not in Austr., Dutch or Swed.

Description.—White, smooth, almost odourless.

Tests.—Melting point between 112° and 120° F. (44·4° and 48·9° C.); commences to re-solidify at about 100° F. (37·8° C.). Freely soluble in Petroleum Spirit, slowly soluble in Benzol, insoluble in cold Alcohol (90 p.c.), slightly soluble in Ether or boiling Alcohol (90 p.c.).

Not Official.

SIMABA CEDRON.

The bruised seeds used for snake-bites and hydrophobia.—*L.M.R.* '85, 144; *P.J.* (3) xv. 638; *T.G.* '88, 785.

A bitter principle, **Cedrine,** has been isolated.

Not Official.

SIMARUBA.

BITTER SIMARUBA, OR MOUNTAIN DAMSON.

The root bark of *Simaruba officinalis*, from the West Indies.

Medicinal Properties.—A bitter tonic. In large doses causes nausea; is dia-

phoretic and diuretic. Principally used in the asthenic and chronic form of dysentery; may be combined with Opium in epidemic dysentery, and in the advanced stages of diarrhœa.

Dose.—15 to 30 grains.

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

SINAPIS.

MUSTARD.

The dried ripe seeds of *Brassica nigra* and *Brassica alba*, powdered and mixed.

The whole virtue of Mustard depends upon the fact that when mixed with Water Allyl Thiocarbimide (Volatile Oil of Mustard) is formed. This compound is produced by the action of Myrosin upon Myronic Acid in the same way in which the Emulsin and Amygdalin react in the formation of Volatile Oil of Bitter Almonds. Black Mustard contains Myrosin and a large excess of Myronic Acid, and so is in itself able to produce the Volatile Oil to some extent. White Mustard contains Myrosin but no Myronic Acid, and so can by itself produce none of the Volatile Oil. The best result is obtained by mixing the black and white variety in such proportions that the Myrosin and the Myronic Acid will balance each other.

Medicinal Properties.—A powerful stimulant and sialagogue. The powder is taken internally as a condiment; a tablespoonful in a tumblerful of warm water as an emetic; used externally as a rubefacient and counter-irritant in cerebral congestion and coma, in pneumonia, pleurisy, muscular rheumatism and neuralgia; as a sitz-bath in amenorrhœa.

Official Preparations.—Charta Sinapis, Linimentum Sinapis, and Oleum Sinapis Volatile.

Not Official.—Applicatio Sinapis, Infusum Sinapis, and Charta Sinapis (U.S.).

Foreign Pharmacopœias.—Official in all; Fr., Moutarde; Ital., Senape Nera; Mex. and Span., Mostaza; Norw. (Nigra only); Port., Mostarde.

Description.—A greenish-yellow powder with a bitter pungent taste, inodorous when dry, but exhaling when moist a characteristic pungent odour.

A comparison of the constituents of black and white mustard seeds.—*A.J.P.* '95, 339.

Test.—A cooled decoction is not rendered brown by a solution of Boric Acid (absence of turmeric), and should yield no characteristic reaction with the tests for Starch.

The Iodine test for the presence of Starch is rendered negative by the ready absorption of Iodine by the Volatile Oil developed on the addition of Water.—*A.J.P.* '98, 433.

SINAPIS ALBÆ SEMINA. White Mustard Seed.

The dried ripe seeds of *Brassica alba*.

Description.—The seeds are about one-twelfth of an inch (two millimetres) in diameter and one-tenth of a grain (six and a-half milligrammes) in weight, spheroidal, of a pale yellow colour, with

a very finely pitted and reticulated testa. Externally they are hard, internally yellow and oily. Inodorous when entire or powdered; almost inodorous when triturated with Water. In taste less pungent than Black Mustard Seeds.

SINAPIS NIGRÆ SEMINA. Black Mustard Seed.

The dried ripe seeds of *Brassica nigra*.

Description.—The seeds are about one twenty-fifth of an inch (one millimetre) in diameter and one-fiftieth of a grain (one and a-third milligramme) in weight; spherical or slightly ovoid in form. Colour dark reddish-brown or greyish-brown. Testa hard and minutely pitted; interior yellowish-green and oily. When entire or when powdered they are inodorous, but when triturated with Water they yield a strong pungent odour. Taste somewhat bitter at first, followed immediately by extreme pungency.

Preparations.

CHARTA SINAPIS. Mustard Paper. (Altered.)

Black and White Mustard Seeds, equal proportions by weight; Benzol, Solution of India-rubber, of each a sufficient quantity. Bruise the Mustard Seeds and extract the fixed oil by percolation with the Benzol. Dry the residue by exposure to the air in a warm closet, and reduce to No. 60 powder. Mix 75 grains of the purified Mustard with 5 fl. drm. of Solution of India-rubber, and spread by means of a suitable brush over about 30 square inches of one side of a piece of cartridge paper. Allow it to dry by exposure to the air.

The fixed oil is now first extracted from the bruised seeds by Benzol.

Foreign Pharmacopœias.—Official in Belg.; Dutch; Norw.; Fr., Sinapismes en Feuilles; Dan., Ger. and Hung., Charta Sinapisata; Ital., Carta Senepata; Span., Papel Sinapico; Russ., Charta Sinapina; U.S.; not in the others.

LINIMENTUM SINAPIS. Liniment of Mustard. (Altered.)

Volatile Oil of Mustard, 1½ fl. drm.; Camphor, 120 grains; Castor Oil, 5 fl. drm.; Alcohol (90 p.c.), 4 fl. oz. Dissolve the Camphor in the Alcohol; add the Oil of Mustard and Castor Oil; mix. =(about 1 in 27).

Now about 1 in 27 instead of 1 in 40, Ethereal Extract of Mezereon omitted and Alcohol (90 p.c.) used in place of Rectified Spirit.

As the essential oil quickly disappears on keeping, it is better to keep the other ingredients ready mixed and to add the Mustard Oil when required.

A stimulating liniment.

Foreign Pharmacopœias.—Spiritus Sinapis:—Austr. and Hung., Oil 1, Spirit 50; Belg., Ger., Russ., Swed. and Swiss, Oil 1, Spirit 49; Mex. (Linimento de Mostaza Compuesto), 1 in 38; Span. (Alcohol de Mostaza), Oil 1, Spirit 50; all by weight. U.S., similar to B.P.; not in the others.

OLEUM SINAPIS VOLATILE. Volatile Oil of Mustard.

Distilled from Black Mustard Seeds after maceration with Water.

Solubility.—1 in 50 of Water; readily in Alcohol (90 p.c.) and Ether.

Medicinal Properties.—Applied to the skin, it produces almost

instant vesication, but when diluted it forms a useful counter-irritant application.

Foreign Pharmacopœias.—Official in Austr., Hung. and Jap., Oleum Sinapis Æthereum; Belg., Essentia Sinapis; Dan., Norw., and Swed., Ætheroleum Sinapis; Dutch, Ger., Russ., and Swiss, Oleum Sinapis; Ital., Essenza di Senape; Mex., Aceite Volatil de Mostaza; Port., Essencia de Moutarda; Span., Esencia de Mostaza; U.S., Oleum Sinapis Volatile; not in Fr.

Description.—Colourless or pale yellow. Has an intensely penetrating odour and a very acrid taste. Applied to the skin it produces almost immediate vesication.

Tests.—Sp. gr. 1·018 to 1·030. It distils between 297° F. (147·2° C.) and 306° F. (152·2° C.), and the first and last portions of the distillate should have the same sp. gr. as the original Oil (absence of Ethylic Alcohol and Petroleum).

Not Official.

APPLICATIO SINAPIS.—Volatile Oil of Mustard, 4 minims; Eau de Cologne, 1 fl. oz.: mix.

A good application in acute catarrh of the middle ear; to be applied behind the ear by means of a brush or Absorbent Wool.

INFUSUM SINAPIS.—Mustard, 2 drm.; boiling Water, 4 fl. oz.: strain. It relieves obstinate hiccough.

CHARTA SINAPIS, U.S.—Percolate Black Mustard, in No. 60 powder, with Benzin until the percolate ceases to produce a permanent greasy stain upon blotting paper. Remove and dry the powder by exposure to air: then mix it with as much of the Solution (India-rubber 1, Benzin 10, Carbon Disulphide 10) as will give it a semi-liquid consistence, and let it be spread with a suitable brush on one side of a stiff piece of well-sized paper, and allow it to dry. Each square inch of paper should contain about 6 grains of Mustard.

SODIUM.

SODIUM.

Na, eq. 22·88.

The metal Sodium as met with in commerce. It should be preserved under mineral Naphtha in well-stoppered bottles.

Description.—A soft metal, rapidly oxidising in the air, but showing a bright metallic surface when freshly cut.

Sp. gr. ·97. The metal of the alkali Soda, discovered by Sir Humphrey Davy in 1807. Like Potassium, it has a strong affinity for Oxygen: when thrown on cold water, it instantly fuses to a globule, without combustion, and traverses the surface in all directions; on hot water, however, combustion of the Hydrogen ensues.

Tests.—It violently attacks Water or Alcohol (90 p.c.), with evolution of Hydrogen, little or no insoluble matter remaining. It imparts an intense yellow colour to flame. Each gramme very cautiously added to Water affords a solution which should require for neutralisation at least 42·6 c.c. of the Volumetric Solution of Sulphuric Acid.

The Official tests for the presence of Sodium will be found in the Appendix.

Preparation.

LIQUOR SODII ETHYLATIS. *See* SODII ETHYLATIS LIQUOR.

The only direct Official preparation of Sodium.

Sodium Chloride is obtained by dissolving Rock Salt in Water, and recrystallising it; some, however, absolutely pure and perfectly white, is found embedded in the common brown Rock Salt.

From Sodium Chloride the Sodium Carbonate is now prepared, and from the latter many of the other preparations are made.

The salts of Sodium, even in much larger doses, produce a less depressing effect upon the heart than salts of Potassium.

The following are the compounds of Sodium given in the British Pharmacopœia:—

		Dose.
SODA TARTARATA		2 to 4 drm.
SODÆ CHLORINATÆ LIQUOR		10 to 20 minims.
SODII ARSENAS		$\frac{1}{60}$ to $\frac{1}{10}$ grain.
SODII ARSENATIS LIQUOR		2 to 8 minims.
SODII BENZOAS		5 to 30 grains.
SODII BIBORAS. *See* BORAX.		5 to 20 grains.
SODII BICARBONAS		5 to 30 grains.
SODII BROMIDUM		5 to 30 grains.
SODII CARBONAS		5 to 30 grains.
SODII CARBONAS EXSICCATA		3 to 10 grains.
SODII CHLORIDUM.		
SODII CITRO-TARTRAS EFFERVESCENS		1 to 2 drm.
SODII ETHYLATIS LIQUOR.		
SODII HYPOPHOSPHIS		3 to 10 grains.
SODII IODIDUM		5 to 20 grains.
SODII NITRIS		1 to 2 grains.
SODII PHOSPHAS	for repeated administration	30 to 120 grains;
	for a single administration	$\frac{1}{4}$ to $\frac{1}{2}$ oz.
SODII PHOSPHAS EFFERVESCENS—		
	for repeated administration	60 to 120 grains;
	for a single administration	$\frac{1}{4}$ to $\frac{1}{2}$ oz.
SODII SALICYLAS		10 to 30 grains.
SODII SULPHAS	for repeated administration	30 to 120 grains;
	for a single administration	$\frac{1}{4}$ to $\frac{1}{2}$ oz.
SODII SULPHAS EFFERVESCENS—		
	for repeated administration	60 to 120 grains;
	for a single administration	$\frac{1}{4}$ to $\frac{1}{2}$ oz.
SODII SULPHIS		5 to 20 grains.
SODII SULPHOCARBOLAS		5 to 15 grains.

Preparations of the above and Compounds of Sodium not official are to be found in the Index.

Not Official.

SODA CAUSTICA.

Caustic Soda and Solution of Sodium Hydroxide have been transferred to the Appendix.

Foreign Pharmacopœias.—Official in Belg., Soda Caustica Fusa; Fr., Soude

Caustique; Ital., Soda Caustica; Jap., Natrum Causticum; Mex., Sosa Caustica; Port., Hydrato de Soda; Span., Sosa Caustica por la Cal; U.S., Soda; not in the others.

The **Solution** is official in Belg., Soda Caustica Soluta (30 p.c.), sp. gr. 1·330 to 1·334; Swed., Solut. Hydratis Natrici (20 p.c.), sp. gr. 1·215—1·219; Fr., Soude Caustique Liquide (29 p.c.), sp. gr. 1·332; Ger., Liquor Natri Caustici, and Russ., Natrum Causticum Solutum (15 p. c.), sp. gr. 1·168 to 1·172; Hung., Natrium Hydrooxydatum Solutum (32 p.c.), sp. gr. 1·35; Port., Hydrato de Soda Liquido (30 p.c.), sp. gr. 1·33; Span., Solucion de Sosa Caustica (30 p.c.), sp. gr. 1·334; Swiss, Natrium Hydricum Solutum (30 p.c.), sp. gr. 1·33; U.S., Liquor Sodæ (about 5 p.c.), sp. gr. 1·059; not in the others.

Antidotes.—Same as Liquor Potassæ, p. 503.

SODA TARTARATA.

SODIUM POTASSIUM TARTRATE.

B.P.Syn.—Tartarated Soda; Tartrate of Potassium and Sodium; Rochelle Salt.

$(CHOH)_2COONa{\cdot}COOK, 4H_2O$, eq. 280·15.

Prepared by neutralising Acid Potassium Tartrate with Sodium Carbonate.

Solubility.—1 in 1½ of Water; soluble in its own water of crystallisation when hot; insoluble in Alcohol (90 p.c.).

Medicinal Properties.—A mild purgative, well suited for constipation associated with gout and hepatic dyspepsia. It is not aperient in small doses, its action then being diuretic, antilithic and to render the urine alkaline.

A feeble hepatic, but a powerful intestinal stimulant.—Dr. Rutherford.

Dose.—120 to 240 grains.

Official Preparation.—Pulvis Sodæ Tartaratæ Effervescens.

Foreign Pharmacopœias.—Official in Austr. and Hung., Kalium Natrotartaricum; Belg., Tartras Sodico-Potassicus; Dan., Norw., and Swed., Tartras Natrico-Kalicus; Dutch, Tartras Kalico-Natricus; Fr., Tartrate de Potasse et de Soude; Ger. and Swiss, Tartarus Natronatus; Ital., Tartrato Sodico-Potassico; Mex., Tartrato de Potasio y Sodio; Port., Tartrato de Potassa e de Soda; Jap. and Russ., Natrio-Kalium Tartaricum (Sal Polychrestum Seignetti); Span., Tartrato Sodico-Potasico; U.S., Potassii et Sodii Tartras.

Description.—Trimetric prisms with hemihedral facets; it is entirely soluble in cold Water; and has a saline taste.

Tests.—It affords the reactions characteristic of Potassium, of Sodium, and of Tartrates. Each gramme, 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 at least 7 c.c. of the Volumetric Solution of Sulphuric Acid.

Preparation.

PULVIS SODÆ TARTARATÆ EFFERVESCENS. Effervescent Tartarated Soda Powder. Commonly known as Seidlitz Powder. *N.O.Syn.*—Pulvis Aërophorus Laxans; Pulvis Effervescens Laxans.

Sodium Potassium Tartrate, in dry powder, 120 grains; Sodium Bicarbonate, in dry powder, 40 grains. Mix. Wrap in blue paper. Tartaric Acid, in dry powder, 38 grains. Wrap in white paper.

Dose.—*For a draught*, the alkaline powder (in blue paper) is dissolved in nearly half a pint of cold or warm water, and the acid powder (in white paper) then added.

Foreign Pharmacopœias.—Official in all except Dutch and Ital.

Analysis of samples of Seidlitz powders.—*P.J.* '97, ii. 481.

SODÆ CHLORINATÆ LIQUOR.

SOLUTION OF CHLORINATED SODA.

Chlorinated Lime, 16; Sodium Carbonate, 24; Distilled Water, 160. Dissolve the Sodium Carbonate in 40 of the Distilled Water; thoroughly triturate the Chlorinated Lime with the remainder of the Distilled Water; mix the two liquids; filter.

Solution of Chlorinated Soda should be preserved in a stoppered bottle in a cool and dark place.

Medicinal Properties.—Antiseptic. Used internally in typhoid fever and in dysentery. Invaluable as a **gargle** in throat affections attended with fœtor, as in scarlet fever, diphtheria, and septic tonsillitis, 1 fl. oz. in 12 fl. oz. of water. Diluted with Water or Glycerin it forms an excellent application to sore nipples. It is also a powerful disinfecting agent, and is employed as a wash for foul ulcers.

Recommended in typhoid fever.—*L.* '85, ii. 520; for fuller information on the treatment of typhoid by Chlorine *see under* 'Chlori Liquor.'

A paper by Klein on the disinfecting action of Solutions of Sodium Hypochlorite.—*L.* '96, ii. 1509.

Dose.—10 to 20 minims.

