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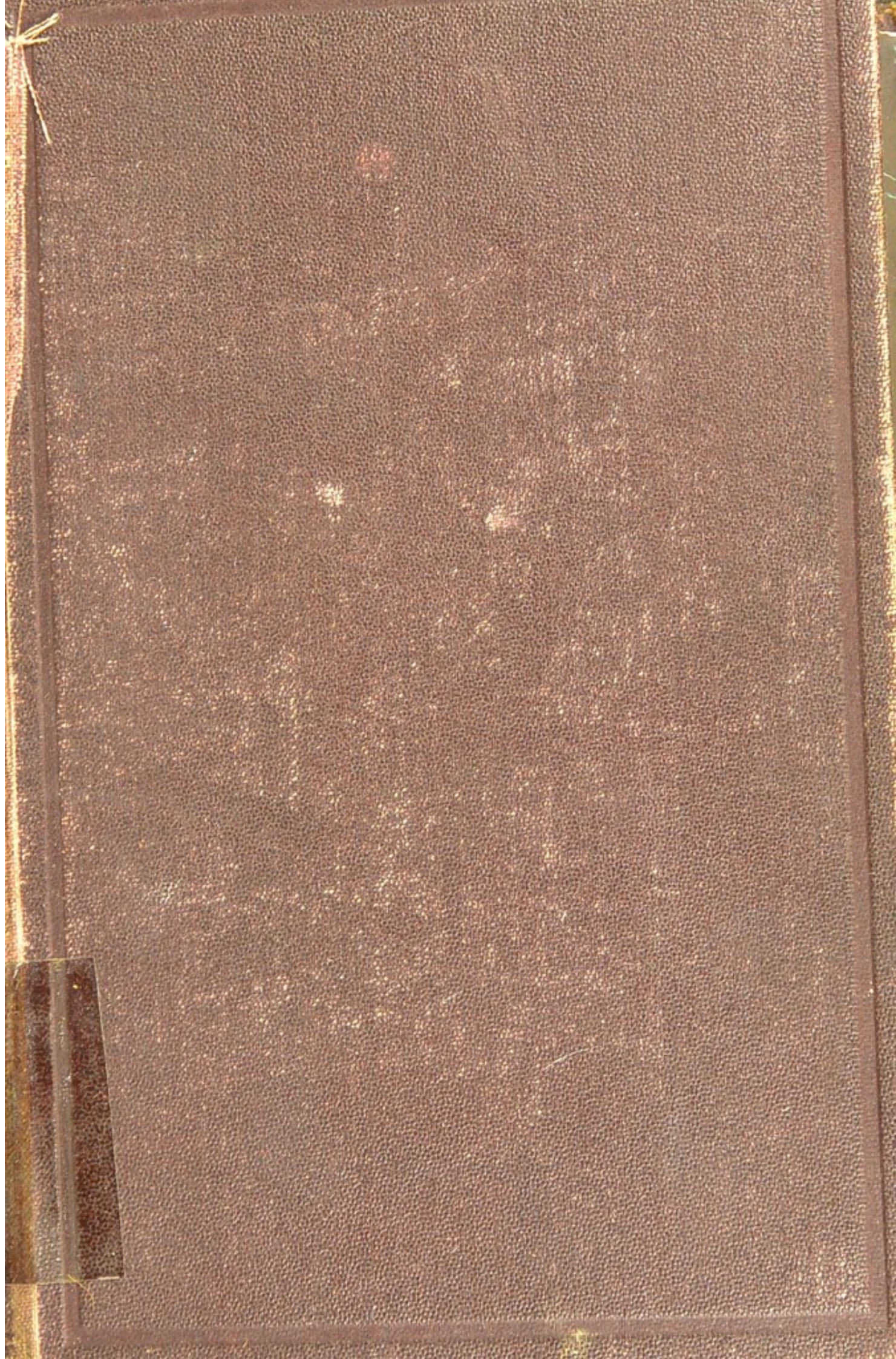
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OF

MATERIA MEDICA.

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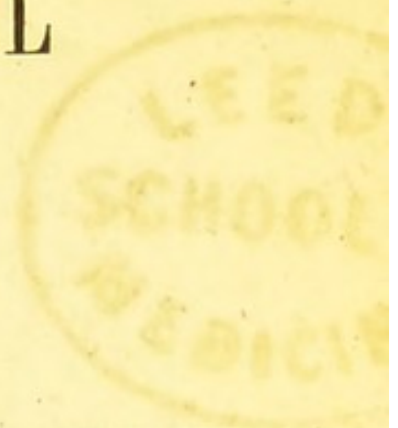
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MILNE'S MANUAL

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OF

MATERIA MEDICA AND THERAPEUTICS

BY

WILLIAM CRAIG, M.D., C.M., ED.

F.R.S.E., F.R.C.S.E., ETC., ETC.

LECTURER ON MATERIA MEDICA, EDINBURGH SCHOOL OF MEDICINE

Fourth Edition, Revised and Enlarged

EDINBURGH

E. & S. LIVINGSTONE, 57 SOUTH BRIDGE

1879

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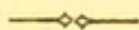
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PREFACE TO THE THIRD EDITION.



THIS Manual, originally written for the use of the Students attending the Practical Pharmacy Class at the New Town Dispensary, has speedily gone through two Editions. A Third Edition is therefore necessary; and in the hope of rendering the work available, not only for those for whom it was originally intended, but also for Students attending a systematic course of lectures on *Materia Medica*, I undertook the revision of this Edition.

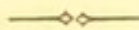
The work has been entirely re-arranged. Instead of being in alphabetical order, as formerly, the various substances are now arranged systematically, thereby rendering the Manual much more useful to Students attending a class of *Materia Medica*. The description of substances and their doses are generally those given in the *British Pharmacopœia*. The whole work has been carefully revised, the new medicines added, and it is hoped that the former popularity of this Manual will, by these alterations, be maintained and increased. There have been added to this Edition a chapter containing Milne's *Posological Tables*, and an *Index of Diseases* by the Editor. The arrangement of the *Vegetable Substances* is according to the *Natural Orders*, as given in the *Fifth Edition* of Professor *Balfour's* excellent *Manual of Botany*.

The *New Chemical Notation* alone is given, being the only one recognised by Chemists, and now taught to Students.

WILLIAM CRAIG.

7 *LOTHIAN ROAD*,
EDINBURGH, *October*, 1875.

PREFACE TO THE FOURTH EDITION.



THIS Manual has gone through another Edition in little more than three years. This fact shows that the re-arrangement and alterations introduced into the *Third Edition* have not only maintained, but increased its popularity even beyond the most sanguine expectations.

In the hope of still further increasing the usefulness of the book, there has been introduced on the present occasion a short description of each medicinal plant.

The whole work has been carefully revised, and in several parts re-written.

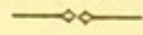
The Editor begs to acknowledge his obligations to Balfour's "Manual of Botany," Bentley and Redwood's "Elements of Materia Medica," and Bentley and Trimen's "Medicinal Plants."

WILLIAM CRAIG.

7 LOTHIAN ROAD,
EDINBURGH, *March*, 1879.



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INORGANIC MATERIA MEDICA.

ELEMENTARY SUBSTANCES.

SULPHUR. S = 32.

Sulphur Sublimatum. Flowers of Sulphur. Sublimed Sulphur.

Prepared from crude sulphur by sublimation.

Characters and Tests.—A fine greenish-yellow powder, somewhat gritty, without taste, but a peculiar odour when rubbed. Burns with a blue flame, forming sulphurous-acid gas, SO_2 . Entirely volatilised by heat. Does not redden moistened litmus paper, indicating absence of sulphuric acid. Solution of ammonia agitated with it, and filtered, does not on evaporation leave any residue, indicating absence of arsenic.

Dose.—20 to 60 grains, in treacle or honey.

CONFECTIO SULPHURIS.—Sublimed sulph., $\bar{\text{ʒ}}\text{iv}$.; acid tartrate of potash, $\bar{\text{ʒ}}\text{j}$.; syrup of orange peel, $\text{ʒ}\bar{\text{ʒ}}\text{iv}$. Rub them well together.