Foreign Pharmacopœias.—Official in Belg. (Hypochloris Sodii Liquidus), Calcium Hypochlorite 22, Sodium Carbonate 44, Water 1000; Fr. Chlorure de Soude liquide), Chlorinated Lime 1, Sodium Carbonate 2, Water 45; Ital. (Ipoclorito di Sodio), Chlorine passed through a solution of Caustic Soda 1, Water, 10; Mex. (Hipoclorito de Sodio liquido), Sodium Chloride 3, Manganese Dioxide 3, Sulphuric Acid 3, Sodium Carbonate 5, Distilled Water 20; Port. (Soluto de Soda Chlorada), Calcium Hypochlorite 1, Sodium Carbonate 2, Water 40; Russ. (Natrium Hypochlorosum Solutum), Calcium Hypochlorite 25, Sodium Carbonate 30, Water to 500; Span. (Solucion de Hipochlorito Sodico), Calcium Hypochlorite 1, Sodium Carbonate 2, Water 43; Swed. (Liquor Acidi Hypochlorosi), Sodium Carbonate 3, Water 10, Chlorine Gas to effervescence; Swiss (Natrium Hypochlorosum Solutum), Calcium Hypochlorite 4, Sodium Carbonate 5, Water 120; U.S., Chlorinated Lime 75, Sodium Carbonate 150, Water to measure 1000; not in the others.

Description.—A colourless alkaline liquid, with astringent taste and faint odour of Chlorine.

Has the reputation of being an unstable solution, but this is an error. It under-

goes but slight change, even when kept under ordinary conditions during several months, or even after keeping for a week in an open white glass bottle. It goes yellow on keeping; but the 'Codex' preparation (the original Labarraque), prepared by mixing together the *unfiltered* solutions of one part of Chlorinated Lime with two parts of Soda crystals, remains colourless.

Tests.—Sp. gr. 1·054. It decolorises Solution of Indigo Sulphate. It is decomposed by Hydrochloric Acid, evolving Chlorine. It should yield not more than the slightest reaction with the tests for Calcium or for Carbonates. If 3·5 grammes be added to a solution of 1 gramme of Potassium Iodide in 100 c.c. of Water acidulated with 3 c.c. of Hydrochloric Acid, a brownish-red colour should be produced, for the discharge of which at least 25 c.c. of the Volumetric Solution of Sodium Thiosulphate should be required, corresponding to about 2½ p.c. of available Chlorine.

Test explained under Calx Chlorinata, p. 172.

Not Official.

SODII ACETAS.

ACETATE OF SODIUM.

$NaC_2H_3O_2 . 3H_2O$, eq. 135·10.

Solubility.—1 in 1 of Water; 1 in 30 of Alcohol (90 p.c.).

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

Used in the preparation of Acetic Ether.

SODII ARSENAS.

SODIUM ARSENATE.

ARSENIATE OF SODIUM (HYDROUS), *B.P.* '85.

The Anhydrous salt, Di-sodium Hydrogen Arsenate, Na_2HAsO_4, eq. 184·78, obtained by exposing to a temperature of 300° F. (148·9° C.), crystallised Sodium Arsenate, which may be prepared by treating with water the product of the fusion of Arsenious Anhydride with Sodium Nitrate and Sodium Carbonate.

Solubility.—1 in 4 of Water.

Medicinal Properties.—Similar to those of Potassium Arsenite, or Fowler's Solution. Used in skin affections and nervous diseases. *See also* ACID ARSENIOSUM, page 11.

Dose.—$\frac{1}{10}$ to $\frac{1}{5}$ grain.

Prescribing Notes.—Generally employed in the form of the **Liquor**; may also be given in **pills** well triturated with Milk Sugar and Glucose *q.s.*

Official Preparation.—Liquor Sodii Arsenatis.

Not Official.—Pearson's Solution.

Antidotes.—*See* ACIDUM ARSENIOSUM, page 11.

Foreign Pharmacopœias.—Official in Belg., **dried** salt; Fr., Ital., Mex., Port., Span., Swiss and U.S., **crystallised**; not in the others.

Description.—A white powder, soluble in 6 parts of Water, and yielding an alkaline solution. It is only slightly soluble in cold or boiling Alcohol (90 p.c.).

Tests.—It affords the reactions characteristic of Sodium and of Arsenates. A solution of 1 gramme of Sodium Arsenate with 1 of Glacial Acetic Acid, in 50 c.c. of Water, should require 2·03 grammes of Lead Acetate for complete precipitation. It should yield no characteristic reaction with the tests for Lead, Copper, Iron, Aluminium, Calcium, Magnesium, Potassium, Ammonium, Carbonates, Chlorides, Nitrates, or Sulphates. It should not lose weight on being heated to 300° F. (148·9° C.) (absence of Hydrous Sodium Arsenate).

Preparation.

LIQUOR SODII ARSENATIS. Solution of Sodium Arsenate. (Modified.)

Sodium Arsenate, recently rendered anhydrous, 17½ grains; Distilled Water, a sufficient quantity. Dissolve the anhydrous Sodium Arsenate in sufficient Distilled Water to produce 4 fl. oz. of the Solution of Sodium Arsenate. =(1 in 100).

After being made, this solution deposits a little Silica introduced in the preparation of the Arsenate, but, if filtered after a few days, remains clear.

It is about half the strength of Liquor Arsenicalis in metallic Arsenic, as that preparation contains 1 p.c. of Arsenious Acid, and this 1 p.c. of Sodium Arsenate; another difference is that Liquor Arsenicalis contains an Arsenite, and this an Arsenate.

Dose.—2 to 8 minims.

110 minims contain 1·77 grains of crystallised Sodium Arsenate (Na_2HAsO_4, $7H_2O$), or the equivalent of 1 grain of the anhydrous salt. 100 c.c. contain 1·77 grammes of the crystallised salt, equivalent to 1 gramme of the anhydrous salt.

Foreign Pharmacopœias.—Official in U.S., same as Brit.; Belg., 1 in 1000; Fr. and Span., crystallised Sodium Arsenate 1 in 600; Dan., Port., and Swiss, 1 in 500; Mex. has Solucion Arsenical de Pearson, 1 in 600.

Pearson's Solution, Crystallised Sodium Arsenate, 1; Water, 600.

SODII BENZOAS.

SODIUM BENZOATE.

C_6H_5COONa, eq. 143·01.

This salt may be obtained by neutralising Benzoic Acid with Sodium Carbonate.

Solubility.—1 in 2 of Water; 1 in 25 of Alcohol (90 p.c.).

Medicinal Properties.—Antiseptic and diuretic; similar in action to Benzoic Acid but less irritating; given in chronic cystitis in which there is alkaline and decomposing urine. Given in rheumatism, gout and in rheumatic arthritis.

Is a powerful hepatic stimulant; it is not an intestinal stimulant.—Dr. Rutherford.

Dose.—5 to 30 grains.

Prescribing Notes.—May be given in **cachets**, but generally employed in **solution**.

Foreign Pharmacopœias.—Official in Belg., Benzoas Sodicus; Dutch, Benzoas Natricus; Fr., Benzoate de Soude; Hung., Jap., Russ. and Swiss, Natrium Benzoicum; Ital., Benzoato di Sodio; Mex., Benzoato de Sodio; Port., Benzoato de Soda; Span., Benzoata de Sosa; U.S., Sodii Benzoas; not in the others.

Description.—A white somewhat crystalline or amorphous powder, inodorous or having a faint odour of Benzoin, and an unpleasant sweetish saline taste. Soluble in less than 2 parts of cold Water, in 24 parts of cold Alcohol (90 p.c.), and in 12 of boiling Alcohol (90 p.c.).

Tests.—An aqueous solution has a faintly alkaline reaction, and gives a yellowish or flesh-coloured precipitate when mixed with Test-solution of Ferric Chloride. A strong aqueous solution, to which a little Diluted Hydrochloric Acid is added, affords a crystalline precipitate of Benzoic Acid. Each gramme of the salt, when heated, melts, emitting an odour of Benzoin, then chars, and finally leaves a residue which affords the reactions characteristic of Sodium, and, when dissolved in Water, requires for neutralisation from 6·8 to 6·9 c.c. of the Volumetric Solution of Sulphuric Acid. It should yield no characteristic reaction with the tests for Lead, Copper, Iron, Calcium, Magnesium, Potassium, Ammonium, or Carbonates, and only the slightest reactions with the tests for Chlorides or Sulphates.

Three commercial samples contained an average of 4 p.c. of Water, which the Volumetric Test, requiring over 97 p.c. of anhydrous Sodium Benzoate, does not recognise.

SODII BICARBONAS.

SODIUM BICARBONATE.

$NaHCO_3$, eq. 83·43.

It may be obtained by exposing crystals of Sodium Carbonate to Carbonic Anhydride, or by the interaction of Sodium Chloride and Ammonium Bicarbonate.

Solubility.—1 in 12 of Water; insoluble in Alcohol (90 p.c.).

Medicinal Properties.—Analogous to those of Potassium Bicarbonate; but it is much more frequently given, as it is only feebly depressant and is more slowly absorbed than the Potassium salt. Employed as a gastric sedative and as an antacid in dyspepsia. In the Uric Acid diathesis the corresponding salts of Potassium and Lithium are preferable, as they form more soluble salts with Uric Acid. It is very useful in diabetes. Moistened with water, it is an excellent application to the sting of wasps and gnats.

Has scarcely any appreciable effect as a stimulant of the liver, even when given in large doses.—Dr. Rutherford.

Dose.—5 to 30 grains.

Prescribing Notes.—May be prescribed in **cachets, powders,** or in **solution.** It is also given in Compressed Tablets.

Official Preparation.—Trochiscus Sodii Bicarbonatis. Used in the preparation

of Caffeinæ Citras Effervescens, Ferri Arsenas, Ferri Phosphas, Lithii Citras Effervescens, Magnesii Sulphas Effervescens, Pulvis Sodæ Tartaratæ Effervescens, Sodii Citro-Tartras Effervescens, Sodii Phosphas Effervescens, Sodii Sulphas Effervescens, Spiritus Ætheris Compositus, and 'Soluble Saccharin.'

Not Official.—Pulvis Salinus Anticholeraicus.

Foreign Pharmacopœias.—Official in Austr. and Hung., Natrium Hydrocarbonicum; Belg., Bicarbonas Sodæ; Dan., Dutch, Norw., and Swed., Bicarbonas Natricus; Fr. Bicarbonate de Soude; Ger., Jap., Russ. and Swiss, Natrium Bicarbonicum; Ital., Bicarbonato di Sodio; Mex., Carbonato de Sodio Acido; Port., Bicarbonato de Soda; Span., Carbonato (*bi*) Sodico; U.S., Sodii Bicarbonas.

Description.—In powder or small opaque monoclinic crystals, white, of a saline taste, soluble in 11 parts of cold Water.

Tests.—It affords the reactions characteristic of Sodium and of Bicarbonates. Each gramme should require for neutralisation from 11·8 to 11·9 c.c. of the Volumetric Solution of Sulphuric Acid. It should yield no characteristic reaction with the tests for Lead, Copper, Iron, Aluminium, Calcium, Magnesium, Potassium, Sulphites, or Thiosulphates, and only the slightest characteristic reactions with the tests for Chlorides, Sulphates, or Ammonium. A solution of the salt in cold Water gives a whitish precipitate, becoming brownish-red on standing, with Test-solution of Mercuric Chloride (distinction from Sodium Carbonate). The addition of Test-solution of Ferric Chloride to the aqueous solution acidulated with Hydrochloric Acid should cause no red coloration (absence of Thiocyanates).

20 parts of Sodium Bicarbonate are neutralised by 16·7 parts of Citric Acid, and by 17·8 parts of Tartaric Acid.

Howard points out (*C.D.* '98, i. 675) that a pure sample will not pass the B.P. Mercuric Chloride Test.

It has further been noticed that the test depends largely on the conditions of experiment. A very little agitation especially in warm weather suffices to throw down red Oxychloride. The amount of Mercuric Chloride solution used also affects the test. It might with advantage have been left out, as in the latest editions of the German and U.S. Pharmacopœias.—*C.D.* '98, i. 714.

Traces of Sodium Carbonate, and also of Water, are probably present in all commercial Sodium Bicarbonate, but it may still pass the B.P. titration test, owing to the counterbalancing influence of the two impurities. The actual Carbonate may be estimated by adding excess of normal solution of Soda free from Carbonate, then excess of Barium Chloride, and titrating with Volumetric Solution of Sulphuric Acid, using Phenol-phthalein as the indicator.

Preparation.

TROCHISCUS SODII BICARBONATIS. Sodium Bicarbonate Lozenge. (Altered.)

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

Now 3 instead of 5 grains in each, and made with the Rose Basis.

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

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

Not Official.

PULVIS SALINUS ANTICHOLERAICUS (Stevens).—Sodium Bicarbonate, 30 grains; Sodium Chloride, 20 grains; Potassium Chlorate, 7 grains: for one dose.

Given frequently in a small tumbler of cold Water in cases of diarrhœa and cholera, to arrest the pain and purging.

SODII BROMIDUM.

SODIUM BROMIDE.

NaBr, eq. 102·23.

It may be prepared in the same manner as Potassium Bromide, Sodium Hydroxide being used in place of Potassium Hydroxide.

Solubility.—5 in 6 of Water; 1 in 16 of Alcohol (90 p.c.).

Medicinal Properties.—Similar to Potassium Bromide, but less depressant and more easily tolerated by the stomach.

It has been recommended as a remedy for sea sickness in 60 grain doses three times a day for at least two days before embarkation on a long voyage, the dose being reduced to half when on board.—*B.M.J.* '81, ii. 730.

Dose.—5 to 30 grains.

Prescribing Notes.—Generally given in **solution**; it may be prescribed in **powders** if carefully wrapped in tin foil. It is also given in Compressed Tablets.

Foreign Pharmacopœias.—Official in Austr., Ger., Hung., Jap., Russ. and Swiss, Natrium Bromatum; Dan., Dutch, and Norw., Brometum Natricum; Fr., Bromure de Sodium; Ital., Bromuro di Sodio; Span., Bromuro Sodico; U.S., Sodii Bromidum; not in the others.

Description.—In small white cubic crystals, somewhat deliquescent, inodorous, with a saline taste.

Tests.—It affords the reactions characteristic of Sodium and of Bromides. Each gramme of the dry salt dissolved in Water should require for complete precipitation not less than 95·8 nor more than 97·8 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, Potassium, Ammonium, Carbonates, Cyanides, Bromates, or Iodates, 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 solution (absence of Thiocyanates).

SODII CARBONAS.

SODIUM CARBONATE.

Na_2CO_3, $10H_2O$, eq. 284·11.

It may be obtained from Sodium Chloride, either by interaction with Ammonium Bicarbonate and subsequent ignition, or by its conversion into Sodium Sulphate and the action of heat on a mixture of the Sulphate with Carbon and Calcium Carbonate.

20 parts of Sodium Carbonate are neutralised by 9·8 parts of Citric Acid, and by 10·5 parts of Tartaric Acid.

Solubility.—5 in 8 of Water at 60° F.; 12 in 1 of Water at 100° F.; insoluble in Alcohol (90 p.c.).

Medicinal Properties.—Antacid; but it is so apt to irritate that the Bicarbonate is almost invariably preferred. Externally, as a lotion (30 grains to a pint) in eczema.

Dose.—5 to 30 grains.

Prescribing Notes.—The **Exsiccated salt** may be given in the form of **pills** massed with Glucose and 'Dispensing Syrup.'

Official Preparation.—Sodii Carbonas Exsiccatus used in the preparation of Extractum Ergotæ and many Sodium salts; also Liquor Magnesii Carbonatis and various Carbonates, etc. The **Exsiccated Carbonate** is used in the preparation of Pilula Ferri.

Not Official.—Balneum Alkalinum.

Foreign Pharmacopœias.—Official in all.

Description.—In transparent, colourless rhombic crystals; efflorescent, with a harsh taste and strong alkaline reaction.

Tests.—It should respond to the qualitative tests enumerated under 'Sodii Bicarbonas,' except that its aqueous solution gives an immediate brownish-red precipitate with Test-solution of Mercuric Chloride. When heated it liquefies and then dries up, losing 62·93 p.c. of its weight. Each gramme of the crystallised salt should require for neutralisation at least 6·9 c.c. of the Volumetric Solution of Sulphuric Acid.

Preparation.

SODII CARBONAS EXSICCATUS. Na_2CO_3, eq. 105·31. Exsiccated Sodium Carbonate. Dried Carbonate of Sodium, *B.P.* '85.

Nearly Anhydrous Sodium Carbonate, which is obtained by heating Sodium Carbonate until it loses nearly 63 p.c. of its weight.

53 grains are equal to 143 grains of crystallised salt.

Dose.—3 to 10 grains.

Foreign Pharmacopœias.—Official in Austr., Belg., Dan., Fr., Ger., Hung., Russ. and U.S.; not in the others.

Test.—It affords the reactions characteristic of Sodium and of Carbonates. It should not yield more than traces of Water when strongly heated.

Not Official.

BALNEUM ALKALINUM.—Crystals of Sodium Carbonate, 8 or 10 oz. to 60 gallons of Water.

Used in skin diseases as a solvent to remove scabs and scaly incrustations.

SODII CHLORIDUM.

SODIUM CHLORIDE.

NaCl, eq. 58·07.

Sodium Chloride is common salt, purified.

Solubility.—1 in $2\frac{3}{4}$ of Water; 1 in $2\frac{3}{4}$ of boiling Water; 1 in 200 of Alcohol (90 p.c.).

Medicinal Properties.—In small doses, stimulant, alterative, antiseptic, tonic, and in form of enema, anthelmintic; in larger doses, purgative and emetic. Locally, as a fomentation to sprains and bruises. Salt water baths (1 pound to 4 gallons) are tonic and stimulant to the system, especially in children, and are useful in chronic rheumatism and gout. Nasal injection of a saturated solution is useful in ozæna. A recent cold is greatly relieved by douching the nostrils and gargling the throat with a weak solution of Salt; gargling is also serviceable in tonsillitis and chronic throat catarrh. In case of a leech being swallowed a strong solution of Salt should be drunk; this is also a valuable antidote in poisoning by Silver Nitrate.

Its value as an article of diet is well known. Soldiers are supplied with it: our army, ·5 oz. daily; the French, ·5; Prussian, ·87; Russian, 1·86; for a long time the Russian soldiers had salt-money given, and it was only when scurvy attacked them that the money was stopped and the salt given instead.

A very feeble hepatic stimulant.—Dr. Rutherford.

Dose.—Not given in B.P.; 10 to 60 grains as a tonic; as an emetic $\frac{1}{2}$ to 1 oz.

Official Preparation.—Used in the preparation of Acidum Hydrochloricum, Hydrargyri Perchloridum, Hydrargyri Subchloridum, Sodii Bicarbonas, Sodii Carbonas and Sodii Sulphas.

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

Description.—In small white crystalline grains or transparent cubic crystals, free from moisture, with a purely saline taste, soluble in less than 3 parts of Water.

Tests.—It affords the reactions characteristic of Sodium and of Chlorides. It should yield no characteristic reaction with the tests for Potassium, Bromides, or Iodides, and only slight reactions with the tests for Calcium, Magnesium, or Sulphates.

SODII CITRO-TARTRAS EFFERVESCENS.

EFFERVESCENT SODIUM CITRO-TARTRATE.

Sodium Bicarbonate, 51; Tartaric Acid, 27; Citric Acid, 18; Refined Sugar, 15, all in powder: mix the powders thoroughly, place the mixture in a dish or pan of suitable form heated to between 200° and 220° F. (93·3° and 104·4° C.). When the mixture, by aid of careful manipulation, has assumed a granular character, separate it into granules of uniform and convenient size by means of suitable sieves. Dry the granules at a temperature not exceeding 130° F. (54·4° C.). The product should weigh about 100.

Medicinal Properties.—A mild saline purgative.

Dose.—60 to 120 grains.

(Not in the other Pharmacopœias.)

SODII ETHYLATIS LIQUOR.

SOLUTION OF SODIUM ETHYLATE.

Sodium, clean and bright, 22 grains; Absolute Alcohol, 1 fl. oz. Cautiously dissolve the Sodium in the Absolute Alcohol contained in a flask, the latter being kept cool by a stream of cold Water.

This Solution should be recently prepared. It contains 18 p.c. of the solid substance, C_2H_5ONa.

If the Sodium be not bright, it is advisable to wash it with a little Absolute Alcohol before commencing to make the Liquor.

Medicinal Properties.—Caustic; has been used in the treatment of nævus, nasal polypus, ozæna, and lupus.—*L.* '78, ii. 625; '81, i. 168, 242; *B.M.J.* '85, ii. 344; '88, ii. 762.

It may be applied by means of a glass rod, camel's hair brush, or a quill pen. Tincture of Opium may be added to relieve the pain, but not Chloroform, as it makes an explosive mixture.

(Not in the other Pharmacopœias.)

Description.—A colourless liquid of syrupy consistence, becoming brown by keeping.

The liquid becomes yellow on keeping, and when traces of aldehyde are present in the Alcohol, the change in colour is more rapid and occurs to a much greater extent, producing a deep brown.

Tests.—Sp. gr. ·867. When slightly heated, it boils and gives off alcoholic vapours, leaving a white residue which, on being strongly heated, becomes charred. If the white residue be mixed with Water and heated, it yields Ethylic Alcohol, and the solution, on evaporation, leaves a white residue consisting almost wholly of Caustic Soda.

SODII HYPOPHOSPHIS.

SODIUM HYPOPHOSPHITE.

$NaPH_2O_2$, eq. 87·44.

Obtained by the interaction of Sodium Carbonate and Calcium Hypophosphite.

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

Medicinal Properties.—Similar to those of Calcii Hypophosphis.

Dose.—3 to 10 grains.

Not Official.—Syrupus Sodii Hypophosphitis.

Foreign Pharmacopœias.—Official in U.S.; Belg., Hypophosphis Sodii; Dutch, Hypophosphis Natricus; Fr., Hypophosphite de Soude; Mex., Hipofosfito de Sodio; Port., Hypophosphito de Soda; Russ., Natrium Hypophosphorosum; not in the others.

Sodium Hypophosphite, when mixed with an equal quantity of Sodium Nitrate, forms a highly explosive mixture.—*Y.B.P.* '87, 21.

Description.—A white granular salt having a bitter nauseous taste. It is deliquescent, soluble in its own weight of Water and in 30 parts of Alcohol (90 p.c.), but insoluble in Ether.

The crystals or powder deliquesce slowly in very hot weather, but as soon as it cools (say to 65° F.) the salt dries up again.

Tests.—When heated in air it yields spontaneously inflammable Hydrogen Phosphide and Hydrogen. It colours flame strongly yellow. It is rapidly attacked by oxidising agents. Its solution yields with a warm solution of Copper Sulphate a red precipitate of Cuprous Hydride, which, on boiling, evolves Hydrogen. ·5 gramme boiled for ten minutes with 25 c.c. of Water and 1·15 grammes of Potassium Permanganate, and filtered, should afford a nearly colourless solution. It should yield no characteristic reaction with the tests for Lead, Copper, Iron, Aluminium, Zinc, Calcium, Magnesium, Potassium, Ammonium, Chlorides, or Sulphates, only the slightest reactions with the tests for Carbonates, and its solution should give little or no precipitate with Solution of Lead Acetate (limit of Phosphates and Phosphites).

For remarks on the Lead Acetate test and the assay of commercial Hypophosphites, *see* Calcii Hypophosphis, p. 167.

Not Official.

SYRUPUS SODII HYPOPHOSPHITIS (*B.P.C.*).—Dissolve 160 grains of Sodium Hypophosphite in 3 fl. drm. of Distilled Water, filter, and wash the filter with Distilled Water 1 fl. drm. To the filtered solution add sufficient Syrup to produce 20 fl. oz. : mix. Each fl. drm. contains 1 grain of Sodium Hypophosphite.

Dose.—1 to 4 fl. drm.

SODII IODIDUM.

SODIUM IODIDE.

NaI, eq. 148·78.

It may be prepared from Iodine and Sodium Hydroxide by a process similar to that employed in making Potassium Bromide; the salt being crystallised at a temperature of not less than 68° F. (20° C.).

Solubility.—11 in 6 of Water; 1 in 3 of Alcohol (90 p.c.); 1 in 1 of Glycerin.

Medicinal Properties.—Given in the same doses and for similar purposes as Potassium Iodide, and is more readily tolerated by the stomach.

It is more assimilable than Potassium Iodide.—*B.M.J.* '86, i. 748, 1092.

Dose.—5 to 20 grains.

Foreign Pharmacopœias.—Official in Austr., Ger., Hung., Jap., Russ. and Swiss, Natrium Iodatum; Dutch and Norw., Iodetum Natricum; Fr., Ioduro de Sodium; Mex., Yoduro de Sodio; U.S., Sodii Iodidum; not in the others.

Description.—A dry white crystalline deliquescent powder, having a saline and somewhat bitter taste.

All commercial samples vary much in the proportion of Water which they contain.

Tests.—It affords the reactions characteristic of Sodium and of Iodides. Each gramme should not lose more than ·05 gramme of Water when dried at 248° F. (120° C.); and each gramme of this dried salt, when dissolved in Water, should require for complete precipita-

tion not less than 66·5 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, Potassium, Ammonium, Bromates, Cyanides, Carbonates, or Iodates, and only the slightest reactions with the tests for Bromides, Chlorides, or Sulphates.

SODII NITRIS.

SODIUM NITRITE.

$NaNO_2$, eq. 68·58.

A salt obtained by fusing Sodium Nitrate with metallic Lead.

It is frequently found in commerce fused into sticks, with a crystalline fracture.

It is prepared by fusing Sodium Nitrate with reducing substances such as metallic Lead, Barium Sulphide, &c., but if the reduction is carried too far, free alkali is formed and afterwards becomes carbonated.

Solubility.—5 in 6 of Water, 1 in 50 of Alcohol (90 p.c.).

Medicinal Properties.—Vaso-dilator and antispasmodic. Used with the object of warding off the attack in angina pectoris and asthma, as well as relieving the symptoms during an attack; also in migraine and hemicrania if accompanied by facial pallor. It is of great service in lowering arterial tension in renal cirrhosis.

Preferred to Amyl and Ethyl Nitrites, because easily given in Water.—*L.* '87, ii. 51; *P.J.* (3) xvii. 1. Closely approaches the action of Nitroglycerin, but without its objectionable features.—*Pr.* xxx. 179. On its therapeutics.—*Pr.* lii. 345. It is not so rapid in its action as Amyl Nitrite, but is more persistent and more gentle.

Dose.—1 to 2 grains.

Official Preparation.—Used in the preparation of Liquor Ethyl Nitritis.

Antidotes.—Emetics, fresh air, recumbent position, Ergot, and Atropine.

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

Description.—A white deliquescent crystalline powder, very soluble in Water.

Tests.—The solution is neutral or slightly alkaline, and affords reactions characteristic of Sodium salts and of Nitrites. ·1 gramme dissolved in Water, introduced into a brine-charged nitrometer, and tested with Potassium Iodide and Diluted Sulphuric Acid, should liberate at the ordinary temperature (60° F. or 15·5° C.) and pressure (30 inches or 760 millimetres of Mercury) not less than 32·5 c.c. of Nitric Oxide, corresponding to not less than 95 p.c. of Sodium Nitrite, the gas being almost completely absorbed by strong solution of Ferrous Sulphate. The aqueous solution of the salt should not give more than the slightest traces of a precipitate on the addition of Diluted Sulphuric Acid (absence of Lead).

98 p.c. is a common figure obtained from good commercial samples.

In the absence of a nitrometer it may be readily estimated with a standard solution of Potassium Permanganate; ·1 gramme of Pure Sodium Nitrite being equal to 29 cc. $\frac{N}{10}$ solution of Permanganate (containing 3·156 grammes in the litre), or to 9·1 cc. of the Official Liquor Potassii Permanganatis.

Not Official.

SODII OLEATIS SOLUTIO, *see* p. 650.

SODII ET POTASSII TARTRAS.

See SODA TARTARATA, p. 577.

SODII PHOSPHAS.

SODIUM PHOSPHATE.

Na_2HPO_4, $12H_2O$, eq. 355·64.

This salt, Di-sodium Hydrogen Phosphate, may be obtained by the interaction of Sodium Carbonate and the solution of Acid Calcium Phosphate produced on mixing bone-ash and Sulphuric Acid.

There are three Sodium Phosphates, the ortho-, meta-, and pyro-phosphate. The Official is the ortho-phosphate.

Solubility.—1 in 6 of Water; dissolves in its own water of crystallisation below 212° F.; insoluble in Alcohol (90 p.c.).

Medicinal Properties.—A mild saline purgative; from its pure saline taste it is called Tasteless Aperient Salt, and is often given to children. Diuretic, antacid, and antilithic in small doses. As it renders the urine alkaline, it is sometimes useful in gout.

By hypodermic injection in various nervous diseases.—*B.M.J.E.* '93, ii. 108.

Incompatible with alkaloids.—*T.G.* '94, 334.

Dose.—30 to 120 grains, for repeated administration; for a single administration, ¼ to ½ an oz.

Official Preparation.—Sodii Phosphas Effervescens. Used in the preparation of Ferri Phosphas.

Foreign Pharmacopœias.—Official in Austr., Ger., Hung., Jap., Russ. and Swiss, Natrium Phosphoricum; Belg., Phosphas Sodæ; Dan., Dutch and Swed., Phosphas Natricus; Fr., Phosphate de Soude; Ital., Fosfato Bisodico; Mex., Fosfato de Sodio; Port., Phosphato de Soda; Span., Fosfato Sodico; U.S.; not in Norw.

Description.—In transparent colourless rhombic prisms, terminated by four converging planes, efflorescent, having an alkaline reaction and a saline taste.

Tests.—It affords the reactions characteristic of Sodium and of Phosphates. Heated to dull redness it loses 62·84 p.c. of its weight. It should yield no characteristic reaction with the tests for Potassium, Ammonium, or Carbonates, and only the slightest reactions with the tests for Sulphates or for Chlorides.

Preparation.

SODII PHOSPHAS EFFERVESCENS. EFFERVESCENT SODIUM PHOSPHATE.

Sodium Phosphate, in crystals, 50; Sodium Bicarbonate, in powder, 50; Tartaric Acid, in powder, 27; Citric Acid, in powder, 18. Dry

the Sodium Phosphate until it has lost 60 p.c. of its weight; powder the product and mix it with the other ingredients. Place the whole in a dish or pan of suitable form heated to between 200° and 220° F. (93·3° and 104·4° C.). When the mixture, by aid of careful manipulation, has assumed a granular character, separate it into granules of uniform and convenient size by means of suitable sieves. Dry the granules at a temperature not exceeding 136° F. (54·4° C.). The product should weigh about 100.

Dose.—60 to 120 grains, for repeated administration; for a single administration, ¼ to ½ an oz.

SODII SALICYLAS.

SODIUM SALICYLATE.

$(C_6H_4{\cdot}OH{\cdot}COONa)_2, H_2O$, eq. 335·66.

May be obtained by the interaction of Salicylic Acid and Sodium Carbonate or Sodium Hydroxide.

It has been pointed out by Helbing that crystallised Sodium Salicylate is anhydrous.

The remarks on the purity of Salicylic Acid, given p. 45, are even more applicable to Sodium Salicylate, as it is in this form that Salicylic Acid is generally used for internal administration. The Acid liberated from the Sodium salt and recrystallised, should have the melting point and answer all the tests given on that page.

Solubility.—1 in 1 of Water; 1 in 5 of Alcohol (90 p.c.); 1 in 30 of Absolute Alcohol.

Medicinal Properties.—Given as a specific in acute rheumatism; and as a powerful antipyretic in pneumonia, typhoid and all pyrexial affections. A soluble form of Salicylic Acid, and less irritating. Useful in influenza, chronic rheumatism, sciatica and in acute tonsillitis which is so often rheumatic in origin. The best antiseptic for fermentative dyspepsia. It increases the acidity of the urine, and is given in chronic cystitis. Brunton says that in obstinate constipation due to gout, its administration will tend to keep the bowels regular without any purgative whatever.

In some forms of diabetes. Combined with Potassium Bromide, in headache, *Pr.* lii. 101, *T.G.* '94, 335; in pleuritis, *T.G.* '94, 101; reason for advantage of natural over artificial Salicylate, *Pr.* lii. i. 447; of great value in psoriasis and in many forms of erythema, especially e. nodosum, *L.* '80, i. 627; '95, i. 1422; *B.M.J.* '86, i. 737; *T.G.* '85, 446. In exophthalmic goître.—*B.M.J.E.* '95, i. 91.

It is a very powerful stimulant of the liver, but a very slight stimulant of the intestinal glands.—Dr. Rutherford.

Dose.—10 to 30 grains.

Prescribing Notes.—Generally given in **solution**, may also be prescribed in **cachets** or **powders**. When dissolved with Water and mixed with Ammonia, the solution soon becomes yellow or brown on exposure to the air, which happens in mixtures containing the salt and Aromatic Spirit of Ammonia when the bottle is half full. It is sometimes prescribed with Citric Acid, which precipitates the Salicylic Acid. It is better to give it with Sodium or Potassium Citrate. When

prescribed with a salt of Quinine, Quinine Salicylate is formed, which is only slightly soluble, and is therefore thrown out.

Official Preparation.—Used in the preparation of Bismuthi Salicylas.

Foreign Pharmacopœias.—Official in Austr., Ger., Hung., Jap., Russ. and Swiss, Natrium Salicylicum; Belg., Salicylas Sodæ; Dutch, Norw. and Swed., Salicylas Natricus; Fr., Salicylate de Soude; Ital., Salicilato di Sodio; Mex., Salicilato de Sodio; Span., Salicilato Sodico; U.S.; not in the others.

Description.—In small colourless scales, or in tabular crystals with a pearly lustre. The salt has a sweetish and somewhat unpleasant saline taste, and no odour.

Tests.—The solutions are neutral or faintly acid to Litmus. When heated to redness, the salt evolves inflammable vapours, and a white residue remains which effervesces with acids, and imparts an intense yellow colour to flame. Test-solution of Ferric Chloride colours a concentrated solution reddish-brown, and a dilute solution violet. A solution containing not less than 1 p.c. affords a yellowish-brown precipitate with Solution of Uranium Nitrate (distinction from Carbolates and Sulphocarbolates). 50 to 100 grammes kept in a closed vessel for several days should not evolve the faintest smell of Phenol. If the aqueous solution be acidulated* with Nitric Acid, and the precipitate be dissolved by a little Alcohol (90 p.c.), the mixture affords not more than the slightest reactions with the tests for Sulphates or for Chlorides. It dissolves without coloration or effervescence in cold Sulphuric Acid (absence of organic impurities and of Carbonates).