Dose.—60 to 120 grains.

UNGUENTUM SULPHURIS.—Sublimed sulph., $\bar{\text{ʒ}}\text{j}$.; benzoated lard, $\bar{\text{ʒ}}\text{iv}$. Mix thoroughly.

Actions and Uses.—Sulphur is used both internally

and externally. *Internally*, it is a stimulant to the mucous membranes and the intestinal glands. It also increases the peristaltic action of the bowels. Hence it is a mild and gentle laxative, and may be given in irritable conditions of the rectum, such as hæmorrhoids and allied affections. Sulphur is also a diaphoretic, and as such has been recommended in the early stage of the eruptive fevers. Sulphur passes off by the kidneys as sulphates, and by the fæces, skin, and breath as sulphuretted hydrogen. Hence the fæces, perspiration, and breath of a person taking sulphur internally have the disagreeable odour of sulphuretted hydrogen, which renders it very objectionable as an internal agent. For internal use it is best given either in treacle or as the officinal *Confectio Sulphuris*.

Externally, as ointment, it is most efficacious in scabies, an affection which is due to the presence of the itch insect. The skin should be carefully washed, and the ointment well rubbed in before the fire. Care must also be taken to have the patient's clothes thoroughly cleaned. Sulphur ointment has also proved beneficial in certain other skin affections, as acne, lepra and psoriasis. In acute rheumatism, poultices of sulphur mixed with spirit often relieve the pain when applied to the affected joints.

Sulphur Præcipitatum. Precipitated Sulphur.

Lac sulphuris. Milk of sulphur.

Prepared by boiling sublimed sulphur and slaked lime in water, and afterwards precipitating the sulphur by means of hydrochloric acid.

Characters and Tests.—A yellowish-white soft powder, not gritty; in other respects like sublimed sulphur.

Owing to the method in which it is prepared, it sometimes contains sulphate of lime; but when this impurity is present, it remains as a residue when the sulphur is sublimed.

Dose.—20 to 60 grains.

Actions and Uses.—In its actions and uses it resembles sublimed sulphur; but being more finely divided and soft, it is preferred by some both for internal use and for making the ointment.

Potassa Sulphurata. Sulphurated Potash.

Synonyms.—“Liver of sulphur.” Potassii sulphuratum. This substance is prepared by heating together carbonate of potassium and sublimed sulphur.

Characters and Tests.—In solid greenish masses, liver-brown when recently broken; acrid to the taste. Forms a yellow solution with water, evolving sulphuretted hydrogen and depositing sulphur. About three-fourths of its weight are dissolved by rectified spirit.

UNGUENTUM POTASSÆ SULPHURATÆ.—Sulphurated potash, gr. xxx. ; prep. lard, ʒj. This ointment should be recently prepared.

Actions and Uses.—This substance is seldom used internally in this country. In large doses it is a narcotico-irritant poison, producing inflammation of the stomach and bowels, with convulsions and tetanic spasms. In doses of 2 to 4 grains it has been recommended, especially on the Continent, in whooping-cough and chronic skin affections, but with doubtful benefit. The ointment has been useful in chronic skin diseases of the scaly type. Sulphurated potash dissolved in water has been used with advantage as a bath in chronic eruptions and rheumatism.

CARBON. C.=12

Carbo Ligni. Wood Charcoal.

Wood charred by exposure to a red heat without access of air.

Characters and Tests.—In black, brittle, porous masses, tasteless, odourless, very light, and retaining the form and texture of the wood whence it was obtained; insoluble in water. Contains not more than 2 per cent. of ash.

Dose.—20 to 60 grains.

CATAPLASMA CARBONIS.—Wood charcoal in powder, ℥ss.; bread, ℥ij.; linseed meal, ℥jss.; boiling water, f℥x. For foul sores.

Actions and Uses.—Antiseptic and deodorizer. Finely powdered charcoal has the power of condensing various gases within its pores. It has also the power of preventing fermentation. It is thus of great service in flatulence. It prevents the generation of the gases within the intestines, and absorbs them when formed. If the flatulence be felt before meals it should be taken before food; but, as is most frequently the case, if the flatulence be felt most after food it should be administered after meals. It has also been found useful in diarrhoea and dysentery, especially when these affections are accompanied with flatulence. Externally, it is an excellent disinfectant. The officinal *Cataplasma* is a useful application to foul and gangrenous ulcers. Charcoal is an excellent dentifrice. Fetor, from whatever source, is corrected by charcoal.

Carbo Animalis. Animal Charcoal. Bone Black.

The residue of bones which have been exposed to a red heat without the access of air. Consists chiefly of charcoal and phosphate and carbonate of lime.

Is only used for preparing the next preparation.

Carbo Animalis Purificatus. Purified Animal Charcoal.

Bone black, deprived of its earthy salts by means of hydrochloric acid.

Characters and Tests.—A black pulverulent substance, inodorous, and almost tasteless. Tincture of litmus is decolorised by it. When burned at a high temperature, with a little red oxide of mercury and free access of air, it leaves only a slight residue.

Dose.—20 to 60 grains.

Actions and Uses.—Its chief use is in Pharmacy as a decolorising agent. It takes up the colouring matter of the urine when that fluid is filtered through it. Animal charcoal has also been recommended as an antidote to arsenic, morphia, and other vegetable alkaloids. In such cases, its action is chiefly mechanical, and it is only available if administered before the poison has been absorbed.

PHOSPHORUS. P.=31.

A non-metallic element obtained from bones.

Characters and Tests.—A colourless, wax-like solid, which emits white vapours when exposed to the air. Specific gravity, 1.77. Insoluble in water, but soluble in ether and boiling oil of turpentine.

Dose.—gr. $\frac{1}{30}$ th

PILULA PHOSPHORI.—Phosphorus, gr. ij. ; balsam of tolu, ℥ij. ; yellow wax, ℥j. Mix. Dose, gr. iij. to vj.

OLEUM PHOSPHORATUM.—Prepared by dissolving phosphorus in oil of almonds ; each fluid ounce contains 3 grains of phosphorus.

Character.—Phosphorescent in the dark.

Dose.—5 to 10 minims.

Actions and Uses.—Phosphorus in poisonous doses acts as an irritant poison, producing inflammation of the intestinal canal, with vomiting, purging, and often bloody urine. It also produces great depression of the heart's action. After death the liver and other parts are found to have undergone fatty degeneration.

In medicinal doses phosphorus is a stimulant of the nervous system, and increases the circulation, the temperature, and the secretion of urine. It is said also to promote the formation of bone. It is useful as a tonic and stimulant in debility of the nervous system, and has been highly recommended in neuralgia. Combined with cod-liver oil, it often does good in rickets. Workers in phosphorus are liable to necrosis of the lower jaw. This may to some extent be prevented by the internal use of oil of turpentine, which is the best antidote to phosphorus.

I O D I N E,

AND THE IODIDES WHOSE ACTIONS RESEMBLE THOSE OF
IODINE.

IODUM. Iodine. I.=127.

A non-metallic element obtained from the ashes of sea-weeds.

Characters and Tests.—Laminar crystals of a singular odour, dark colour, and metallic lustre, which, when heated, yield a violet-coloured vapour; sparingly soluble in water, but freely dissolved by alcohol, by ether, and by a solution of iodide of potassium. The aqueous solution strikes a deep blue with starch. It sublimes without leaving any residue, and the portion which first comes over does not include any slender colourless prisms emitting a pungent odour, indicating absence of cyanide of iodine.

Adulterations.—Charcoal, plumbago, black oxide of manganese, and water. The three first are not sublimed by heat, and the water is detected by pressing between folds of filtering paper, or by shaking in a dry bottle.

Preparations containing free Iodine.

TINCTURA IODI.—Iodine, $\bar{3}$ ss.; iodide of potass, $\bar{3}\frac{1}{4}$; rect. spt., Oj. Dissolve. *Dose*, 5 to 20 minims.

VAPOUR IODI.—Tinct. Iodi, $\bar{f}\bar{3}$ j.; aq. $\bar{f}\bar{3}$ j. Mix, and apply a gentle heat, and inhale the vapour that arises.

LIQUOR IODI.—Iodine, gr. xx.; iodide of potassium, gr. xxx.; water, $\bar{f}\bar{3}$ j. Dissolve.

LINIMENTUM IODI.—Iodine, $\bar{3}$ j $\frac{1}{4}$; iodide of potassium, $\bar{3}$ ss.; camphor, $\bar{3}\frac{1}{4}$; rect. spt., $\bar{f}\bar{3}$ x. Dissolve.

UNGUENTUM IODI.—Iodine, gr. xxxij. ; iodide of potassium, gr. xxxij. ; proof spt., fʒj. ; prepared lard, ʒij. Rub the iodine and the iod. pot. well together with the spirit in a mortar ; add the lard gradually, and mix thoroughly.

Actions and Uses.—Iodine applied locally stains the skin yellow, and if applied continuously in a concentrated state, as in the tincture or liniments, it will cause desquamation. Internally, in large doses, it is an irritant, producing inflammation of the alimentary canal, with vomiting and diarrhoea, and not unfrequently nephritis. Iodine, when swallowed or applied to a mucous membrane, is absorbed, and is speedily eliminated by the kidneys, and probably also by most of the mucous surfaces. It acts as a stimulant to the secreting glands, and causes absorption of enlarged glands and chronic inflammatory products. It has also the power of producing a peculiar condition of the system, called *iodism*. Iodism is produced by small doses continued for a lengthened period. The symptoms are headache, nausea, languor, giddiness, loss of appetite, debility ; by-and-by there is intense depression, muscular debility, entire want of appetite, tremors, emaciation, quick and feeble pulse, palpitation, a sinking feeling, clammy sweats, dinginess of the skin, catharsis, diuresis, priapism, and more rarely a wasting of the mammæ and testicles. Death may result unless the iodine be discontinued, but these symptoms gradually subside when it is disused.

Iodine is of great service in the treatment of scrofulous affections of all kinds. It is of special service in the treatment of enlarged glands and joints, after the acute stage is past. In bronchocele it has proved of

undoubted benefit. In all such cases it is good to combine the internal and external administration of iodine. The ointment or liniment should be applied from time to time to the enlarged parts. In all cases where iodine irritates the alimentary canal, the iodide of potassium should be substituted for it internally. In most cases cod-liver oil and iron should be administered along with iodine. The vapour of iodine has been recommended in phthisis and bronchitis. The tincture has been long employed for injection into serous cysts after the extraction of the fluid, especially in hydrocele. The ointment has been recommended in certain chronic skin affections. The liniment is useful as a counter-irritant to the chest in chronic pleurisy, and helps to promote the absorption of the fluid. In phthisis the tincture or liniments painted over the chest underneath the clavicles tend greatly to lessen the cough and to check the secretion from the bronchi. The ointment is one of the best applications to chilblains, provided the skin be unbroken.

Sulphuris Iodidum. Iodide of Sulphur.

Iodine, $\bar{\text{iv}}$.; sulphur, $\bar{\text{ij}}$. Rub in a mortar, then place in a flask, and liquefy by a gentle heat. Then allow it to cool and solidify.

Characters and Tests.—Brownish plates, with a strong odour of iodine. It stains the cuticle like iodine, is soluble in 60 parts of glycerine, insoluble in water, but is decomposed when boiled in water.

Dose.—1 to 2 grains in pill.

UNGUENTUM SULPHURIS IODIDI.—Iodide of sulphur, gr. xxx.; prepared lard, $\bar{\text{ij}}$. Mix.

Actions and Uses.—This substance has not been much

used internally. Its actions, however, seem to resemble those of iodine. The ointment has been found beneficial in the treatment of obstinate scaly skin diseases. It ought to be more used in skin affections.

Potassii Iodidum. Iodide of Potassium. KI.

Characters and Tests.—In colourless, cubic crystals, readily soluble in water, less so in spirit. Its solution, mixed with mucilage of starch, gives a blue on the addition of chlorine or a mineral acid. It gives a crystalline precipitate with tartaric acid, showing it to be a salt of K.; and it gives a yellowish precipitate with nitrate of silver, soluble in ammonia and nitric acid. Acetate of lead gives a yellow precipitate. The two last tests show it to be an iodide salt.

Dose.—2 to 30 grains.

Adulterations.—Occasionally with carbonate of potash; detected by nitrate of barium, with which it gives a white precipitate. If iodate of potash be present, a blue colour is developed by the addition of mucilage of starch, or tartaric acid.

LINIMENTUM POTASSII IODIDI CUM SAPONE.—Contains $54\frac{1}{2}$ grains of KI in every $\text{f}\bar{\text{3}}\text{j}$., besides hard soap, glycerine, oil of lemons, and water.

UNGUENTUM POTASSII IODIDI.—Iod. potass. gr. lxiv.; carbonate of potash, gr. iv.; dist. water, $\text{f}\bar{\text{3}}\text{j}$.; prepared lard, $\bar{\text{3}}\text{j}$. Dissolve the iod. potass. in the water, then mix well with the lard. A few drops of caustic potash preserves this ointment, and restores its whiteness when it has become yellow.

Actions and Uses.—Iodide of potassium resembles iodine in its physiological actions. Like iodine, it has the power of producing iodism, although large doses are

frequently given for months without producing any untoward results. When taken internally, it is quickly absorbed and speedily appears in the urine, and in most of the other secretions of the body, all of which it increases. It is a powerful deobstruent and diuretic. It may be employed for all the diseases for which iodine is given, and it is more agreeable to the patients, better tolerated by the system, and less apt to produce the peculiar and disagreeable physiological effects of that drug. It is serviceable in bronchocele, in scrofula, and its long train of disorders, enlarged glands, abscesses, osseous disease; and highly beneficial in articular and chronic rheumatism, dropsy, periostitis, chronic enlargement of different viscera, and neuralgia. It is a most valuable remedy in secondary and tertiary syphilis. When the fibrous and osseous structures become affected with this disease, there is no medicine from which we will derive such benefit as iodide of potassium. In such cases it is best to give the drug in large doses—20 or 30 grains several times a-day. In aneurism it is a most efficacious remedy especially combined with rest in the horizontal posture, so too in valvular disease of the heart. For aneurism and heart disease it is given in 20 or 30 grains, three times a-day, well diluted in water. It is also a useful medicine in removing many metallic poisons from the system, as mercury and lead. It is also useful in removing pleuritic effusions and other serous exudations. I have found it of great service in meningitis and other affections of the head. Externally it has been used as the ointment or liniment with soap, but in all cases of enlarged glands and swellings about the joints, some of the preparations of iodine will be found more efficacious.

Professor Rutherford has shown that iodide of potassium has no action on the liver.

BROMUM. Bromine. Br. 80.

A liquid non-metallic element, obtained from seawater, and from some saline springs.

Characters and Tests.—A dark, brownish red, very volatile liquid, with a strong and disagreeable odour. Specific gravity, 2.966. Gives off red vapours at the common temperature of the air, and boils at 117°. It communicates an orange colour to starch.

Actions and Uses.—It is used to prepare the bromides of potassium and ammonium. Applied locally, it is a powerful caustic, and when diluted, may be employed as a counter-irritant instead of iodine. It is, however, seldom used except to prepare the bromides.

Potassii Bromidum. Bromide of Potassium. KBr.

Characters and Tests.—In white cubical crystals, with no odour, but a pungent saline taste, readily soluble in water, less soluble in spirit. Its aqueous solution with tartaric acid gives a white crystalline precipitate, and with starch and chlorine an orange colour.

Dose.—5 to 30 grains.