SODII SULPHAS.

SODIUM SULPHATE.

$Na_2SO_4.10H_2O$, eq. 319·90.

This salt may be obtained by the interaction of Sodium Chloride and other Sodium salts with Sulphuric Acid.

Solubility.—1 in 3 of Water, and measures $3\frac{1}{2}$; 10 in 3 of Water at 92° F.; 10 in $4\frac{1}{2}$ of Water at 212° F.; insoluble in Alcohol (90 p.c.).

Medicinal Properties.—Hydragogue purgative and cholagogue; useful in cases of gall-stones and of liver disease; in small repeated doses it is especially well adapted for cases of constipation associated with gout and hepatic dyspepsia.

A moderately powerful stimulant of the liver, and a powerful stimulant of the intestine.—Dr. Rutherford.

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

Official Preparation.—Sodii Sulphas Effervescens.

Not Official.—Pulvis Sodii Sulphatis et Zingiberis.

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* The word 'acidulated' should be 'supersaturated,' as sufficient Nitric Acid must be added to prevent the precipitation of Silver Salicylate over and above what is necessary to completely decompose the Sodium Salicylate.

Foreign Pharmacopœias.—Official in Austr. and Hung., Natrium Sulfuricum Crystallisatum, also Siccum; Belg., Sulphas Sodæ; Dan., Dutch, Norw., and Swed., Sulphas Natricus; Dan., also Siccatus; Dutch, also Exsiccatus; Fr., Sulfate de Soude Purifié; Ger. and Swiss, Natrium Sulphuricum, also Siccum; Ital., Solfato di Sodio; Jap., Natrium Sulfuricum; Mex., Sulfato de Sodio; Port., Sulfato de Soda; Russ., Natrium Sulfuricum, Depuratum, Crudum, and Siccum; Span., Sulfato Sodico; U.S.

Description.—In transparent, monoclinic prisms; has a bitter saline taste; effloresces on exposure to the air; is soluble in less than half its weight of Water at temperatures from 77° to 86° F. (25° to 30° C.). Heated to boiling this solution deposits crystals of the anhydrous salt. Insoluble in Alcohol (90 p.c.).

Tests.—Exposed to heat in a porcelain crucible it loses 55·9 p.c. of water. It affords the reactions characteristic of Sodium and of Sulphates. Each gramme dissolved in Water and acidulated with Hydrochloric Acid gives, by the addition of Solution of Barium Chloride, a white precipitate, which, when it has been washed and dried, should weigh ·725 gramme. It should yield no characteristic reaction with the tests for Lead, Iron, Aluminium, Calcium, Magnesium, Potassium, Ammonium, or Carbonates, and only the slightest reactions with the tests for Chlorides.

Preparation.

SODII SULPHAS EFFERVESCENS. Effervescent Sodium Sulphate.

Sodium Sulphate in crystals, 50; Sodium Bicarbonate in powder, 50; Tartaric Acid in powder, 27; Citric Acid in powder, 18. Dry the Sodium Sulphate until it has lost 56 p.c. of its weight; powder the product and mix it with the other ingredients. Place the whole in a dish or pan of suitable form heated to between 200° and 220° F. (93·3 and 104·4° C.). When the mixture, by aid of careful manipulation of the powder, begins to aggregate, stir it assiduously until it has assumed a granular character; then separate it into granules of uniform and convenient size by means of suitable sieves. Dry the granules at a temperature not exceeding 130° F. (54·4° C.). The product should weigh about 100. =(1 in 2).

Dose.—60 to 120 grains, for repeated administration; for a single administration, ½ to ½ an ounce.

Not Official.

PULVIS SODII SULPHATIS ET ZINGIBERIS.—Sodium Sulphate, in powder, 60 grains; Ginger in powder, 5 grains: mix.

To be taken in a small tumbler of warm Water, in the morning.

SODII SULPHIS.

SODIUM SULPHITE.

Na_2SO_3, $7H_2O$, eq. 250·38.

May be obtained by interaction of Sulphurous Acid and Sodium Carbonate.

Solubility.—3 in 4 of Water; insoluble in Alcohol (90 p.c.); 1 in 25 of Glycerin.

Medicinal Properties.—Antiseptic; given with success in fermentative vomiting and dilated stomach due to sarcina ventriculi. Externally as a lotion in parasitic cutaneous affections.

Dose.—5 to 20 grains.

Not Official.—Liquor Sodii Sulphitis Benzoicus.

Foreign Pharmacopœias.—Official in Mex., Sulfito de Sodio; Port., Sulfito de Soda; U.S.; not in the others.

Description.—In colourless transparent monoclinic prisms, efflorescent in dry air, inodorous, with a saline and sulphurous taste.

Tests.—It affords the reactions characteristic of Sodium and of Sulphites. The aqueous solution has a neutral or faintly alkaline reaction, and if treated with Hydrochloric Acid evolves Sulphurous Anhydride, but does not become cloudy (absence of Thiosulphate). Each gramme dissolved in 50 c.c. of Water should decolorise not less than 77·7 nor more than 81·7 c.c. of the Volumetric Solution of Iodine.

Not Official.

LIQUOR SODII SULPHITIS BENZOICUS.—Sodium Sulphite, 30; Benzoic Acid, 14; Water, 500.

An **Antiseptic solution,** recommended by Heckel.—*B.M.J.* '87, ii. 1355.

SODII SULPHOCARBOLAS.

SODIUM SULPHOCARBOLATE.

$C_6H_4OH{\cdot}SO_2ONa,\ 2H_2O$, eq. 230·44.

Sodium Sulphocarbolate, or Sodium Phenol-para-sulphonate, may be obtained by dissolving Phenol in excess of Sulphuric Acid, and converting the Phenolsulphonic Acid so obtained into a Sodium salt.

The Sulphocarbolates used in Medicine are defined as the salts of Para-phenol-sulphonic Acid. The action of Sulphuric Acid upon Carbolic Acid results in a mixture of Para- and Ortho-phenol-sulphonic Acids, the proportion of the latter being less the higher the temperature, and the longer continued the contact. To eliminate the Ortho salt further purification is necessary.

Solubility.—1 in 6 of Water; 1 in 150 of Alcohol (90 p.c.); 1 in $5\frac{1}{2}$ of Glycerin.

Medicinal Properties.—Antiseptic and antipyretic; given in cases of flatulence, fermentative dyspepsia, and other conditions in which Carbolic Acid is used.

Dose.—3 to 15 grains.

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

Description.—Colourless, transparent, rhombic prisms, inodorous or nearly so, with a saline and somewhat bitter taste. Its solutions are without action on Litmus.

Tests.—On ignition it gives off Phenol, and leaves a residue of Sodium Sulphate. It imparts an intense yellow colour to flame. The dilute aqueous solution is rendered violet by Test-solution of Ferric Chloride, does not give a yellowish-brown precipitate with Solution

of Uranium Nitrate (distinction from Salicylate), and should not at once be rendered turbid by Solution of Barium Chloride (absence of Sulphates).

Not Official.

SODII TAUROCHOLAS.

Prepared from Ox-bile or Pig's-bile.

Has been given in the treatment of gouty obesity and dyspepsia, in doses of 4 grains at each meal immediately after food. The **pills** should be coated with Keratin.—*L.* '85, i. 745, 917.

Dose.—2 to 6 grains, made into a **pill** with Alcohol (60 p.c.).

SOLUBILITY.

Figures for the solubility of the various substances have been given in the *Companion* since its first issue in 1864, and these have been revised and supplemented from time to time in subsequent editions, from experiments made for that purpose. In most instances the figures have been ascertained by adding the solid substance in fine powder to a liquid, and shaking it at intervals during three days at a temperature between 58° and 62° F. They represent the weight of a solid in grammes, and the measure of a fluid in cubic centimetres. Some liquids are stated to be miscible in all proportions; this has been ascertained by adding to 5 c.c. of one fluid small quantities of the other fluid, $\frac{1}{10}$ c.c. at first, and afterwards $\frac{1}{2}$ c.c. until 20 c.c. have been added, shaking the mixture between each addition.

Not Official.

SOMATOSE.

A light white or greyish powder stated to be prepared from fresh meat, soluble in Water, and consisting to a large extent of albumoses.

Denaeyer states that it is neither albumose nor a peptone but has the characters of an alkali-albumen. This statement is partially confirmed by Allen.

Recommended in anæmia, in intestinal disorders, and in dyspepsia.

Iron Somatose.—Is a light brown almost tasteless powder, soluble in aqueous liquids. It contains 2 p.c. of Iron, and has been recommended in the treatment of chlorosis. **Milk Somatose** has also been introduced.

Not Official.

SOZOIODOL.

IODOPARAPHENOLSULPHONIC ACID.

A white, shining, crystalline, odourless powder, containing Iodine 52 p.c., Carbolic Acid 20 p.c., and Sulphur 7 p.c., preferably used in the form of its salts. When required in solution, the Sodium salt is most applicable, dissolving 1 in 14 of Water or Glycerin. The Potassium salt, soluble 1 in 100 of Water, is preferable as a **dusting powder**, or in **ointments**. Solution of the Zinc salt, 1 to 3 p. c., is suitable for **injection**. The compound with Mercury is an orange-coloured powder.

Medicinal Properties.—It is introduced as a substitute for Iodoform.

It is recommended locally in nasal and pharyngeal disorders, and as an application of great energy in parasitic skin affections.—*B.M.J.* '89, ii. 42; *T.G.* '89, 132, '91, 592. In aural and nasal affections.—*L.* '94, i. 1636; *B.M.J.E.* '94, i. 99.

Sozoiodol cotton and **gauze** containing 5 and 10 p.c.

Not Official.

SPERMIN.

DR. BROWN-SEQUARD'S ORCHITIC FLUID.

Full details regarding its preparation and uses are published *B.M.J.* '93, i. 1145, 1212, with an editorial article p. 1279: *B.M.J.E.* '94, ii. 52, 56; *T.G.* '93, 110.

Some recent experiments, at the Hospital for the Paralysed and Epileptic, are given *L.* '94, i. 263.

In ataxia, epilepsy and mental disease.—*B.M.J.E.* '93, ii. 108.

SPIRITUS.

SPIRIT.

All substances which have undergone the vinous fermentation, and in which it is not completely over, contain Alcohol ready formed, which is separated by distillation. The various kinds are distinguished by varieties of flavour and colour.

When Alcohol is distilled with aromatic substances containing volatile oil, the oil is carried over by the alcoholic vapour, and condenses along with it.

The Spirits of the British Pharmacopœia are as follows: the formulas will be found under the names of the drugs from which they are prepared:—

Dose.			Proportion of ingredient.
60 to 90 minims	SPIRITUS ÆTHERIS		1 in 3.
for repeated administration, 20 to 40 minims.			
60 to 90 minims	SPIRITUS ÆTHERIS COMPOSITUS.		
for repeated administration, 20 to 40 minims.			
60 to 90 minims	SPIRITUS ÆTHERIS NITROSI.		
for repeated administration, 20 to 40 minims.			
60 to 90 minims	SPIRITUS AMMONIÆ AROMATICUS.		
for repeated administration, 20 to 40 minims.			
60 to 90 minims	SPIRITUS AMMONIÆ FETIDUS.		
for repeated administration, 20 to 40 minims.			
5 to 20 minims	SPIRITUS ANISI	(Oil)	1 in 10.
60 to 120 minims	SPIRITUS ARMORACIÆ COMPOSITUS .		1 in 8.
5 to 20 minims	SPIRITUS CAJUPUTI	(Oil)	1 in 10.
5 to 20 minims	SPIRITUS CAMPHORÆ.		1 in 10.
30 to 40 minims	SPIRITUS CHLOROFORMI		1 in 20.
for repeated administration, 5 to 20 minims.			
5 to 20 minims	SPIRITUS CINNAMOMI	(Oil)	1 in 10.
20 to 60 minims	SPIRITUS JUNIPERI	,,	1 in 20.
5 to 20 minims	SPIRITUS LAVANDULÆ	,,	1 in 10.
5 to 20 minims	SPIRITUS MENTHÆ PIPERITÆ .	,,	1 in 10.
5 to 20 minims	SPIRITUS MYRISTICÆ	,,	1 in 10.
	SPIRITUS RECTIFICATUS (90 p.c. of Alcohol by volume).		
	SPIRITUS ROSMARINI	(Oil)	1 in 10.
	SPIRITUS VINI GALLICI (43½ p.c. of Alcohol by volume).		

All the Spirits except Brandy and Spiritus Rectificatus are prepared with Alcohol (90 p.c.).

SPIRITUS ÆTHERIS NITROSI.

SPIRIT OF NITROUS ETHER.

B.P.Syn.—Sweet Spirit of Nitre.

An Alcoholic Solution containing Ethyl Nitrite, Aldehyde, and other substances.

Medicinal Properties.—Stimulant, diaphoretic, diuretic, and antipyretic. Useful in dropsy of renal origin, but is contra-indicated in acute nephritis. Being a nitrite it is sometimes useful in asthma, angina pectoris and dysmenorrhœa. *See also* prescribing notes under Liquor Ammonii Acetatis.

Dose.—20 to 40 minims, for repeated administration; for a single administration, 60 to 90 minims.

Incompatibles.—Potassium Iodide, Ferrous Sulphate, Tincture of Guaiacum, Gallic and Tannic Acids, Antipyrine and Salicylates.

When prescribed with Potassium Iodide separation of Iodine may be prevented by neutralising the free acid in Spiritus Ætheris Nitrosi with Potassium Hydroxide or the Carbonate. The incompatibility of Antipyrine and Spiritus Ætheris Nitrosi may be overcome by prescribing them in alkaline solution.

Foreign Pharmacopœias.—Belg., Æther Nitricus Alcoholicus, sp. gr. ·850—·860; Norw., Æther Nitrosus Spirituosus, ·840—·850; Swed., Æther Nitrosus Spirituosus, sp. gr. ·840; Dutch, Nitris Æthylicus cum Spiritu, sp. gr. ·840—·850; Fr., Acide Azotique Alcoolisé; Spiritus Ætheris Nitrosi, Ger., Jap. and Russ., sp. gr. ·840—·850, Swiss, sp. gr. ·845—·855, U.S. sp. gr. ·836—·842; Ital., Etere Nitroso Officinale, sp. gr. ·850; Port., Acido Azotico Alcoolisado; Mex. and Span., Eter Nitroso Alcoholizado; not in the others.

O.M.P.—Nitric Acid, 3; Sulphuric Acid, 2; Copper, 2; Alcohol (90 p.c.) a sufficient quantity. To 20 of the Alcohol add gradually the Sulphuric Acid, stirring them together; then stir in 2½ of the Nitric Acid; the mixture being made in a retort or flask, in which the Copper has been placed, and to which a thermometer is fitted; attach to the retort or flask an efficient condenser and receiver, the latter containing 20 of the Alcohol, and, applying heat gently, distil at a temperature commencing at 170° F. (76·7° C.) and rising to 175° F. (79·4° C.), but not exceeding 180° F. (82·2° C.), until the volume of liquid in the receiver has been increased to 32, the receiver and the condenser being kept cool with ice-cold water. Then withdraw the source of heat, and having allowed the contents of the retort to cool, introduce the remaining ½ of Nitric Acid, and resume the distillation as before, until the liquid in the receiver has been increased to 34. Mix this liquid with 20 of the Alcohol, or with as much as will make the product contain 2½ p.c. of Ethyl Nitrite when tested as described in the following paragraph. Preserve the Spirit of Nitrous Ether in well-closed vessels; preferably in a cool dark place, and in small bottles.

Description.—A limpid liquid, having a very faint yellowish tinge, inflammable, of a peculiar penetrating apple-like odour, and a characteristic taste.

Tests.—Sp. gr. ·838 to ·842. When Spirit of Nitrous Ether is

carefully poured on an acidulated strong solution of Ferrous Sulphate contained in a test-tube, a deep olive-brown coloration is produced at the surface of contact of the two liquids, widening as the tube is gently shaken. 10 c.c., mixed with 5 c.c. of the Volumetric Solution of Sodium Hydroxide and 5 c.c. of Water, should assume a yellow colour, which should not become brown on standing 12 hours (limit of Aldehyde). It should not effervesce, or only very feebly, when shaken with Sodium Bicarbonate (limit of Acid). 1 volume agitated briskly at intervals during 5 minutes in a brine-charged nitrometer, with 1 volume of Solution of Potassium Iodide and 1 volume of Diluted Sulphuric Acid, should yield, at the normal temperature (60° F. or 15·5° C.) and pressure (30 inches or 760 millimetres of Mercury), and when freshly prepared, at least 6¼, but not more than 7, volumes of Nitric Oxide Gas, corresponding to at least 2½ parts by weight of Ethyl Nitrite in 100 parts by weight of the Spirit; and even after it has been kept for some time, and the vessel containing it has occasionally been opened, it should yield not much less than 5 times its volume of the Gas, corresponding to nearly 2 p.c. by weight of Ethyl Nitrite, or a minimum of 1¾ p.c.

Allen's method consists in treating the sample with an acidulated solution of Potassium Iodide, and measuring the Nitric Oxide liberated. Fill a nitrometer with strong brine, and then introduce 5 c.c. of the Spirit of Nitrous Ether; then allow 5 c.c. of a strong solution of Potassium Iodide to enter, followed by 5 c.c. of Diluted Sulphuric Acid. Agitate briskly at intervals, after five minutes adjust the liquid in the two limbs of the nitrometer to the same level, and read off the volume of gas obtained. The B.P. requires 35 c.c. or not much less than 31·25 c.c. from 5 c.c. of Spirit of Nitrous Ether.

To calculate the percentage of real Ethyl Nitrite, the following data are required:—

1. The sp. gr. of the sample examined.
2. 23·55 c.c. of Nitric Oxide, measured at *ordinary* pressure and temperature, weigh ·03 grm.
3. 30 parts by weight of Nitric Oxide are equivalent to 75 parts by weight of Ethyl Nitrite.

The measure of gas evolved on the addition of Potassium Iodide is a measure of the acidity of the Spiritus Ætheris Nitrosi under examination. It should not amount to much more than a third of the total gas volume registered.

The following process has been suggested for the assay of this preparation. Into 100 c.c. flask provided with a loosely-fitting stopper, place successively 10 c.c. of Distilled Water, 5 c.c. of a cold aqueous saturated solution of Potassium Chlorate, 5 c.c. of the sample to be tested and 5 c.c. of 10 p.c. Nitric Acid solution. Insert the stopper and shake frequently for 30 minutes, then add 10 c.c. $\frac{N}{10}$ Solution of Silver Nitrate and shake briskly for a minute, add 10 drops of Ferric Ammonium Sulphate Solution and titrate the excess of Silver Nitrate with $\frac{N}{10}$ Solution of Potassium Sulphocyanate. Each c.c. of $\frac{N}{10}$ Silver Nitrate Solution consumed in precipitating the Chloride formed, corresponds to ·0225 gramme of Ethyl Nitrite:—*A.J.P.* '98, 273.

The above process is stated to give higher and more correct results than Allen's Nitrometer process, but it has been pointed out in an editorial (*C.D.* '98, ii. 59), that the Nitrometer process was never put forward as an absolutely true one, but as one by which solutions of Ethyl and other Nitrites might be estimated with approximate accuracy and that it has fulfil its expectation admirably.

Dymond (*P.J.* (3) xix. 467) states, that Ethyl Nitrite in Rectified Spirit decomposes from there being so much Water in it, and that this is likely to account for loss of strength on keeping. Our experience scarcely agrees with this. When evaporation is prevented, we do not find the loss to exceed 6 p.c. (32 c.c. of gas from 5 c.c. reduced to 30 c.c.) in a month, and believe evaporation to be the chief cause of deterioration.

Under the name of **'Itrosyl'** a concentrated form of Nitrous Ether has been introduced, 1 fl. oz. of which mixed with 19 fl. oz. of Alcohol (90 p.c.) is stated to be equivalent to Spiritus Ætheris Nitrosi.

LIQUOR ETHYL NITRITIS.—Solution of Ethyl Nitrite. (New.)

A mixture of 95 parts by volume of Absolute Alcohol with 5 parts by volume of Glycerin, containing when freshly made 3 p.c. by weight, and even when long kept not less than 2½ p.c. by weight of Ethyl Nitrite. The Ethyl Nitrite is obtained by the interaction of Alcohol (90 p.c.), Sodium Nitrite, and diluted Sulphuric Acid, at a low temperature.

The reasons for its introduction will be found, *P.J.* (3) xviii. 861.

Medicinal Properties.—Similar to those of the other more slowly acting Nitrites.

Dose.—20 to 60 minims.

Experiments testing the physiological activity of the B.P. preparation compared with a 2·5 p.c. solution of the pure Ethyl Nitrite showed that both were practically identical.—*P.J.* (3) xix. 490.

Description.—A limpid liquid, practically colourless, of characteristic apple-like odour and taste. It is highly inflammable.

Tests.—Sp. gr. ·823 to ·826. When Solution of Ethyl Nitrite is poured on an acidulated strong solution of Ferrous Sulphate contained in a test-tube, a deep olive-brown coloration is produced at the surface of contact of the two liquids, widening as the tube is gently shaken. The Solution should not effervesce when shaken carefully with Sodium Bicarbonate (absence of Acid). 10 c.c., mixed with 5 c.c. of the Volumetric Solution of Sodium Hydroxide and 5 c.c. of Water, should not assume a yellow colour (absence of Aldehyde). 1 volume, agitated briskly at intervals during five minutes in a brine-charged nitrometer with 1 volume of Solution of Potassium Iodide and 1 volume of Diluted Sulphuric Acid, should yield, at the ordinary temperature (60° F. or 15·5° C.) and pressure (30 inches or 760 millimetres of Mercury), and when freshly prepared, at least 7·6 volumes of Nitric Oxide gas; and even after the Solution has been kept for some time, and the vessel containing it has occasionally been opened, it should possess at least five-sixths of the strength just indicated.

Solution of Ethyl Nitrite should be stored in small bottles.

Not Official.

SPIRITUS FRUMENTI.

WHISKY.

An alcoholic liquid obtained from fermented grain by distillation, and containing from 50 to 58 p.c. by volume of Alcohol.

Allen states: 'In the majority of cases a judicious admixture of raw and malted grain is employed. Other things being equal, the Spirit from malted grain is the most valuable, and contains least Fusel Oil. Whisky improves greatly on keeping, owing to the conversion of the Fusel Oil into other bodies.'

'As the Amyl Alcohol in Spirits rarely exceeds ·1 p.c., or 70 grains per proof gallon, it seems highly improbable that it can produce the local effects sometimes attributed to it. Its effect on the general system has probably been greatly exaggerated.'

'Whisky usually contains a trace of volatile acid, the proportion of which rarely or never reaches ·1 p.c. (in terms of Acetic Acid). When new it is colourless, or nearly so; but by storing in sherry casks (a favourite mode of imparting flavour to Whisky) it acquires colour, and then contains sensible traces of Tannin, Sugar, &c. The residue left on evaporating Whisky to dryness on the water-bath should not exceed 100 grains per gallon, and is usually much less. The smoky flavour of Irish Whisky is due to the fact that the malt used has been dried upon kilns in which peat is used for fuel, but is often imitated by adding one or two drops of Creosote to the gallon of Spirit. Logwood, Catechu, tea infusion, burnt sugar, &c., are sometimes added as colouring agents. Wood Naphtha has been occasionally used as an adulterant of Whisky. It is very doubtful whether Fusel Oil is ever purposely added to Whisky, but it is almost invariably present in greater or less quantity, and is the cause of the objectionable symptoms produced by new spirit.'

An examination of spirituous liquids for secondary constituents.—*Analyst* '91, 102.

The following characters and tests are given in U.S.P.

Sp. gr. not above ·930 nor below ·917. It should be not less than 2 years old. It has an amber colour, a distinctive odour and taste. If 100 c.c. be very slowly evaporated in a weighed capsule on a water-bath, the last portions volatilised should not have a harsh or disagreeable odour (absence of more than traces of Fusel Oil from grain or potato spirit). The residue fully dried at 212° F. (100° C.) should weigh not more than ·250 gramme, equivalent to ·25 p.c. (absence of undue amount of solids). This residue should have no sweet or distinctly spicy taste (absence of added Sugar, Glycerin, or Spices). It should nearly all dissolve in 10 c.c. of cold Water, forming a solution which is coloured light green by a dilute Solution of Ferric Chloride (traces of oak tannin from casks). 100 c.c. of Whisky should be rendered distinctly alkaline to Litmus by 1·2 c.c. of the volumetric Solution of Potash (absence of an undue amount of free acid).

Not Official.

SPIRITUS METHYLATUS.

METHYLATED SPIRIT.

The duty-free Spirit supplied to 'manufacturers' under a special bond, is a mixture of 9 parts of Alcohol with 1 part of a Wood Naphtha, approved by the Excise. It can also be supplied under a special bond for scientific purposes.

As supplied to 'licensed retailers' Methylated Spirit is, three pints of Petroleum Oil added to 100 gallons of the mixture described above. The Petroleum Oil is added, partly to make it more nauseous for drinking, and partly to facilitate its recognition. It becomes turbid when mixed with Water, which quality renders it unsuitable for many purposes to which duty-free Spirit has been applied.

Licensed retailers of Methylated Spirit must not sell more than 1 gallon at any one time, and may not keep stock exceeding 50 gallons. They may not sell Methylated Spirit between the hours of 10 p.m. on Saturdays and 8 a.m. on Mondays.

SPIRITUS RECTIFICATU

ALCOHOL (90 p.c.).

B.P.Syn.—Rectified Spirit.

A liquid containing 90 parts by volume of Ethyl Hydroxide, C_2H_5OH, and 10 parts by volume of water; obtained by the distillation of fermented Saccharine liquids.

Alcohol (90 p.c.) is only slightly stronger than the Rectified Spirit of the British Pharmacopœia, '85, containing by volume 1·35 p.c., or by weight 1·65 p.c., more Ethyl Hydroxide.

On mixing Alcohol (90 p.c.) and water, contraction of volume and rise of temperature occur. When such a mixture is prescribed in the British Pharmacopœia, the cooled liquid should be employed.

It is possible to rectify Alcohol up to 98 p.c. (minimum strength for B.P. Absolute Alcohol), and 95 p.c. is prepared commercially in large quantities.

It may here be noted that although it is illegal for Chemists and Druggists to sell Rectified Alcohol except upon prescription, the Board of Inland Revenue do not appear to interfere with its sale by them in small quantities not exceeding 8 ounces at a time, for the purposes of medical or scientific research.

Alcohol (90 p.c.) dissolves Camphor, Balsams, Castor Oil, Iodine, Potassium and Sodium Hydroxides, but not the Carbonates.

Medicinal Properties.—Internally a powerful diffusible stimulant, especially cardiac; mildly antipyretic, diuretic, and diaphoretic. Used in some states of acute disease characterised by excessive debility, as in typhoid, acute pneumonia and influenza; in chronic wasting diseases as phthisis; in insomnia of old people; as an aid to digestion, more especially in the aged and feeble and in those exhausted by overwork; in sudden fainting and during convalescence from acute disease. Externally to prevent bed-sores and cracked nipples by hardening and disinfecting the skin; it is antiseptic and astringent and is applied diluted to stop sweating and to produce cold by evaporation; 1 of Alcohol (90 p.c.) and 2 of Camphor Water mixed is a good evaporating **lotion.** Diluted, it forms a lotion for erysipelas, erythema, burns and scalds while the cuticle is entire, and for sprains and recent bruises. As an ingredient of liniments it is rubefacient, it relieves rheumatic and other kinds of pain, and aids the resorption of inflammatory products.

Pure diluted spirit does not affect the biliary secretion.—Dr. Rutherford.

Foreign Pharmacopœias.—Official in all; *see* table p. 601.

Description.—A colourless, transparent, very mobile and inflammable liquid, with a characteristic pleasant odour and a strong spirituous burning taste.

Tests.—Sp. gr. ·8340. It contains 85·65 p.c. by weight of Ethyl Hydroxide, C_2H_5OH, and 14·35 p.c. by weight of Water. It burns with a blue smokeless flame. It leaves no residue when evaporated (absence of fixed matter). It remains clear when mixed with Water (absence of oily or resinous substances). A little exposed on clean white filter paper leaves no unpleasant smell after the Alcohol has evaporated (absence of fusel oil and allied impurities). 100 c.c. with 2 c.c. of the Volumetric Solution of Silver Nitrate, exposed for

24 hours to bright light and then decanted from the black powder which has formed, undergo no further change when again exposed to light with more of the Volumetric Solution (absence of more than traces of Amylic Alcohol and of other organic impurities). When mixed with half its volume of Solution of Potassium Hydroxide, the liquid should not immediately darken in colour (absence of more than traces of Aldehyde). The addition of Solution of Ammonia should not cause an immediate darkening in colour (absence of Tannic Acid, excess of Aldehyde, and other organic impurities).

Alcohol (90 p.c.) is occasionally met with, which gives a yellow colour on the addition of Liquor Ammoniæ.

DILUTED ALCOHOL.

The four official liquids obtained by diluting 'Alcohol (90 p.c.)' with Distilled Water, contain respectively, 70, 60, 45, and 20 p.c. of Ethyl Hydroxide by volume. They may be prepared as described in the following paragraphs.

1. Alcohol (70 p.c.).—With 100 fl. oz. of Alcohol (90 p.c.) mix 31 (more accurately 31·05) fl. oz. of Distilled Water. Or, with 1000 c.c. of Alcohol (90 p.c.) mix 310·5 c.c. of Distilled Water. Sp. gr. ·8900.

2. Alcohol (60 p.c.).—With 100 fl. oz. of Alcohol (90 p.c.) mix 53⅔ (more accurately 53·65) fl. oz. of Distilled Water. Or, with 1000 c.c. of Alcohol (90 p.c.) mix 536·5 c.c. of Distilled Water. Sp. gr. ·9135.

3. Alcohol (45 p.c.).—With 100 fl. oz. of Alcohol (90 p.c. mix 105⅓ (more accurately 105·34) fl. oz. of Distilled Water. Or, with 1000 c.c. of Alcohol (90 p.c.) mix 1053½ (more accurately 1053·4) c.c. of Distilled Water. Sp. gr. ·9436.

4. Alcohol (20 p.c.).—With 100 fl. oz. of Alcohol (90 p.c.) mix 355¾ (more accurately 355·8) fl. oz. of Distilled Water. Or, with 1000 c.c. of Alcohol (90 p.c.) mix 3558 c.c. of Distilled Water. Sp. gr. ·9760.

A table by Bird for the dilution of Alcohol (90 p.c.), when making the lower percentages.—*P.J.* '98, i. 501.

When the sp. gr. of Alcohol is ·920 it is called **Proof Spirit**; if lighter than this, it is called 'above proof'; if heavier than this, 'under proof'; and the percentage of Water, or of Rectified Spirit, sp. gr. ·825 (the Inland Revenue standard), by measure, necessary to be added to any sample of spirit to bring it to the standard of Proof Spirit, indicates the number of degrees the given sample is above or below proof. Thus, if 100 volumes of a Spirit require 10 volumes of Water to reduce it to proof, it is said to be '10 over proof'; on the other hand, if 100 volumes of Spirit require 10 volumes of Spirit to raise it to proof, the sample is said to be '10 under proof.'

The Spirits of the Pharmacopœias are as follows:—

	Sp. gr.	Percentage of Absolute Alcohol by Volume.
British	·834	Alcohol 90 p.c. (Spiritus Rectificatus) 90
,,	·890	,, 70 p.c. 70
,,	·9135	,, 60 p.c. 60
,,	·9436	,, 45 p.c. 45
,,	·976	,, 20 p.c. 20
Austrian	·830—·834	Sp. Vini Concentratus 90 to 91
,,	·894—·896	,, Dilutus 68 to 70

	Sp. gr.	Percentage of Absolute Alcohol by Volume.
Austrian	.920—·925	,, Cognac (by weight) 45 to 50
Belgian	·794	Alcohol Anhydrus 100
,,	·8276	,, at 92° 92
Danish	·830—·834	Spiritus Concentratus 90 to 91
,,	·893—·895	,, Dilutus 68 to 69
,,	·940—·942	,, Tenuis 46 to 47
Dutch	·831—·837	,, Fortior 89 to 91
,,	·887—·892	,, Dilutus 69 to 74
French	·816	Alcohol at 95° 95
German	·830—·834	Spiritus 90 to 91
,,	·892—·896	,, Dilutus 68 to 69
,,	·920—·924	,, e Vino (by weight) 46 to 50
Hungarian	·831—·834	Spiritus 90 to 91
,,	·892	,, Dilutus 70
,,	·919—·924	Cognac (by weight) 46 to 50
Italian	·8344	Alcool 90
,,	·79367	,, Absoluto 96
,,	·9139	,, Diluito 60
Japanese	·830—·834	Spiritus 86
,,	·892—·896	,, Dilutus 60
Mexican	·79	Alcohol Vinico 100
,,		Alcohol at 50° 50
,,		,, 60° 60
,,		,, 80° 80
,,		,, 90° 90
Norwegian	·8306—·8339	Spiritus Concentratus 90 to 91
,,	·9021—·9044	,, Dilutus 64 to 65
Portuguese	·834	Alcool at 90° 90
,,	·850	,, 85° 85
,,	·905	,, 65° 65
Russian	·813—·816	Sp. Vini Alkoholisatus 95
,,	·831—·834	,, Rectificatissimus 90
,,	·888—·890	,, Rectificatus 70
,,	·952—·955	,, Dilutus 38
Spanish		Alcohol Anhidro 100
,,		,, de 90° 90
,,		,, de 60° 60
Swedish	·830—·834	Spiritus Concentratus 90 to 91
,,	·901—·905	,, Dilutus 64 to 65
,,	·935	,, Tenuis 50
Swiss	·812—·816	Spiritus 95 to 96
,,	·890—·892	,, Dilutus 69 to 70
,,		,, e Saccharo (Rum) 50 to 60
,,		,, e Vino (Cognac) 50 to 60
U.S.	·820	Alcohol 94
,,	·797	,, Absolutum (by weight) 99
,,	·816	,, Deodoratum 95
,,	·936	,, Dilutum 48·6
,,	·925—·941	Sp. Vini Gallici 46 to 55
,,	·917—·930	,, Frumenti 50 to 58

Table of the Amount of absolute Alcohol by weight, or Proof-spirit (Brandy) by volume, in the following Wines, &c., from Dr. Christison's Experiments in 1838.