Actions and Uses —Bromide of potassium when taken into the stomach is speedily absorbed into the blood and is eliminated chiefly by the kidneys. Physiologists have proved that it contracts the blood vessels, and so causes anæmia of the brain and spinal cord. In large doses it lessens the force and frequency of the

heart's action, and lowers the temperature of the body. Its most important action is that of a direct sedative to the nervous system. It diminishes reflex irritability and to a certain extent produces local anæsthesia, especially of the mucous membrane of the larynx and pharynx. It has been found useful in a great variety of diseases, especially connected with undue excitement of the nervous system ; in convulsions of all kinds great benefit will be obtained by the administration of the bromide of potassium. The fits, if not altogether prevented, will at least be rendered fewer and less violent. In epilepsy it is one of the safest and most valuable remedies which we possess. For this disease it often requires to be given for months, or even years. In such cases, however, it is beneficial to discontinue the drug occasionally for a short time, otherwise the system becomes habituated to its use. It is a valuable medicine in sleeplessness, whether constitutional or arising from pain or disease, as during acute ailments and fever ; in nervousness produced by severe mental application, or agitation, and unrest of mind ; in functional or hysterical epilepsy (where it wards off the attacks) ; in delirium tremens, acute mania, nymphomania, and melancholia. In dynamic or functional diseases of the larynx and lungs, such as whooping-cough, asthma, croup, and laryngismus stridulus, and in the spasmodic cough of children, whether due to centric causes or reflex, as from the irritation of teething. In infantile convulsions, it is of much service in subduing and probably averting the fits. In meningitis, too, by its influence, sleep is obtained, and head pain somewhat relieved. On the ground that its beneficial action in respiratory disorders is due to its action on the pneumo-

gastric, it has been recommended in disease of other organs supplied by that nerve; such as in irritable stomach. In diabetes—a disease connected in some obscure or occult way with nervous irritation—it has proved of service, the urine becoming more normal both in quality and quantity. It has also been justly recommended in tetanus, menorrhagia, and irritability of the generative organs. It has also been recommended in enlargement of the liver, spleen, and uterus.

Ammonii Bromidum. Bromide of Ammonium. $\text{NH}_4 \text{Br}$.

Characters and Tests.—In colourless crystals, which become slightly yellow by exposure to the air, and have a pungent saline taste. Is sublimed unchanged by heat, readily soluble in water; less soluble in spirit. A solution of the salt in water, mixed with mucilage of starch and a drop of an aqueous solution of bromine or chlorine, does not exhibit any blue colour, indicating absence of iodide of potassium.

Dose.—2 to 20 grains.

Actions and Uses.—This substance has properties analogous to those of the corresponding salt of potassium. As yet it has not been nearly so extensively used in medicine. It has, however, been very highly recommended in pertussis, and is said to exert a greater sedative influence over the larynx than the bromide of potassium. It is chiefly used in spasmodic coughs and convulsions, but may be employed in all diseases for which the potassium salt has been found useful. It has been recommended by some to combine these two bromides in the treatment of epilepsy. Combined with the hydrate of chloral, it is a powerful hypnotic in delirium tremens and all nervous affections.

CHLORINE. Cl=35.5.

When this gas is dissolved in water it forms the officinal preparation.

Liquor Chlori. Solution of Chlorine.

Chlorine gas dissolved in water, each f̄ contains 2.66 grains of chlorine.

Characters and Tests.—A yellowish-green liquid, smelling strongly of chlorine, and immediately discharging the colour of a dilute solution of sulphate of indigo. Specific gravity, 1.003.

Evaporated it leaves no residue.

Dose.—10 to 20 minims.

Actions and Uses.—Irritant, stimulant, astringent, and a disinfectant. In large quantities it is an irritant poison, exciting inflammation of the alimentary canal. As a stimulant—some say tonic—it has been given in typhus and typhoid fever; failing in some types, and achieving fair results in others. As an astringent, it has been extensively employed in the form of inhalation in phthisis and chronic bronchitis; in many cases diminishing, and in a few others entirely drying up the sputa, especially in the latter disease. Water weakly impregnated with chlorine, and kept at a temperature of about 100°, is used for this purpose. The results obtained, we think, quite warrant a revival of the practice, which has fallen into desuetude. Externally, in a dilute form, chlorine water has been applied to foul ulcers, chronic skin diseases, and as a gargle in cynanche maligna. As a disinfectant, see under Calx Chlorata.

Incompatibles.—Nitrate of silver; acetate of lead.

In poisoning, give albumen and milk.

Calx Chlorata. Chlorinated Lime. "Bleaching Powder."

Probably hypochlorite of lime, with chloride of calcium, and a variable amount of hydrate of lime.

Characters and Tests.—A dull-white powder, with a feeble odour of chlorine; partially soluble in water. Evolves chlorine on the addition of an acid. Chlorinated lime is obtained by passing chlorine gas through slaked lime as long as the chlorine gas is absorbed.

LIQUOR CALCIS CHLORATÆ.—Chlorinated lime, lbj. ; dist. water cong., j. Mix well, and shake occasionally during three hours. Strain through a calico filter. Specific gravity, 1.035.

VAPOR CHLORI.—Inhalation of chlorine. Chlorinated lime, ʒij. ; water, a sufficiency. Put the powder into a suitable apparatus, moisten it with the water (cold), and let the vapour that arises be inhaled.

Actions and Uses.—Irritant, astringent, stimulant, antiseptic. As an astringent it is used externally, in the form of solution, gr. x. to xv. to the ounce, in skin diseases, such as ringworm, lepra, psoriasis, and scabies, and with decided benefit in the last. As an antiseptic it possesses in a high degree the power of annihilating fetid effluvia, and arresting animal decay, a property depending on its power of decomposing the noxious gases generated and evolved during the process of decomposition. It is thus of great service in gangrenous and foul ulcers, in the fetid breath of mercurial salivation, venereal ulceration of the throat and mouth; as an injection in the fetor of malignant disease of the uterus, and that from the bowel in dysentery. In the ulcerations referred to, it seems not only to correct their repulsive odour, but by its astringent action disposes

them to heal. In the sick-room it is much employed as a disinfectant. It owes its property as a deodorizer and disinfectant to the formation of hypochlorous acid, which is a powerful oxidising agent, and also chlorine, which acts powerfully on the hydrogen compounds, such as ammonia and sulphuretted hydrogen. It is to the hydrogen compounds that most of the offensive smells are due.

The VAPOR CHLORI is useful in chronic bronchitis and phthisis, and the LIQUOR CALIS CHLORATÆ is an excellent lotion to foul and gangrenous ulcers, and a useful injection into the vagina and uterus in malignant disease of that organ.

Liquor Sodæ Chloratæ. Solution of Chlorinated Soda.

A mixed solution of hypochlorite of soda, chloride of sodium, and bicarbonate of soda.

Characters and Tests.—A colourless liquid, with a sharp, astringent taste, and feeble odour of chlorine. Decolorizes sulphate of indigo. Specific gravity, 1.103; distinguished from the solution of chlorinated lime by not being precipitated by oxalate of ammonia.

Dose.—10 to 20 minims in syrup.

CATAPLASMA SODÆ CHLORATÆ.—Solution of chlor. soda, f̄ij. ; linseed meal, ʒiv. ; boiling water, f̄vii. A useful poultice to foul and gangrenous sores.

Actions and Uses.—Stimulant and antiseptic, and used for the same purposes as the liquor calcis chloratæ, such as in fevers, dysentery, gangrenous sores, burns, chronic cutaneous diseases, and to correct fetid discharges in general. It is perhaps preferable to the liq. calcis chlor. as a disinfectant, as chloride of sodium which remains is not deliquescent.

MINERAL ACIDS.

Acidum Sulphuricum. Sulphuric Acid. H_2SO_4 .

Contains 96·8 per cent. by weight of the sulphuric acid H_2SO_4 , and is obtained by the combustion of sulphur and oxidation of the sulphurous acid by means of nitrous vapours.

Characters and Tests.—A colourless fluid, without odour, of oily appearance, intensely acid and corrosive, evolving much heat on the addition of water. Specific gravity, 1·843. It stains the skin brown. It gives a precipitate with the chloride of barium, which is insoluble in nitric acid. Evaporated in a platinum dish, it leaves little or no residue, indicating absence of sulphates. When a solution of sulphate of iron is carefully poured over its surface, there is no purple colour developed where the two liquids unite, indicating absence of nitric acid. Diluted with six times its volume of distilled water, it gives no precipitate with sulphuretted hydrogen, indicating absence of arsenic.

ACIDUM SULPHURICUM DILUTUM.—Take of sulphuric acid, 7 fluid ounces; distilled water, a sufficiency. Dilute the acid with 77 fluid ounces of the water, and when the mixture has cooled to 60° , add more water, so that it shall measure $83\frac{1}{2}$ fluid ounces. Specific gravity, 1·094.

Dose.—5 to 30 minims, well diluted in water and syrup.

ACIDUM SULPHURICUM AROMATICUM.—Take of sulphuric acid, $f\bar{3}ij$.; rectified spt., Oij .; cinnamon, in

coarse powder, ʒij. ; ginger, in coarse powder, ʒi¼. Mix the acid gradually with the spirit, then add the cinnamon and the ginger, and digest for seven days, agitating frequently ; filter. Specific gravity, 0·927.

Dose.—5 to 30 minims.

Actions and Uses.—A powerful corrosive, rapidly destroying animal tissue. It has a great affinity for water, and rapidly abstracts water from the tissues, and ultimately chars them. It stains the cuticle brown. It is not much used in practice as a counter-irritant. It has been used as a caustic to the conjunctiva for curing ectropium or eversion of the lid, and to the skin of the eyelid for entropium or inversion. In France, a caustic paste for malignant and cancerous ulcerations is made by mixing two parts of acid with one of saffron. Internally, tonic, refrigerant, astringent, and diuretic. Useful as a tonic and refrigerant in continued fevers ; as an astringent in hæmoptysis, epistaxis, and bleedings from the uterus, stomach, and intestines, and in diarrhœa. Excellent in the nocturnal sweating of phthisis, or the perspirations of hectic. It is by no means a trustworthy diuretic ; yet, singularly, it will succeed in some few cases where more powerful diuretics fail. It is an excellent medicine for quenching thirst. A useful formula for this purpose is—Acid. Sulph. Aromat., fʒss. ; Syrupi, fʒij. ; infus. Rosæ Acid., fʒiijss. ; mix. Sig. a dessert spoonful in water when required. It is best given in syrup and well diluted, and care should be taken to avoid its local action on the teeth.

Antidotes.—Chalk, magnesia, and the alkaline carbonates.

Acidum Nitricum. Nitric Acid. HNO_3 .

Characters and Tests.—A strongly acid and corrosive liquid. Specific gravity, 1.42. Prepared from nitrate of potash, or nitrate of soda, by distillation with sulphuric acid and water, and containing seventy per cent. by weight of the nitric acid, HNO_3 , corresponding to sixty per cent. of anhydrous nitric acid, N_2O_5 . When exposed to the air, it emits an acrid corrosive vapour. If it be poured over copper filings, dense red vapours are immediately formed. It boils at 250° . It stains the skin yellow, which yellow is increased by ammonia.

It leaves no residue when evaporated to dryness.

Acidum Nitricum Dilutum.

Preparation.—Nitric acid, 6 fluid ounces; distilled water, a sufficiency. Dilute the acid with 24 fluid ounces of the water, then add more water, so that, at a temperature of 60° , it shall measure 31 fluid ounces.

Characters and Tests.—Colourless. Specific gravity, 1.101.

Dose.—10 to 30 minims.

Actions and Uses.—A powerful corrosive and irritant, killing quickly from pain and exhaustion resulting from organic injury of the alimentary canal. As a caustic used as an application to poisoned wounds, parts bitten by rabid animals, venereal and phagedenic ulcers, and certain forms of hæmorrhoids. It is an excellent caustic in cancrum oris and phagedenic ulcers. For this purpose it is best applied by means of a glass rod.

Internally, tonic, but of no great power. Given in chronic hepatitis, oxalate and phosphatic gravel, and by some as an anti-syphilitic. It seems to have done

good in secondary syphilis allied to a strumous habit, as when absorbed into the blood, it is converted into a nitrate. It has proved very beneficial in phosphatic and oxalic conditions of the urine.

Antidotes.—Diluted alkalies and their carbonates. Chalk and magnesia.

Acidum Hydrochloricum. Hydrochloric Acid.

Synonym.—Acidum muriaticum purum, Ed., Dub. Hydrochloric-acid gas, HCl, dissolved in water, and forming 31·8 per cent. by weight of the solution. It is obtained by distilling a mixture of sulphuric acid and common salt.

Characters and Tests.—A colourless and strongly acid liquid, emitting at ordinary temperatures white vapours, having a pungent odour. Gives with nitrate of silver a curdy white precipitate, soluble in excess of ammonia, but not in nitric acid. Specific gravity, 1·16. On evaporation it leaves no residue.

ACIDUM HYDROCHLORICUM DILUTUM.—Take of hydrochloric acid, 8 fluid ounces; distilled water, a sufficiency. Dilute the acid with 16 ounces of the water, then add more water, so that at a temperature of 60° it shall measure 26½ fluid ounces. Specific gravity, 1·052.

Dose.—10 to 30 minims.

Antidotes.—Chalk, magnesia, and demulcent drinks.

Actions and Uses.—A very powerful corrosive and irritant poison, dissolving the living animal textures with which it comes into contact. Used as a caustic in phagedenic ulcers, to arrest the extension of mortification in cancrum oris, and as an external application in hospital gangrene. It has been used also to destroy

the plastic exudation of diphtheria, and, in the form of gargle, in the sore throat of scarlatina.

Internally, tonic. Given in diphtheria, malignant scarlatina, continued fevers. Also in debility of the digestive organs, attended with a deposit of phosphates from the urine. A useful addition to gargles.

ACIDUM NITRO-HYDROCHLORICUM DILUTUM.—Take of nitric acid, ℥iij. ; hydrochloric acid, ℥iv. ; dist. water, ℥xxv. Mix the acids, and allow them to remain for twenty-four hours in a bottle, the mouth of which is partially closed, then add the water in successive portions, shaking the bottle after each addition, and preserve the mixture in a stoppered bottle.

Characters and Tests.—Colourless. Specific gravity, 1.074.

Dose.—5 to 20 minims.

Actions and Uses.—Tonic, alterative, and cholagogue. Professor Rutherford found that it acted with considerable power as a cholagogue. It has been found very useful in chronic hepatitis and other affections of the liver. It is also good in chronic diarrhoea, and secondary syphilis. A foot-bath of the strength of 4½ ounces of the strong acid, to 3 gallons of water, in a wooden vessel, is said to have a very palliative influence during the passage of biliary calculi through the duct. Good is frequently obtained in such cases by applying over the region of the liver flannel cloths wrung out of such a bath. Like the other mineral acids, it is given in fevers, in phosphatic and oxalic gravel.

Acidum Phosphoricum Dilutum.

Dilute Phosphoric Acid. Phosphoric acid, H_3PO_4 ,

dissolved in water, and corresponding to 10 per cent. by weight of anhydrous phosphoric acid, P_2O_5 .

Characters and Tests.—A colourless liquid, with a sour taste, and strong acid reaction. With ammonio-nitrate of silver it gives a canary-yellow precipitate, soluble in ammonia and nitric acid. Specific gravity, 1.08. Evaporated, it leaves a residue which melts at a low red heat, and upon cooling, exhibits a glassy appearance.

Dose.—10 to 30 minims.

Free phosphoric acid is contained in the *syrupus ferri phosphatis*. It is also used to form phosphates.

Actions and Uses.—A somewhat feeble tonic, given chiefly where there is a deposit of phosphates from the urine. Said to be a stimulant of the generative system, but experience does not give it a high standing as an aphrodisiac. As a drink, diluted, in diabetes it allays the thirst, and otherwise benefits the patient. It has been given as a nervine tonic in debility of the nervous system. It does little good in exostosis and other osseous tumours.

Acidum Sulphurosum. Sulphurous Acid. H_2SO_3 .

Sulphurous-acid gas, SO_2 , dissolved in water, and constituting 9.2 per cent by weight of the solution. It is prepared by deoxidising sulphuric acid by means of charcoal, and distilling SO_2 .