	Alc. by weight in 100 parts.	Proof-sp. by vol.
Port, weakest . . .	14·97	30·56
,, mean of 7 wines	16·20	33·91
,, strongest . . .	17·10	37·27
White Port	14·97	31·31
Sherry, strongest . .	16·17	35·12
,, mean of 9 wines long in cask in E. Indies.	14·72	32·30
,, Madre da Xeres	16·90	37·06
Madeira, long in cask in the East Indies . .	14·09	30·80
,, strongest . .	16·90	37·00
Teneriffe, long in cask at Calcutta .	13·84	30·21
Rudesheimer, first quality	8·40	18·44
,, inferior	6·90	15·19
Hambacher, 1st qual.	7·35	16·15
Sercial	15·45	33·65
Dry Lisbon	16·14	34·71
Shiraz	12·95	28·30
Amontillado	12·63	27·60
Sherry, weakest . .	13·98	30·84
,, mean of 13 wines not long in cask.	15·37	33·59
Claret, 1st growth, 1811	7·72	16·95
Château-Latour, Do. 1825	7·78	17·06
Rausan, 2nd growth, 1825	7·61	16·74
Vin Ordinaire, Bordeaux	8·99	18·96
Rives Altes	9·31	22·35
Malmsey	12·86	28·37
Edinb. ale, unbottled .	5·70	12·60
,, 2 yrs. bot.	6·06	13·40
London porter, four months in bottle. .	5·36	11·91

The Alcohol of most true wines is derived solely from the fermentation of the sugar, or alteration of the acids contained in the grape-juice from which they are produced. In others the proportion is increased by adding starch-sugar before or during fermentation. In others, again, it is added directly in the form of Brandy, partly to please the palate of consumers, partly because it is thought necessary to make the wine keep well. The strong wines commonly used in Britain, such as Port, Sherry, and the like, are almost all strengthened in this manner, and frequently also the inferior sorts of Bordeaux wine.

SPIRITUS VINI GALLICI.

BRANDY.

A spirituous liquid distilled from wine and matured by age, and containing not less than 36½ p.c. by weight or 43½ p.c. by volume of Ethyl Hydroxide.

Preparation.

MISTURA SPIRITUS VINI GALLICI. Mixture of Brandy.

Brandy, 4 fl. oz.; Cinnamon Water, 4 fl. oz.; Refined Sugar, ½ oz.; Two yolks of Eggs. Rub the yolks of Eggs and Refined Sugar together; add the Cinnamon Water and Brandy; mix.

Dose.—*As a draught*, 1 to 2 fl. oz.

Not Official.

STANNI OLEAS.

A greyish coarsely granular powder, insoluble in Alcohol, very slightly soluble in Almond Oil, completely disintegrated and partially dissolved by Ether or Oleic Acid.

Preparation.

UNGUENTUM STANNI OLEATIS.—Stannous Oleate, 60 grains; Lard, 1 oz.

Of great utility in diseases of the nails; it overcomes the brittle, split, and soft conditions of the nails, and gives them a brilliant lustre.—*B.M.J.* '84, ii. 753; *T.G.* '86, 494.

STAPHISAGRIÆ SEMINA.

STAVESACRE SEEDS.

The dried ripe seeds of *Delphinium Staphisagria*.

Medicinal Properties.—The seeds have been used in ointments for many years as a parasiticide for pediculi; the activity rests in an Oil which they contain in rather large quantity. Mr. Balmanno Squire experimented with this Oil, and also with the Seeds from which the Oil had been withdrawn by Ether, and found the latter inert. He successfully used an ointment made with the Oil in prurigo senilis.

Official Preparation.—Unguentum Staphisagriæ.

Not Official.—Delphinina, Oleum Staphisagriæ, and Unguentum Olei Staphisagriæ.

Foreign Pharmacopœias.—Official in Belg., Semen Staphysagriæ; Fr., Staphisaigre; Ital., Stafisagria; Port., Paparraz; Mex., Estaphisagra; Span., Estafisagria; U.S., Staphisagria; not in the others.

Description.—Irregularly triangular or obscurely quadrangular, arched, blackish-brown when fresh, but becoming dull greyish-brown by keeping. Testa wrinkled and deeply pitted; interior soft, whitish, oily. No marked odour; taste nauseous, bitter and acrid.

Four samples of seeds yielded (by extraction with Ether) 31·4, 32·8, 33·9, and 34·8 p.c. of Oil.

Preparation.

UNGUENTUM STAPHISAGRIÆ. Stavesacre Ointment. (Altered.)

Stavesacre Seeds, 2; Yellow Beeswax, 1; Benzoated Lard, 8½. Crush the Stavesacre Seeds; digest the crushed seeds with the Benzoated Lard on a water-bath for two hours; strain and press through calico; add the Beeswax to the liquid; heat gently to dissolve; stir until cold.

Now about ½ the strength of B.P. '85, and Yellow Beeswax is added.

Foreign Pharmacopœias.—Official in Ital., 1 and 3; not in the others.

Not Official.

DELPHININA.—An amorphous yellowish alkaloid of resinous appearance, obtained from Stavesacre. Insoluble in Water, but dissolves in Acidulated Water, in Alcohol, Ether, and Chloroform.

Dose.—$\frac{1}{60}$ grain, and repeat every two hours in neuralgia.—*L.M.R.* '87, 446. *L.* '87, ii. 879.

OLEUM STAPHISAGRIÆ.—The Oil obtained by expression from the Seeds.

It is insoluble in Alcohol (90 p.c.), but dissolves readily in hot Absolute Alcohol.

UNGUENTUM OLEI STAPHISAGRIÆ (*B.S.H.*).—Expressed Oil, 60 minims; Lard, 1 oz. Used as a non-irritant remedy in scabies and in phtheiriasis.

Not Official.

STEARIN.

COCOA-NUT STEARIN.

This substance, which melts at about 84° F., is much more suitable for the manufacture of **suppositories** (especially in the cooler months of the year) than Oil of Theobroma; the melting point of the latter is so near the temperature of the body, that the suppositories made with it frequently take a very long time to melt. Mixtures of Stearin and Theobroma Oil give intermediate figures.

STRAMONII FOLIA.

STRAMONIUM LEAVES.

The dried leaves of *Datura Stramonium*.

Medicinal Properties.—It is much used for asthma, in the form of **cigarettes** and **smoking mixtures.**

Official Preparation.—Tinctura Stramonii.

Not Official.—Pulvis Stramonii Compositus.

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

Description.—Ovate petiolate leaves, usually varying from four to six inches (ten to fifteen centimetres) in length. They are unequal at the base, the margin is sinuate-dentate and the apex acuminate. The upper surface is dark greyish-green and minutely wrinkled; the under surface is paler. The mesophyll contains cluster-crystals of Calcium Oxalate. The leaves have a characteristic odour, and an unpleasant, bitter taste.

Preparation.

TINCTURA STRAMONII. TINCTURE OF STRAMONIUM. (ALTERED.)

Stramonium Leaves, in No. 20 powder, 4; Alcohol (45 p.c.) a sufficient quantity. Moisten the powder with 4 of the Alcohol, and complete the percolation process. The resulting Tincture should measure 20. =(1 in 5).

The B.P. '85 tincture was made with Proof Spirit from the **seeds.**

Dose.—5 to 15 minims.

Foreign Pharmacopœias.—Official in Belg. and Fr., **dried leaves** 1 and 5, also Alcoolature with **fresh leaves** and Spirit equal parts; Mex., **dried leaves** 1 in 5; Port., **dried leaves** 1 and 5, **fresh leaves** 1 and 1, **seeds** 1 and 5; Swed., **seeds** 1 and 10; U.S., **seeds** 15 in 100; not in the others; all by weight except U.S.

Not Official.

PULVIS STRAMONII COMPOSITUS.—Stramonium leaves, Datura Tatula, Cannabis Indica, and Lobelia inflata, all in powder, of each 6 drm.; Nitre in powder, 1 oz; Eucalyptus Oil, 30 minims.; mix thoroughly.

It burns well, gives off dense fumes, and affords great relief during asthmatic attacks.—*B.M.J.* '84, ii. 465; '87, ii. 494.

STRAMONII SEMINA.

STRAMONIUM SEEDS.

The dried ripe seeds of *Datura Stramonium*.

The mixed alkaloids of Stramonium are generally called **Daturine**, but are the same as contained in Belladonna, viz., a mixture of Hyoscyamine and Atropine.

Medicinal Properties.—Similar to those of Belladonna. Antispasmodic and sedative in spasmodic and bronchitic asthma. The Extract and the Tincture are used in convulsive cough as antispasmodics. The Extract has been given with success for hay asthma. Like Belladonna, it causes dilatation of the pupil.

Official Preparation.—Extractum Stramonii.

Not Official.—Guttæ Daturinæ.

Antidotes.—Same as for poisoning with Belladonna, page 135; also Morphine subcutaneously, and Chloroform Inhalation.

Foreign Pharmacopœias.—Official in Belg., Fr., Port. (Estramonio), Swed., Swiss and U.S.; not in the others.

Description.—Dark brown or nearly black seeds, about one-sixth of an inch (four millimetres) long, reniform in outline, flattened. The surface is marked with reticulate depressions and is also minutely pitted. The embryo is curved and embedded in a white oily albumen. The Seeds have no marked odour, but a slightly bitter taste.

Total alkaloids found in Stramonium Seeds, ·17—·5 p.c. (average of fifteen samples ·35 p.c.); in Leaves ·32—·47 p.c. (average of eleven samples ·38 p.c.). —*C.D.* '92, ii. 401.

Preparation.

EXTRACTUM STRAMONII. Extract of Stramonium. (Altered.)

Pack Stramonium Seeds, in No. 40 powder, in a percolator; exhaust the powder by slow percolation with Alcohol (70 p.c.); remove most of the Alcohol from the percolate by distillation; evaporate the residual liquid to the consistence of a firm extract.

Now made with Alcohol (70 p.c.) in place of Proof Spirit and the removal of Fixed Oil by Ether omitted.

Dose.—¼ to 1 grain.

Foreign Pharmacopœias.—Official in Belg. and Mex., from **fresh leaves**; Fr., clarified juice of **fresh leaves** evaporated, also alcoholic from **seeds**; Port., aqueous from **dried plant**, and clarified juice from **fresh leaves**; Span., expressed juice of **leaves** clarified and evaporated, also aqueous from **dried leaves** and alcoholic from **dried leaves**; Swiss, with diluted alcohol, 1 = 2 of **Seeds**, also **Fluid Extract** 1 in 1; U.S., alcoholic from **seeds**, also **Fluid Extract** from **seeds**.

Not Official.

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

Not Official

STRONTII BROMIDUM.

In colourless crystals.

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

Medicinal Properties.—Recommended in chronic gastritis and dilated stomach, in doses of 30 grains thrice daily ; also the same doses in epilepsy, and does not possess the depressing effect of Potassium Bromide.—*B.M.J.* '92, ii. 1286 ; '95, i. 1089, 1252 ; *B.M.J.E.* '95, i. 76 ; *L.* '92, i. 47 ; '93, ii. 46 ; '95, i. 567 ; '96, ii. 871 ; '98, ii. 988; *T.G.* '91, 830 ; '92, 120. In acute gastric catarrh, *Pr.* liii. 130 ; in the treatment of vomiting, *T.G.* '93, 115 ; in enteritis, *M.A.* '95, 239 : in exophthalmic goitre in children.—*B.M.J.* '98, ii. 1042.

It has an unpleasant metallic taste.

Dose.—5 to 30 grains.

3 drm. daily has been given for weeks without any unpleasant symptoms.—*L.* '98, ii. 988.

STRONTIUM LACTATE.—A white granular powder, soluble 1 in 3 of Water, has been recommended for albuminuria in parenchymatous nephritis.—*L.* '92, i. 47; '95, i. 567 ; '96, i. 255 ; *T.G.* '94, 461 ; *B.M.J.E.* '96, ii. 76 ; '97, ii. 40.

As an excellent diuretic in many cases of Bright's disease.—*L.* '94, ii. 992.

Dose.—20 to 30 grains.

STRONTIUM SALICYLATE.—A white powder slightly soluble in Water. Has been recommended as an intestinal antiseptic ; also in gouty and rheumatic conditions.—*C.D.* '95, i. 291 ; *P.J.* '96, ii. 63 ; '97, ii. 118.

Dose.—5 to 15 grains.

STROPHANTHI SEMINA.

STROPHANTHUS SEEDS.

The dried ripe seeds of *Strophanthus Kombé*, freed from the awns.

The commercial seed usually contains the seeds of other species in addition to those of *S. Kombé*.—*P.J.* (3) xix. 660. The active principle is a glucoside, **Strophanthin.**

Medicinal Properties.—A cardiac tonic. Especially valuable in mitral regurgitation with failure of compensation, and in aortic regurgitation accompanied by cardiac insufficiency. The active principle being very soluble and diffusible, Strophanthus acts with such rapidity that it is more useful than Digitalis in promptly stimulating extreme or sudden cases of cardiac failure. It is easily eliminated, it is not cumulative, it can be administered over a long period of time, and, unless there be marked gastro-intestinal catarrh, it has no tendency to produce digestive disturbance. It has acted beneficially in many cases in which Digitalis has failed or has disagreed.

Strophanthus acts more energetically on the heart than on the vessels, whereas Digitalis acts on the vessels as much as, or even more than, on the heart. Digitalis thus possesses the power of increasing arterial tension, and so of putting extra strain on the heart ; therefore, in those cases in which pulse tension is high, Strophanthus is to be preferred. Strophanthus has also been found of great value in avoiding both the cardiac embarrassment so frequently fatal in acute pneumonia and the collapse which may occur at the crisis.

References.—*B.M.J.* '85, ii. 904 ; '89, i. 603 ; *L.* '87, ii. 202 ; *P.J.* (3) xx. 328 ; *L.* '95, i. 551.

A more powerful cardiac tonic than Digitalis and superior as a diuretic.—*B.M.J.* '95, i. 368; *B.M.J.E.* '97, ii. 3; '98, i. 12; *T.G.* '98, 36.

In Graves' disease.—*L.* '93, ii. 822. In Alcoholism.—*L.* '94, ii. 212.

As to the disparity in the results obtained by different observers, Fraser remarks that 'there are several species of the genus, and that while the therapeutic effects have been determined with only one of these species, the seeds of several of the others have indiscriminately been substituted. The whole fruit, and not the seeds only, and immature seeds, poor in the active principle and rich in irritating resin, have been used to prepare the Tincture; seeds already exhausted with Alcohol have been re-sold in the market; and further, even when good seeds were used, Petroleum Ether has been substituted for Ethylic Ether, preparatory to percolation with Rectified Spirit, with the result that the Tincture (1885) contained much resin, which produced stomach and intestinal disorder.'

Official Preparations.—Extractum Strophanthi and Tinctura Strophanthi.

Not Official.—Strophanthin.

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

Description.—Oval acuminate seeds, about three-fifths of an inch (fifteen millimetres) long and one-sixth of an inch (four millimetres) broad, of a greenish fawn colour, and covered with silky appressed hairs. The Seeds are flattened, narrowed towards the base, which is obtuse, and provided on one side with a longitudinal ridge running from the centre to the apex of the seed. The nucleus is white and oily; the cotyledons are straight and surrounded by a thin endosperm. Sulphuric Acid colours the latter, and sometimes the cotyledons, dark green (presence of Strophanthin). The odour is characteristic; the taste very bitter.

A new species of Strophanthus (*S. Nicholsoni*).—*P.J.* '97, ii. 209.

Adulteration of Strophanthus seeds with those of *Kicksia Africana*.—*J.S.C.I.* '97, 1036.

Preparations.

EXTRACTUM STROPHANTHI. Extract of Strophanthus. (New.)

Strophanthus Seeds, reduced to No. 30 powder, and dried at 110° F. (43·3° C.) 1; Purified Ether, Alcohol (90 p.c.), Milk Sugar, of each a sufficient quantity. Pack the dried powder in a percolator, and having moistened it with the Ether, macerate for twenty-four hours; then allow percolation to proceed, continuing the addition of the Ether until the liquid passes through colourless. Remove the marc from the percolator, and dry it, gradually heating it to 120° F. (48·9° C.). Again reduce it to powder, repack in the percolator, and moisten with the Alcohol. Macerate for forty-eight hours, then pour on successive quantities of the Alcohol, percolating slowly, until 10 of liquid is obtained. Evaporate most of the Alcohol; transfer the residual liquid to a counterpoised basin; concentrate until the liquid begins to thicken; then add sufficient finely powdered Milk Sugar to produce 2 of Extract, in powder.

Dose.—$\frac{1}{4}$ to 1 grain.

A quick method of approximately estimating Strophanthin in the B.P. Extract and Tincture by the optical rotation.—*P.J.* '98, ii. 199; *C.D.* '98 ii. 289.

Foreign Pharmacopœias.—Fr. and Mex.; not in the others.

TINCTURA STROPHANTHI. TINCTURE OF STROPHANTHUS. (ALTERED.)