Characters and Tests.—A colourless liquid, with a strong, suffocating, sulphurous odour. Specific gravity, 1.04. It gives no precipitate with chloride of barium, or but a slight one, but a copious one if a solution of chlorine be also added. When long kept, it changes into H_2SO_4 .

Dose.—fʒss. to fʒj., largely diluted.

Actions and Uses.—Antiseptic, disinfectant; a powerful deoxidiser, and destroyer of vegetable life. It was at one time used chiefly as a lotion (ʒj. to ʒviij. of aq.) in tinea, but is now recommended for many diseases. It seems to do good in inflamed fauces and affections of the mucous membrane, especially the respiratory tract, in which cases it is used in the form of spray, or inhalation; also in the form of gargle, 1 to 6 or so of water. The spray is specially useful in diphtheria. Mixed with an equal part of glycerine, it is employed in various skin diseases, such as lupus, lichen, etc., with benefit; and also where fungi exist.

It is the best of all remedies for those skin diseases depending on a vegetable fungus. Externally, as a lotion, combined with glycerine and water, it forms an excellent application to wounds and ulcers. It is the best of all remedies for *sarcinae ventriculi*. It is good in chronic vomiting. In that kind of dyspepsia due to fermentation set up by indigested food, sulphurous acid is of great benefit. It checks fermentation and prevents flatulence.

A convenient form in which to give sulphurous acid internally is the sulphite of soda or hyposulphite of soda. The former is not officinal, and the latter only for the purposes of testing; nevertheless, they are very valuable medicines internally for those diseases for which sulphurous acid is used, inasmuch as they are converted in the stomach into sulphurous acid and a salt of soda. The dose of either substance is 20 to 60 grains. They are good for *sarcinae* and *torulae* of the stomach. They are quickly absorbed into the blood, and are very efficacious in all cases where the blood is poisoned by the absorption of putrid matters.

VEGETABLE ACIDS.

ACETIC ACID.

There are four officinal preparations of acetic acid.

I. *Acetum*. Vinegar.

Acetum Britannicum, Lon. P. An acid liquid prepared from malt and unmalted grain by the acetous fermentation.

Characters and Tests.—A liquid of a brown colour and acetous odour. Specific gravity, 1·017 to 1·019.

Dose.—1 to 2 fluid drachms.

Actions and Uses.—Refrigerant, used externally in fevers, but in no way superior to cold water. Internally, diluted with water, as a drink in the colliquative sweatings of hectic, but inferior to dilute sulphuric acid. Employed also as an astringent in gargles. In poisoning with the alkalies, or alkaline carbonates, it is one of the best antidotes. As a fumigator in sick-rooms, it is of no great service.

II. *Acidum Aceticum*. Acetic Acid.

An acid liquid prepared from wood by destructive distillation, and containing 28 per cent. of anhydrous acetic acid, $C_4H_6O_3$.

Characters.—A colourless liquid, with a strong acid reaction, and odour of vinegar. Specific gravity, 1·044.

III. Acidum Aceticum Dilutum.

Take of acetic acid, Oj. ; dist. water, Oviij. Mix. Specific gravity, 1.006. One fluid ounce corresponds to 16 grains of anhydrous acid.

Dose.—1 to 2 fluid drachms.

Actions and Uses.—The strong acid is useful for destroying warts, corns, and allied growths. Lately it has been recommended to inject acetic acid into carcinomatous tumours, and with apparently good results. Diluted, it forms an excellent gargle for ulcers of the mouth and throat. It is good to arouse from fainting. It is a tonic and refrigerant internally, but is inferior to the mineral acids. It is a good solvent for the active principles of many vegetable substances. It is a good antidote for poisoning with the alkalies and alkaline carbonates.

IV. Acidum Aceticum Glaciale. Glacial Acetic Acid.

Concentrated acetic acid, corresponding to at least 84 per cent. of anhydrous acid, $C_4H_6O_3$.

Characters and Tests.—A colourless fluid, with a pungent acetous odour, converted when cooled to nearly 32° into colourless prismatic crystals. Specific gravity, 1.065, which is increased by adding to the acid 10 per cent. of water.

Actions and Uses.—Glacial acetic acid is a speedy and powerful vesicant, but seldom used as a counter-irritant. It is one of the best caustics for destroying corns and warts.

Acidum Hydrocyanicum Dilutum. Dilute Hydrocyanic Acid.

Hydrocyanic acid, HCN, dissolved in water, and constituting 2 per cent. by weight of the solution. It is

prepared by acting on the yellow prussiate of potash with sulphuric acid, and then distilling hydrocyanic acid.

This acid contains rather more than half as much anhydrous acid as acidum hydrocyanicum, Ed. It corresponds in strength with the officinal preparations of the London and Dublin Pharmacopæias.

Characters and Tests.—A colourless fluid with a peculiar odour, only slightly and transiently reddening litmus. Treated with a minute quantity of a mixed solution of sulphate and persulphate of iron, and afterwards with potash, and finally acidulated with hydrochloric acid, it forms Prussian blue. Specific gravity, 0.997. It gives, with nitrate of silver, a white precipitate, entirely soluble in boiling concentrated nitric acid.

Dose.—2 to 8 minims.

VAPOUR ACIDI HYDROCYANICI.—Dilute hydrocyanic acid, min. x. to xv. ; cold water, fʒj. Mix in a suitable apparatus, and inhale the vapour that arises.

Actions and Uses.—One of the strongest poisons we possess, death having been caused by a mixture containing less than a grain of the anhydrous acid. In general, it has killed rapidly, death being preceded by spasmodic breathing, convulsions, and insensibility. If seen in time, the victim should be subjected to cold affusion, water being showered on the head and chest in steady streams, and ammonia inhaled at the same time. A mixture of a proto and a persalt of iron, with an alkaline carbonate, is also an antidote. In medicinal doses it is sedative, calmative, anodyne, and antispasmodic. It abates the force of the circulation, diminishes the sensibility of the nervous system, alleviates pain, and lessens spasm. Employed as a palliative in the cough

of catarrh, pneumonia, pertussis, spasmodic asthma, phthisis, cynanche laryngea, and in the spasmodic cough of nervous and hysterical females. Benefit has accrued from it in the excited action of the heart in pericarditis ; and it seldom fails to relieve the painful spasm of the stomach in gastrodynia, enterodynia, and some cases of pyrosis. Externally, it has been employed in the form of lotion for allaying the itching and irritation of some skin diseases, such as prurigo and lichen.

Care must be taken to see that the skin is unbroken, otherwise there is danger of the poison being absorbed and causing symptoms of poisoning. Though not a cumulative poison, it should be well watched until the proper dose for the particular patient is ascertained. Those taking it complain at times of irritation about the fauces, and a feeling of enlargement of the tongue, with nausea. Given in syrup, and in the form of draughts.

Acidum Citricum. Citric Acid.

A crystalline acid, $H_3C_6H_5O_7H_2O$, obtained from lemon juice, or from the juice of the fruit of *Citrus Limetta*, *Risso*, the Lime.

Characters and Tests.—In colourless right-rhombic prisms, with a strong acid taste ; soluble in water, less soluble in rectified spirit, and insoluble in ether. It gives no precipitate when added in excess to a solution of acetate of potash, thus distinguishing it from tartaric acid.

Dose.—10 to 30 grains.

Actions and Uses.—Refrigerant, but not much employed. Does not possess the antiscorbutic virtues of the lemon juice. May be used for effervescing drinks,

but tartaric acid, which is cheaper, is generally employed. For artificial lemon juice, dissolve ten drachms in a pint of water.

Acidum Tartaricum. Tartaric Acid.

A crystalline acid, $H_2C_4H_4O_6$, obtained from the acid tartrate of potash.

Characters and Tests.—In colourless oblique-rhombic prisms, strong acid taste, readily soluble in water and in rectified spirit. A solution of acetate of potash gives a white crystalline precipitate, thus distinguishing it from citric acid.

Dose.—10 to 30 grains.

Actions and Uses.—Refrigerant; used chiefly for making effervescing powders. For effervescing draughts the bicarbonate of soda is given a little in excess of the acid; and for Seidlitz powders, from 30 grains to ʒij. of soda tartarata, with a little sugar and essence of lemon, are added.

M E T A L S.

ZINC. $Zn = 65.$

Zincum.

Zinc of commerce.

Zincum Granulatum. Granulated Zinc.

Prepared by fusing zinc, and pouring it into cold water.



Used to prepare liq. zinci chloridi, zinci chloridum, and zinci sulphas.

Zinci Sulphas. Sulphate of Zinc. $\text{ZnSO}_4 \cdot 7\text{H}_2\text{O}$.

Characters and Tests.—Transparent colourless crystals of the right rhombic form, inodorous, with a strong styptic metallic taste; freely soluble in water. Its solution in water gives white precipitates with chloride of barium and sulphide of ammonium. Gives no precipitate, when acidulated with acids, with sulphuretted hydrogen.

Dose.—1 to 3 grains as a tonic, 10 to 30 grains as an emetic.

Actions and Uses.—Irritant, emetic, astringent, tonic. In large doses it is an irritant poison, but it is usually discharged by vomiting; or, if not, warm demulcent drinks should be given, and inflammatory symptoms met in the usual way, if they arise. As an emetic, it is one of our best, operating immediately and effectually, and thus, as well as from its not depressing the circulation, being useful in narcotic poisoning. As a tonic some use it in those disorders for which the oxide is given, but it has not proved so successful. As an astringent internally, it is used in chronic diarrhœa and dysentery, in bronchitis with excessive secretion, in leucorrhœa and gleet, and in all these with occasional benefit. Externally, it is much employed in the form of injection in gonorrhœa, gleet, and leucorrhœa, as a lotion in old and weak ulcers, and as a collyrium in ophthalmia. As an astringent and tonic, best given in pill, with ext. gentian.; as an emetic, in f̄iv. of tepid water.

RED LOTION is a solution of this salt, of the strength

of gr. ij. to iv. to f̄j. of water, and coloured with tinct. lavand. co. It is useful as a stimulant to weak, an astringent to flabby, and a corrective to foul ulcers. It is not officinal.

A CAUSTIC PASTE for reducing growths is made by drying the sulphate of zinc, and mixing it with $\frac{1}{8}$ th part, or so, of glycerine; and a more powerful one still, by adding sulphuric acid (the super-sulphate of zinc).

Zinci Acetas. Acetate of Zinc. $\text{Zn}(\text{C}_2\text{H}_3\text{O}_2) 2 \text{H}_2 \text{O}$.

Characters and Tests.—Thin, white, translucent crystalline plates, of a pearly lustre, and with a sharp styptic taste. Evolves acetic acid when H_2SO_4 is added. Soluble in water, and the solution gives a white precipitate with sulphide of ammonium.

Dose.—1 to 2 grains as a tonic; 10 to 20 grains as an emetic.

Actions and Uses.—It much resembles the sulphate in its actions and uses. It is an excellent astringent for external use. Employed in chronic mucous discharges, as gleet and leucorrhœa; and in skin diseases, such as lupus, eczema, and impetigo, when they are attended with much discharge. It is also used with benefit in ophthalmia. Internally it is not much employed. For a lotion, 2 to 10 grains in an ounce of water.

Zinci Oxidum. Oxide of Zinc. ZnO .

Characters and Tests.—A soft white powder, inodorous and tasteless, becoming yellowish-white when heated. Insoluble in water, soluble in most acids *without effervescence*, thus distinguishing it from the

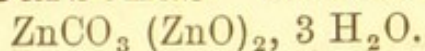
carbonate of zinc. It forms a solution which is precipitated white by sulphide of ammonium.

Dose.—2 to 10 grains. It is best given in pill, after food.

UNGUENTUM ZINCI.—Oxide of zinc, gr. lxxx.; benzoated lard, ʒj. Mix. An excellent healing ointment for simple sores.

Actions and Uses.—Tonic and astringent. As a tonic it is employed in convulsive and spasmodic diseases, such as chorea and epilepsy, and in the latter disease it is often of service when given for a lengthened period. It is an excellent remedy for nocturnal sweating of phthisis and other diseases, and for diarrhoea. In spasmodic cough it is not much to be depended on, but in chronic catarrh it helps to diminish excessive expectoration. Some give it in scaly skin diseases, but it is inferior to arsenic in these. Externally it is pretty widely used for healing chaps, excoriations, superficial ulcers, and in herpetic eruptions. The ointment is an excellent application to eczematous eruptions.

Zinci Carbonas. Carbonate of Zinc.



Characters and Tests.—A whitish, heavy, tasteless, inodorous powder, insoluble in water. Entirely soluble with effervescence in dilute nitric acid. This solution gives a white precipitate with carbonate of ammonia, soluble in excess. It gives a white precipitate with the sulphide of ammonium.

Actions and Uses.—Astringent. Used externally for drying the skin in excoriations, and in the profuse discharges of chronic cutaneous diseases. An ointment,

called "Turner's Cerate," is made with this, wax, lard, etc. It is popularly used for all kinds of sores of limited extent.

Zinci Chloridum. Chloride of Zinc. $ZnCl_2$.

Characters and Tests.—In colourless opaque rods, inodorous, very deliquescent and caustic, with a powerfully styptic taste; soluble in water, alcohol, and ether. Its watery solution gives white precipitates with sulphide of ammonium and nitrate of silver. Ammonia gives a white precipitate soluble in excess.

LIQUOR ZINCI CHLORIDI.—See *Brit. Phar.* Contains 366 grains of zinci chloridum in 1 fluid ounce. The liquor should always be prescribed, except when required in the solid form.

Actions and Uses.—A powerful caustic, involving the vitality of the organised textures, and occasioning severe burning pain, which lasts for several hours. It is used to destroy fungous tumours, *nævi materni*, fibrous growths, and as an application to malignant ulcers, fungus *hæmatodes*, etc. Of some benefit in open cancer, by promoting a new action in the neighbourhood. It is used also for making issues. It is also a good disinfectant. In poisoning with this powerful caustic, give emetics and warm demulcent drinks.

The chloride of zinc forms the active ingredient of Sir W. Burnett's disinfecting fluid.

CHLORIDE OF ZINC PASTE, not officinal, for the gradual destruction of growths, etc., is made by mixing one part of the caustic with two of flour. The paste is applied in a layer, one to two lines thick, and left on from six to ten hours, the contiguous parts being well protected.

COPPER. Cu=63·5.

Cuprum.

Fine copper wire, about No. 25.

Used in the preparation of spt. ether. nit.

Cupri Sulphas. Sulphate of Copper. $\text{CuSO}_4 \cdot 5\text{H}_2\text{O}$.
“Blue Vitriol.”

Characters and Tests.—In oblique prismatic crystals, of a clear blue colour, soluble in water, and reddening litmus. Its solution gives, with chloride of barium, a white precipitate insoluble in hydrochloric acid, and a maroon-red precipitate with ferrocyanide of potassium. It gives a deep blue with ammonia.

Dose.—As an astringent $\frac{1}{4}$ grain to 2 grains; as an emetic, 5 to 10 grains.

Actions and Uses.—Irritant, astringent, tonic, emetic. It is a strong poison, occasioning inflammation of the parts with which it comes into contact, but influencing also, remotely, the brain and nervous system, inducing death with coma and convulsions. In doses of gr. vj. to x. in several ounces of water, it is a reliable and speedy emetic, and thus adapted for narcotic poisoning; but because, if retained in the stomach, it is more of an irritant than the sulphate of zinc, it has almost been abandoned for the latter. As an astringent it is of great service in chronic diarrhœa and dysentery, succeeding occasionally when vegetable astringents fail. As a tonic it by no means holds a high place, little benefit being obtained by it in chorea and epilepsy, the two diseases for which it has been recommended. Externally, solid, or in the form of solution, it is an excellent stimulating astringent in

indolent and ill-conditioned ulcers, altering their action, improving their appearance, and disposing them to heal. It is also serviceable in ophthalmia, and as an injection in gonorrhœa. In the solid form it reduces redundant granulations, destroys venereal warts, and improves the condition of chancres at an early stage.