Strophanthus Seeds, in No. 30 powder, ½ oz.; Alcohol (70 p.c.) a sufficient quantity. Pack the powder in a percolator; moisten it with 1 fl. drm. of the Alcohol; set aside for forty-eight hours; pour on successive quantities of the Alcohol, allowing percolation to proceed slowly, until a total volume of 10 fl. oz. of percolate has been obtained; filter; add a sufficient quantity of the Alcohol to produce 20 fl. oz. of the Tincture. =(1 in 40).

Now 1 in 40 instead of 1 in 20; Alcohol (70 p.c.) is used in place of Rectified Spirit and the removal of the Fixed Oil by Ether is omitted.

Dose.—5 to 15 minims.

This preparation is made with half the proportion of Strophanthus Seeds ordered for the corresponding preparation in the British Pharmacopœia of 1885 (Additions 1890).

Foreign Pharmacopœias.—Official in Austr., Ital. and U.S., 1 in 20; Norw., 1 and 10; Dan., Ger., Russ. and Swiss, 1 in 10; Fr., 1 and 5; Mex., 1 in 5; all by weight except U.S.; not in the others.

Not Official.

STROPHANTHIN.—Occurs as a pale yellow amorphous powder, or in white microscopic crystalline plates. Melts at 172·5° C.

Recommended as a heart tonic.—*L.* '90, ii. 415; *Pr.* xlv. 130.

Solubility.—Freely in Water and Alcohol (90 p.c.); practically insoluble in Chloroform, Ether, and Carbon Bisulphide.

Dose.—$\frac{1}{300}$ to $\frac{1}{200}$ grain.

STRYCHNINA.

STRYCHNINE.

$C_{21}H_{22}N_2O_2$, eq. 331·75.

An Alkaloid obtained from the dried ripe seeds of Strychnos Nux Vomica, and other species of Strychnos.

Solubility.—1 in 6000 to 8000 of Water; 1 in 160 of Alcohol (90 p.c.); about 1 in 400 of Alcohol (60 p.c.); 1 in 350 of Absolute Alcohol; 1 in 6 of Chloroform; nearly insoluble in Ether.

Medicinal Properties.—Similar to those of Nux Vomica; useful in the treatment of reflex or functional paralysis; and of peripheral neuritis and paralysis due to alcohol, tobacco, or diphtheria; also in cases of lead-palsy. As a bitter tonic. Small doses have been given with advantage in epilepsy, chorea and other chronic nervous diseases. Recommended in chronic alcoholism, muscular tremors, tobacco amblyopia, impotence and nervous exhaustion. For other uses and for its contra-indications see Nux Vomica. It has a cumulative action and is a very active poison.

An antidote in Chloroform poisoning.—*B.M.J.E.* '94, i. 47. In snake-bite, *T.G.* '93, 542; '94, 517.

Dose.—$\frac{1}{60}$ to $\frac{1}{15}$ grain.

Prescribing Notes.—May be given in the form of **pill** well triturated with Milk Sugar and the addition of Glucose q.s.; but it is more frequently prescribed in solution.

Antidotes.—Chloroform, Belladonna, Aconite, Morphine, Tobacco; Chloral Hydrate in 1 drm. doses.

Animal Charcoal or Tannic Acid, followed by an emetic, or the stomach-pump. Potassium Bromide, in ½ oz. dose in water, with 30 grains of Chloral. 2 drm. of the Bromide, with or without 10 grains of Chloral, may be given every 15 or 20 minutes if necessary. Amyl Nitrite inhalations, the Amyl being poured freely on a handkerchief and held close to the nose. The patient may be kept fully under Chloroform or Ether. Curare, ½ grain, by hypodermic injection. *Artificial respiration if possible.—Murrell.*

A case of recovery after taking 3 grains of Strychnine.—*L.* '67, ii. 41, 118.

8 grains of Morphine said to be an antidote for 1 grain of Strychnine.—*L.* '71, ii. 840.

Foreign Pharmacopœias.—Official in Belg., Fr., Ital. (Stricnina), Port. (Estrychnina), Mex. and Span. (Estricnina), Swed., and U.S.; not in the others. Fr., Ital., Mex., and Swed. have also the Nitrate; Austr., Dan., Dutch, Ger., Hung., Jap., Norw., Russ. and Swiss have the Nitrate only; Belg., Fr., Mex., Port., Span., Swiss and U.S. have also the Sulphate.

Description.—Trimetric prisms, colourless and inodorous.

Tests.—Very sparingly soluble in Water; but communicating to it an intensely bitter taste. Sulphuric Acid forms with it a colourless solution, which on the addition of Potassium Bichromate acquires an intensely violet hue, speedily passing through red to yellow. When Sulphuric Acid containing one two-thousandth part of Potassium Permanganate is brought into contact with a minute particle of Strychnine, a violet coloration results. Not coloured by Nitric Acid (absence of Brucine); leaves no ash when burned with free access of air (absence of mineral impurities).

STRYCHNINÆ HYDROCHLORIDUM.

STRYCHNINE HYDROCHLORIDE.

Hydrochlorate of Strychnine.—*B.P.* '85.

[NEW.]

$C_{21}H_{22}N_2O_2$, HCl,$2H_2O$. 403·70.

The Hydrochloride of an alkaloid obtained from Nux Vomica and from other species of Strychnos.

Medicinal Properties.—*See* 'Strychnina.'

Dose.—$\frac{1}{60}$ to $\frac{1}{15}$ of a grain.

Official Preparation.—Liquor Strychninæ Hydrochloridi.

Description.—Small, colourless, trimetric prisms which readily effloresce in the air; soluble in 35 parts of Water or in 60 parts of Alcohol (90 p.c.), forming a solution which is neutral to Litmus and intensely bitter to the taste.

Tests.—The salt should afford the reactions characteristic of Hydrochlorides, and should respond to the qualitative tests mentioned under 'Strychnina,' but should not yield any characteristic reaction

for Sulphates. Dried at a temperature of 212° F. (100° C.) it should lose from 7·3 to 8·8 p.c. of moisture.

Preparation.

LIQUOR STRYCHNINÆ HYDROCHLORIDI. Solution of Strychnine Hydrochloride. Solution of Hydrochlorate of Strychnine.—*B.P.* '85. (Altered.)

Strychnine Hydrochloride 17½ grains; Alcohol (90 p.c.) 1 fl. oz.; Distilled Water a sufficient quantity. Dissolve the Strychnine Hydrochloride in the Alcohol mixed with sufficient Distilled Water to produce 4 fl. oz. of the Solution of Strychnine Hydrochloride.

The metric quantities are 1 gramme of the salt; Alcohol 25 c.c.; Distilled Water a sufficient quantity to produce 100 c.c.

Now made from Strychnine Hydrochloride instead of Strychnine and Hydrochloric Acid, and is ⅛ weaker than the corresponding Solution of B.P. '85.

Dose.—2 to 8 minims.

110 minims contain 1 grain of Strychnine Hydrochloride. 100 c.c. contain 1 gramme.

2 minims subcutaneously injected for peripheral paralysis.

STYRAX PRÆPARATUS.

PREPARED STORAX.

A balsam obtained from the trunk of *Liquidambar orientalis*, and purified by solution in Ethylic Alcohol, filtration, and evaporation of the solvent.

Owing to loss of volatile constituents of the resin during the evaporation of the solvent, Ethylic Alcohol is unsuitable for purification of the resin and Ether would have been preferable, the only objection to Ether being its inflammability.—*C.D.* '98, ii. 130.

Medicinal Properties.—Similar in action to the Balsams of Peru and Tolu. The Ointment is useful as a parasiticide in scabies and phtheiriasis.

Official Preparation.—Contained in Tinctura Benzoini Composita.

Not Official.—Unguentum Styracis.

Foreign Pharmacopœias.—Official in Austr., Belg., Dutch, Ger., Hung., Jap., Russ. and Swiss, Styrax Liquidus; Dan., Norw. and Swed, Balsamum Styrax Liquidus; Fr., Styrax Liquide; Ital., Storace Liquido; Mex., Balsamo de Liquidambar; Port. and Span., Estoraque Liquido; U.S., Styrax.

Description.—A semi-transparent, brownish-yellow, semi-liquid balsam with a strong agreeable odour and balsamic taste.

Tests.—Heated in a test-tube placed in boiling water, it becomes more liquid, but gives off no moisture; boiled with Solution of Potassium Bichromate and Sulphuric Acid, it evolves an odour resembling that of Essential Oil of Bitter Almonds.

A limit of moisture 8 p.c. might have been introduced together with a limit for the proportion of matter insoluble in Alcohol.—*C.D.* '98, ii. 130.

Not Official.

UNGUENTUM STYRACIS (*B.S.H.*).—Prepared Storax, 2 fl. drm.; Prepared Lard, 1 oz.; mix.

SUCCI.

JUICES.

Juices expressed from fresh medicinal plants, and preserved by the addition of Alcohol, were introduced by Peter Squire in 1835 (*P.J.* vol. i.). By thus obtaining and preserving the juice of the plant, its properties are not impaired by the action of the heat employed in making an Extract.

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

	Dose.
SUCCUS BELLADONNÆ	5 to 15 minims.
SUCCUS CONII	1 to 2 fl. drm.
SUCCUS HYOSCYAMI	½ to 1 fl. drm.
SUCCUS SCOPARII	1 to 2 fl. drm.
SUCCUS TARAXACI.	1 to 2 fl. drm.

These consist of 3 parts of Juice and 1 of Alcohol (90 p.c.).

SUCCUS LIMONIS is freshly expressed and contains no Alcohol.

Juices which are not official are enumerated in the Index.

The Alcoolatures of the Fr. are made by digesting equal weights of fresh plant and Rectified Spirit together for 10 days; press and filter. Aconite, Belladonna, Conium (Ciguë), Digitalis, Eucalyptus, Henbane (Jusquiame), Stramonium Leaves, Flowers and Corms of Colchicum, are so prepared.

Not Official.

SUCCINUM.

AMBER.

A fossil resinous exudation from *Pinites succinifer*, an extinct coniferous tree, on the shores of the Baltic.

Hard and brittle, yellow or yellowish-red.

Foreign Pharmacopœias.—Official in Belg., Dutch, Fr. (Succin), Mex. (Ambar Amarillo), Port. (Ambar), Span. (Sucino), and Swed.

Preparations.

OLEUM SUCCINI RECT.—A volatile Oil obtained by the destructive distillation of Amber, and purified by subsequent rectification.

Externally it is stimulant and rubefacient.

Dose.—1 to 3 minims on Sugar.

Foreign Pharmacopœias.—Official in Belg. and Hung., Ol. Succini Rect.; Dan., Norw. and Swed., Pyroleum Succini, Crude and Rect.; Mex., Aceite Volatil de Succino; Port., Oleo de Ambar; Span., Aceite Pirogenado de Sucino.

LINIMENTUM SUCCINI.—Oil of Amber, 1; Spirit of Camphor, 1; Spirit of Hartshorn, 1: mix.

A domestic **embrocation** for whooping cough.

TINCTURA SUCCINI.—Amber, in fine powder, 1; Alcohol (90 p.c.), 16. Digest 7 days.

Dose.—25 minims in Water for headache.

Foreign Pharmacopœias.—Official in Dutch, 1 Amber and 5; Fr., Succin, 1; Alcohol (80°), 10; Port., Tinctura de Ambar Composta, 2·8 Oil in 10; Swed., 1 Amber in 5; not in the others.

SULPHONAL.

SULPHONAL.

$(CH_3)_2C(SO_2C_2H_5)_2$, eq. 226·53.

Sulphonal, or Dimethyl-methane-diethylsulphone, is a product of the oxidation of Mercaptol, $(CH_3)_2C(SC_2H_5)_2$, obtained from Acetone and Mercaptan.

Solubility.—1 in 500 of Water; 1 in 15 of boiling Water; 1 in of Alcohol (90 p.c.); 1 in 3 of Chloroform; 1 in 90 of Ether.

Medicinal Properties.—Hypnotic. Useful in the insomnia of chronic heart disease, of nervous irritability and of phthisis, especially in cases where Opium is contra-indicated.—(*B.M.J.* '95, i. 153.) It produces no secondary evil effects under usual circumstances, but cases of heart disease and of lunatics have been reported where poisonous symptoms have been produced. Slow in action, especially if given undissolved.

B.M.J. '88, i. 864; '88, ii. 31, 1450, 1454; '89, i. 952; '89, ii. 689, 817; '90, i. 710; '90, ii. 237; '95, i. 153; *L.* '89, ii. 1051—1054; '90, i. 619; '91, i. 447, 787; *P.J.* (3) xviii. 901, 1005; *C.D.* '88, i. 785; *B.M.J.E.* '95, i. 16.

Cases of poisoning.—*B.M.J.* '98, ii. 1821.

The urine of patients taking Sulphonal is stated to reduce Fehling's Solution.—*B.M.J.E.* '95, ii. 43; *P.J.* (3) xxv. 1124.

Dose.—10 to 30 grains.

Prescribing Notes.—It is given in **mixtures** suspended with Compound Tragacanth Powder, 60 grains to 6 fl. oz. of Water. Also in **cachets, capsules,** Compressed Tablets, or in **powders** one to be taken in hot Water.

Not Official.—Trional.

Foreign Pharmacopœias.—Official in Fr., Acetone-diethylsulfone; Dan., Ger., Norw., Russ. and Swiss, Sulfonalum; Ital., Solfonale; Mex., Sulfonal; not in the others.

Description.—Colourless, inodorous, nearly tasteless prismatic crystals. Soluble in 450 parts of cold Water, in 50 parts of cold Alcohol (90 p.c.), very soluble in boiling Alcohol (90 p.c.), soluble in Ether.

It is now generally supplied in *powder*; its action is stated to be quicker an more certain in that form than when administered in crystals.

Tests.—Without action on Litmus; melting at 258° F. (125·5° C.) Heated to redness with free access of air, it burns, evolving Sulphurous Anhydride, and leaving no residue (absence of mineral impurity). If a mixture of Sulphonal with an equal weight of Potassium Cyanide be heated, the odour of Mercaptan is evolved, and when to the solution of the product in Water excess of Hydrochloric Acid and a few drops of Test-solution of Ferric Chloride are added, a reddish colour is developed. It evolves Hydrogen Sulphide when gradually warmed with dried Sodium Acetate. It should yield no characteristic reaction with the tests for Chlorides or Sulphates.

Not Official.

TRIONAL.—A white crystalline powder with a faintly bitter taste, slightly soluble in Water, soluble in Alcohol and in Ether. Is analogous in composition to Sulphonal, but with a Methyl group replaced by Ethyl. Has been recommended as a hypnotic and sedative. Useful in melancholia, mania, and in many nervous affections.—*B.M.J.E.* '94, ii. 24; '95, i. 16; '95, ii. 16, 39, 47, 55; '96, i. 47; *B.M.J.* '95, i. 153; *L.* '95, i. 426, 1024; '96, i. 1102; '97, i. 883; in delirium tremens.—*B.M.J.E.* '94, ii. 60; in sleeplessness of children.—*L.* '95, i. 49, 1468; '95, ii. 1060; may induce constipation.—*L.* '94, ii. 346.

A comparison of the hypnotic effects of Sulphonal, Trional and Tetronal.—*B.M.J.* '95, i. 153.

Unfavourable results in cases of patients suffering from cancer.—*P.J.* '98, i. 42.

Poisonous effects.—*B.M.J.E.* '95, ii. 76; not produced if used cautiously.—*B.M.J.E.* '96, i. 27.

Dose.—Children, 5 to 10 grains; adults, 15 to 20 grains, in **cachets.**

Tests.—It should melt at 76·5° C. Mixed with powdered wood-charcoal and heated in a test-tube it evolves the odour of Mercaptan. A saturated aqueous solution should give no precipitate with solution of Silver Nitrate, or with solution of Barium Chloride, and should not decolorise 1 drop of solution of Potassium Permanganate (1 in 1000).

TETRONAL.—*See* p. 626.

Not Official.

SULPHUR.

SULPHUR.

S, eq. 31·82.

Sulphur occurs native, and is found in masses or in the powdery form mixed with various impurities. It is abundant in volcanic countries, as in Sicily, and in some parts of Italy. It exists in this country in combination with Iron and Lead. It readily volatilises, and when the vapours are passed into a large brick chamber kept cold, it condenses in fine powder (Sublimed Sulphur), but when a small chamber is used and kept at a temperature of about 120° C., it condenses in the liquid form and is run into moulds (Roll Sulphur).

Foreign Pharmacopœias.—Official in Belg., Sulphur Venale; Fr., Soufre; Ital., Solfo; Port., Enxofre; Mex. and Span., Azufre; Swed.; not in the others.

SULPHUR PRÆCIPITATUM.

PRECIPITATED SULPHUR.

B.P. Syn.—Milk of Sulphur.

Sulphur precipitated by Hydrochloric Acid from a solution of Calcium Sulphides and Thiososulphate, which has been made by boiling together Sulphur and Lime in Water.

Medicinal Properties.—Similar to those of Sulphur Sublimatum, only more active. Mixed with Milk and rubbed till smooth, children take it readily.

Dose.—20 to 60 grains.

Official Preparation.—Trochiscus Sulphuris.

Not Official.—Lotio Sulphuris, Trochiscus Sulphuris Comp. and Unguentum Sulphuris Precipitati.

Foreign Pharmacopœias.—Official in all; Fr., Soufre Précipité; Ital., Solfo Precipitato; Port., Enxofre Precipitado; Mex. and Span., Azufre Precipitado.

Description.—A greyish-yellow soft powder, free from grittiness, and from the smell of Hydrogen Sulphide.

Test.—Under the microscope it is seen to consist of opaque globules without any admixture of crystalline matter. It responds to the chemical tests mentioned under 'Sulphur Sublimatum.'

The best test is that it should dissolve readily and completely in Carbon Bisulphide.

Lac Sulphuris of former Pharmacopœias contained a large amount of Calcium Sulphate, owing to Sulphuric Acid being used in its preparation, but as Hydrochloric Acid is now employed, no distinction should be made between Milk of Sulphur and Precipitated Sulphur.

Preparation.

TROCHISCUS SULPHURIS. Sulphur Lozenge.

Precipitated Sulphur, 2500 grains; Acid Potassium Tartrate, in powder, 500 grains; Refined Sugar, in powder, 4000 grains; Gum Acacia, in powder, 500 grains; Tincture of Orange, 500 minims; Mucilage of Gum Acacia, 500 minims. Mix the Tincture of Orange with the powders; add the Mucilage of Gum Acacia to form a suitable mass. Divide into 500 lozenges. Dry them in a hot-air chamber at a moderate temperature.

The Tincture of Orange made from fresh Peel is now used.

Each lozenge contains 5 grains (·324 gramme) of Precipitated Sulphur.

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

Not Official.

LOTIO SULPHURIS.—Precipitated Sulphur, ½ oz.; Glycerin, 120 minims; Alcohol (90 p.c.), 1 fl. oz.; Rose Water, 3 fl. oz.; Lime Water, 3 fl. oz.

Recommended in acne of the face.—*L.* '87, i. 66.

TROCHISCUS SULPHURIS COMP.—Each lozenge contains 5 grains of Precipitated Sulphur, and 1 grain of Cream of Tartar.

These lozenges differ from the Official Sulphur lozenge in that they contain no Orange, and are therefore preferred by many persons.

A convenient form of administering Sulphur as a general laxative, in cases of sluggish liver, bleeding piles, and habitual constipation.—*L.* '89, i. 665

UNGUENTUM SULPHURIS PRÆCIPITATI.—Precipitated Sulphur, 2; Potassium Carbonate, 1; Lard, 8: mix.

Excellent for scabies.

SULPHUR SUBLIMATUM.

SUBLIMED SULPHUR.

B.P.Syn.—Flowers of Sulphur.

May be prepared, more or less directly, from native Sulphur or Sulphides.

Solubility.—Insoluble in water. Slightly soluble in hot Alcohol. Only partially soluble in Carbon Bisulphide.

Medicinal Properties.—Laxative, alterative, diaphoretic, expectorant. Employed internally in hæmorrhoidal affections and chronic rheumatism, hepatic congestion, gout and syphilis, chronic bronchitis and many skin diseases; externally also for skin diseases, especially scabies and acne. Dusted on the membrane in diphtheria.—*B.M.J.* '93, ii. 993; '94, i. 459; *L.* '95, i. 265, 327. As an antiseptic in surgery.—*L.* '94, ii. 1098.

Dose.—20 to 60 grains.

Official Preparations.—Confectio Sulphuris and Unguentum Sulphuris; contained in Pulvis Glycyrrhizæ Compositus. Used in the preparation of Acidum Sulphuricum, Acidum Sulphurosum, Emplastrum Ammoniaci cum Hydrargyro, Emplastrum Hydrargyri, Antimonium Sulphuratum, Potassa Sulphurata, Sulphur Precipitatum and Sulphuris Iodidum.

Not Official.—Unguentum Sulphuris Compositum, and 'Chelsea Pensioner.'

Foreign Pharmacopœias.—Official in all; Austr. and Belg. have also Sulphur Depuratum; Dan., Ger., Hung., Ital., Russ., Swed. and Swiss, Crude and Washed; Dutch and Jap. have also Sulfur Depuratum; Fr., Soufre Sublimé, also S.S. Lavé; Norw.; Port., Enxofre Sublimado; Mex. and Span., Azufre Sublimado.

Description.—A slightly gritty powder of a bright greenish-yellow colour, without taste and without odour.

Tests.—Under the microscope it is seen to consist of almost opaque irregular particles without any admixture of crystalline matter. It burns with a blue flame forming Sulphurous Anhydride; and is entirely volatilised by heat. It should not have any action upon Litmus. Solution of Ammonia, agitated with it, and filtered, does not on evaporation leave any residue (absence of Arsenium Sulphide).

The B.P. test of freedom from acidity can only be expected from **'washed Sulphur,'** which is Official in most foreign Pharmacopœias. Commercial Sublimed Sulphur is always more or less acid.

Preparations.

CONFECTIO SULPHURIS. Confection of Sulphur. (Altered.)

Sublimed Sulphur, 4 oz.; Acid Potassium Tartrate, in powder, 1 oz.; Tragacanth, in powder, 18 grains; Syrup, 2 fl. oz.; Tincture of Orange, ½ fl. oz.; Glycerin, 1½ fl. oz.: mix. =(1 in 2¼).

Now made with Glycerin, Syrup, and Tincture of Orange in place of Syrup of Orange Peel.

Dose.—60 to 120 grains.

(Not in the other Pharmacopœias.)

UNGUENTUM SULPHURIS. Sulphur Ointment. (Altered.)

Sublimed Sulphur, finely sifted, 1; Benzoated Lard, 9: mix. =(1 in 10).

Now 1 in 10, formerly 1 in 5.

Foreign Pharmacopœias.—Official in Belg., 1 in 5, also alkaline 1 in 5½; Fr., Pommade, 1 in 10, also precipitated, 1 in 10; Jap., 1 and 2; Mex., 1 in 4; Port., 3 in 10, also Compound, 1 in 5; Russ., 1 in 3, also Compound, 1 in 10; Span.,

1 in 5; Swiss, 3 in 10, also Compound, 1 in 10; U.S., 3 in 10; Austr., Dutch, Hung., Norw., and Swed. (Compound *see* below), 3 in 20.

Precipitated Sulphur makes a more active Ointment, and Essence of Lemon covers the odour.

An **ointment** $\frac{1}{3}$ of B.P. '85 strength exerts a destructive effect on the ringworm fungus.—*B.M.J.* '89, i. 398.

Not Official.

UNGUENTUM SULPHURIS COMPOSITUM. *Syn.*—Ung. ad Scabiem Viennense. Wilkinson's Ointment.

Sulphur, 15; Chalk, 10; Tar, 15; Lard, 30; Soap, 30.

This is the formula official in Austr., Dutch, Hung., Norw. and Swed.

'CHELSEA PENSIONER.'—Sulphur, 6; Mustard, 6; Powdered Guaiacum, 3; Rhubarb, $1\frac{1}{2}$; Nitre, $1\frac{1}{2}$: mix. Honey or Treacle sufficient to make it into an Electuary.

Dose.—A teaspoonful every alternate evening for rheumatism; it is also taken in the morning as an aperient to regulate the bowels.

Not Official.

SULPHURIS CHLORIDUM.

Sulphur Chloride.

S_2Cl_2, eq. 134·02.

Prepared by the direct union of Chlorine with Sulphur, forming a mobile reddish-yellow liquid, sp. gr. 1·69, with a penetrating disagreeable odour, and fuming strongly in air. It dissolves without decomposition in Carbon Bisulphide or Benzol, but is decomposed by Water, Alcohol and Ether.

Preparation.

UNGUENTUM SULPHURIS HYPOCHLORITIS.—The Ointment prescribed under this name is composed of Sublimed Sulphur, 1 oz.; Chloride of Sulphur, 1 fl. drm.; Spermaceti Ointment, (B.P. 1867) 8 oz.: Essential Oil of Almonds, 80 minims, is usually added to mask the disagreeable odour.

Used in the treatment of scabies and acne.

SULPHURIS IODIDUM.

Sulphur Iodide.

O.M.P.—Iodine, 4; Sublimed Sulphur, 1: intimately mix the Sublimed Sulphur with the Iodine; heat the mixture gently in a loosely corked flask, when the mass becomes uniformly dark, increase the temperature so as to produce liquefaction; allow the product to cool in the flask. The flask should then be broken, and the solidified mass of Sulphur Iodide reduced to fragments, which should be kept in a well-closed vessel.

The proportions of Iodine and Sulphur are used in equivalents to form SI, eq. 157·72, but the combination is a very loose one.

Solubility.—1 in 60 of Glycerin; 1 in 4 of Carbon Bisulphide. Insoluble in cold Water.

Medicinal Properties.—The Ointment is an excellent remedy for acne rosacea, and for parasitic, tubercular and other eruptions of the skin.

Official Preparation.—Unguentum Sulphuris Iodidi.

Foreign Pharmacopœias.—Official in Belg., Ioduretum Sulphuris; Dutch, Iodetum Sulphuris c. Sulphure; Mex., Yoduro de Azufre; Port., Enxofre Iodado; Span., Ioduro de Azufre; U.S., Sulphuris Iodidum; not in the others.

Description.—A greyish-black solid substance, with a radiate crystalline appearance. It resembles Iodine in smell, and in the property of staining the skin.

Test.—When boiled with Water the Iodine passes off in vapour, and the Sulphur remains as an insoluble residue having about one-fifth of the weight of the Sulphur Iodide taken.

Preparation.

UNGUENTUM SULPHURIS IODIDI. Sulphur Iodide Ointment. (Altered.)

Sulphur Iodide, 20 grains; Glycerin, 20 grains; Benzoated Lard, 460 grains. Triturate the Sulphur Iodide and Glycerin in a slightly warmed mortar until a smooth paste results; gradually add the Benzoated Lard; stir until cold. =(about 1 in 25).

Now 1 in 25 instead of 1 in 15½. Glycerin is added and Benzoated Lard replaces Hard and Soft Paraffin.

Foreign Pharmacopœias.—Official in Port., 1 in 10; not in the others.

SUMBUL RADIX.

SUMBUL ROOT.

The dried transverse slices of the root of *Ferula Sumbul*.

Imported from Russia. It possesses a powerful odour resembling Musk.

An inferior kind has of late years replaced the old Sumbul root. This inferior drug is probably the product of Ferula suaveolens.

Medicinal Properties.—A nervine tonic, carminative and antispasmodic, said to be useful in hysteria and nervous complaints.

Official Preparation.—Tinctura Sumbul.

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

Description.—Varying much in size, but usually from about one inch to three inches (two and a-half to seven and a-half centimetres) in diameter, and from three-quarters of an inch to an inch (eighteen to twenty-five millimetres) or more in thickness. The pieces are covered on the outer surface with a dusky-brown, papery, tranversely wrinkled cork, and are sometimes beset with short bristly fibres; internally they are spongy, coarsely fibrous, dry, and dirty yellowish-brown, mottled with whitish patches and spots of exuded resin. Odour strong, musk-like; taste bitter, aromatic.

The cultivation of Sumbul in England.—*P.J.* '97, i. 347.

Preparation.

TINCTURA SUMBUL. TINCTURE OF SUMBUL. (ALTERED.)

Sumbul Root, bruised, 2; Alcohol (70 p.c.), 20. Prepare by the maceration process. =(1 in 10).

Now 1 in 10 instead of 1 in 8, and Alcohol (70 p.c.) used in place of Rectified Spirit.

Dose.—½ to 1 fl. drm.

Foreign Pharmacopœias.—Official in U.S., 1 in 10; not in the others.

SUPPOSITORIA.

Suppositories are for the most part prepared by the following general formula:—

Melt the Oil of Theobroma; triturate the active ingredient intimately with a little of the Oil, and add to the remainder; stir well; as the mixture begins to thicken pour it into the moulds; or let the mixture cool and then divide it into twelve equal parts of a conical or other convenient form for a suppository.

The moulds, previously made cold, must be kept so in summer by immersion in iced water. All difficulty in removing the suppositories from the moulds may be obviated by having the moulds previously wiped with some oiled lint.

Cocoa-nut **Stearin** (p. 605) is in many instances a better basis for Suppositories than Oil of Theobroma.

	Each contains
SUPPOSITORIA ACIDI CARBOLICI	1 grain.
SUPPOSITORIA ACIDI TANNICI	3 grains.
SUPPOSITORIA BELLADONNÆ. Alcoholic Extract	1½ grains.
SUPPOSITORIA GLYCERINI	70 p.c.
SUPPOSITORIA IODOFORMI	3 grains.
SUPPOSITORIA MORPHINÆ. Morphine Hydrochloride	¼ grain.
SUPPOSITORIA PLUMBI COMPOSITA. Lead Acetate	3 grains.
Powdered Opium	1 grain.

Suppositories, not official, are enumerated in the Index.

Not Official.

SYMPHYTI RADIX.

COMMON COMFREY ROOT.

The root of *Symphytum officinale;* black without and white within.

Medicinal Properties.—Astringent, mucilaginous, glutinous; useful to form cases for injured limbs. The black rind is scraped off, and the mucilaginous root is then scraped carefully into a nice even pulp; this spread to the thickness of a crown-piece upon cambric or old muslin, is wrapped round the limb and bandaged over; it soon stiffens, and forms a casing superior to starch, giving great support and strength to the part. The late Author knew a bone-setter who practised more than fifty years ago, and rendered himself famous by treating fractures after this method, which he kept secret, the bandage not being removed until the limb was well.

Foreign Pharmacopœias.—Official in Belg., Radix Symphiti; Fr., Consoude; Mex., Sinfito; Port., Consolda Maior; Span., Sinfito Mayor; not in the others.

SYRUPI.

SYRUPS.

Syrups are apt to ferment or mould when made with too little Sugar, and to crystallise when too concentrated, or when mixed with Acids or Alcohol. There is no uniformity in the method given in B.P. for the twenty-two Syrups which are Official. In seven of them the final product is directed to be made to a given volume by the addition of Water or of Syrup, and in three of them to a given weight. The sp. gr. is inserted in two of them, Syrupus, and Syrupus Ferri Iodidi. In the case of Syrupus Sennæ and Syrupus Tolutanus, the fluid is made to a given volume by the addition of Distilled Water before the Sugar is dissolved in it, but in Syrupus Hemidesmi, Syrupus Rosæ and Syrupus Scillæ no such precaution is taken. Syrupus Aurantii and Syrupus Zingiberis are both mixtures of a Tincture with Syrup, but the latter is made to a definite volume, the former is not.

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

Dose.		Proportion of Ingredient.
	SYRUPUS. *See* SACCHARUM	Sugar 1 in 1½.
½ to 1 fl. drm.	SYRUPUS AROMATICUS	Tincture of Orange 1 in 4.
½ to 1 fl. drm.	SYRUPUS AURANTII	Tinct. 1 in 8.
½ to 1 fl. drm.	SYRUPUS AURANTII FLORIS	O.F. Water 1 in 6¾.
½ to 1 fl. drm.	SYRUPUS CALCII LACTOPHOSPHATIS.	Calcium Phosphate about 1 in 40.
½ to 2 fl. drm.	SYRUPUS CASCARÆ AROMATICUS.	Liquid Extract of Cascara 1 in 2½.
½ to 2 fl. drm.	SYRUPUS CHLORAL	1 in 6.
½ to 2 fl. drm.	SYRUPUS CODEINÆ	Codeine Phosphate 1 in 220.
½ to 1 fl. drm.	SYRUPUS FERRI IODIDI, 11 mins. contain 1 gr. Ferrous Iodide.	
½ to 1 fl. drm.	SYRUPUS FERRI PHOSPHATIS	1 grain in each fl. drm.
½ to 1 fl. drm.	SYRUPUS FERRI PHOSPHATIS CUM QUININA ET STRYCHNINA. 1 fl. drm. = 1 grain Anhydrous Ferrous Phosphate, ⅛ grain of Quinine Sulphate, and $\frac{1}{32}$ grain of Strychnine.	
	SYRUPUS GLUCOSI	About 1 in 3.
½ to 1 fl. drm.	SYRUPUS HEMIDESMI	Root about 1 in 8.
1 fl. drm.	SYRUPUS LIMONIS	Juice 1 in 2.
½ to 1 fl. drm.	SYRUPUS PRUNI VIRGINIANÆ	Bark 1 in 6⅔.
½ to 2 fl. drm.	SYRUPUS RHEI	Root 1 in 15.
½ to 1 fl. drm.	SYRUPUS RHŒADOS	Petals 1 in 3½.
½ to 1 fl. drm.	SYRUPUS ROSÆ	Petals 1 in 17¼.
½ to 1 fl. drm.	SYRUPUS SCILLÆ	Squill about 1 in 16.
½ to 2 fl. drm.	SYRUPUS SENNÆ	Senna about 1 in 1½.
½ to 1 fl. drm.	SYRUPUS TOLUTANUS	Balsam 1 in 26.
½ to 1 fl. drm.	SYRUPUS ZINGIBERIS	Root 1 in 40.

Syrups that are not official are enumerated in the Index.

Not Official.

TABACI FOLIA.

LEAF TOBACCO.

The dried leaves of the Virginian Tobacco, *Nicotiana Tabacum*.

Official in *B.P.* '85, but now omitted.