For internal use it is best given in the form of pill.

Incompatibles.—The alkalies and their carb.; lime water; acetate of lead; nitrate of silver; iodide of potassium; corrosive sublimate; the salts of iron, except the sulphate; most astringent vegetables. In poisoning give albumen, and in its absence sugar and wheaten flour.

BISMUTH. Bi=210.

Bismuthum.

A crystalline metal. As met with in commerce, generally impure.

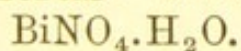
Used for preparing the next preparation.

Bismuthum Purificatum. Purified Bismuth.

A crystalline metal of greyish-white colour, with a distinct roseate tinge. Specific gravity, 9.83.

Used only for the preparations of bismuth.

Bismuthi Subnitras. Subnitrate of Bismuth.



Synonym.—Bismuthum album.

Characters and Tests.—A heavy white powder, in minute crystalline scales, blackened by sulphuretted hydrogen, insoluble in water, but soluble in nitric acid

diluted with half its volume of water, forming a solution which, poured into water, gives a white precipitate.

Dose.—5 to 20 grains.

Trochisci Bismuthi. Bismuth Lozenges.

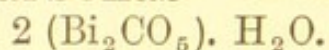
Each lozenge contains 2 grains of subnitrate of bismuth, besides carbonate of magnesia, carbonate of lime, sugar, acacia and rose water.

Dose.—1 to 6 lozenges.

Actions and Uses.—Tonic, and possessing a sedative effect on the nerves of the stomach. It is given, and often with considerable benefit, in dyspepsia, with irritability of the stomach, pain after meals, vomiting, and pyrosis. It does less good in atonic dyspepsia, with deficient gastric secretion, seemingly not having so much of a tonic as of a soothing virtue. It does service in the diarrhœa of nervous females. Two drachms have produced the symptoms of inflammation of the alimentary canal; but as some specimens have contained arsenic, this potent poison must have been the cause.

In the vomiting and diarrhœa of children it is an excellent remedy. In the vomiting of drunkards, especially combined with the bicarbonate of potash and morphia, it is of great service.

Bismuthi Carbonas. Carbonate of Bismuth.



Characters and Tests.—A white powder, blackened by sulphuretted hydrogen; insoluble in water, but soluble with effervescence in nitric acid.

Dose.—5 to 20 grains.

Actions and Uses.—Similar to those of the subnitrate. Useful in cases of acid dyspepsia.

Bismuthi Oxidum. Oxide of Bismuth. Bi_2O_3 .

Characters and Tests.—A dull, lemon-yellow powder. Heated to redness, it is not diminished in weight; insoluble in water, but soluble in nitric acid.

Dose.—5 to 15 grains.

Actions and Uses.—Similar to those of the subnitrate. An excellent preparation.

Liquor Bismuthi et Ammoniae Citratis. Solution of Citrate of Bismuth and Ammonia.

Preparation.—See *Brit. Phar.*

Characters and Tests.—A colourless solution, with a saline and slightly metallic taste. Specific gravity, 1.122. Heated with potash, it evolves ammonia. It gives a black with sulphuretted hydrogen. One fluid drachm contains 3 grains of the oxide of bismuth.

Dose.— $\frac{1}{2}$ to 1 fluid drachm.

Actions and Uses.—Same as preceding ones, and will be found more convenient than the subnitrate, which is insoluble in water. Ammonia, potash, soda, and their carbonates are incompatibles. Combined with a solution of morphia, it is an excellent preparation in many painful and irritable conditions of the stomach.

SILVER. Ag=108.

Argentum Purificatum. Refined Silver.

Used only in preparing the nitrate.

Argenti Nitras. Nitrate of Silver. AgNO_3 .

Characters and Tests.—In colourless tabular right rhombic prisms, or in white cylindrical rods; soluble in distilled water, and in rectified spirit. Its solution with hydrochloric acid gives a white curdy precipitate, soluble in ammonia.

Dose.— $\frac{1}{6}$ to $\frac{1}{3}$ grain.

Actions and Uses.—Caustic and tonic. It is a corrosive poison, but its action is prevented considerably by the chloride of sodium, and mucus of the stomach, which decompose it. The antidote is chloride of sodium. It is an excellent caustic, its corrosive action being mild, yet effectual, and not attended with protracted pain. Used for corroding warts, corns, and other small growths, and for keeping down on sores their redundant granulations. It has a stimulant and alterative action; hence it is found to improve or render more healthy various constitutional ulcers, such as chancre, venereal ulceration of the throat, and strumous or syphilitic ulcers of the cornea. Applied either in solution or the solid form to these, they more quickly assume a healing bias. Indolent ulcers also put on a more healthy aspect after being treated with it. A strong solution, or the solid rod, painted over the involved part, and a little beyond, has at times arrested external spreading inflammation, such as erysipelas and erythema, and at other times failed. In relaxed sore

throat, with enlarged tonsils and uvula, in purulent and gonorrhœal ophthalmia, a rather strong solution—gr. v. to x. to the ounce—is of signal service; and a weaker solution, gr. ij. to v. to the ounce, is equally beneficial in acute conjunctivitis. Skin diseases, such as ring-worm, eczema, impetigo, are sometimes benefited by it; and good results flow from its use, in the form of injection, in purulent discharges from the urethra and vagina. Its utility is doubtful in stricture of the œsophagus, and that of the urethra. Good has been done in croup (early stages), and inflammation of the mucous membrane of the larynx, by a solution applied with a piece of sponge on a curved flexible rod. The practice of injecting it into the bronchial tubes, as has been done in chronic bronchitis, is sometimes beneficial. As a tonic, nitrate of silver cannot be placed high. In gastrodynia it sometimes does a little good, in phthisis less, and in hysteria not more. In gastric ulcer, and ulceration of the ileum in typhoid fever, it is often of considerable service. In the convulsive disorders, epilepsy and chorea, it seems to act specifically, and with frequent benefit; but there is now a decided reluctance to its use, owing to the fact that, ere success can be achieved, an unfading bluish-grey tint is imparted to the patient's skin, rendering him, as he walks abroad, an ugly spectacle, and the cynosure of many eager eyes. The period required to produce this colouration is sometimes variable; but a few months have sufficed. There is no known method of prevention or cure as yet, the iodide of potassium, even in large doses, having failed. Some recommend a protracted course of potass. bitart.; but we doubt whether it is of much service. For internal use it is best given in pill. In

solution it should always be prescribed in distilled water, as it is decomposed by ordinary water.

Incompatibles.—Ordinary water; lime water; alkalies and their carb.; most acids, including hydrocyanic; iodide of potassium; astringent infusions.

Argenti Oxidum. Oxide of Silver. Ag_2O .

Characters and Tests.—An olive-brown powder, which at a low red-heat gives off oxygen, and is reduced to the metallic state. It dissolves in nitric acid without the solution of any gas, forming a solution of nitrate of silver.

Dose.— $\frac{1}{2}$ grain to 2 grains in pill.

Actions and Uses.—Tonic, and may be given in the same diseases as the nitrate, but it is more inert. Of considerable service in hæmorrhage from the bowels.

ARSENIC. $\text{As}=75$.

Acidum Arseniosum. Arsenious Acid. As_2O_3 .

Synonym.—Arsenicum album, Ed.

Characters and Tests.—A heavy white powder, which, when slowly sublimed in a glass tube, forms minute, brilliant, and transparent octahedral crystals. It is sparingly soluble in water, and its solution gives, with ammonio-nitrate of silver, a canary-yellow precipitate, insoluble in water, but readily dissolved by ammonia and nitric acid; with sulphuretted hydrogen in acid solutions, a yellow precipitate; and with the ammonio-sulphate of copper, a green precipitate.

Dose.— $\frac{1}{60}$ to $\frac{1}{12}$ of a grain in solution or pill.

LIQUOR ARSENICALIS (Fowler's Solution).—Take of

arsenious acid, gr. lxxx.; carbonate of potash, gr. lxxx.; comp. tinct. lavender, f̄v.; distilled water, a sufficiency. Place the As_2O_3 , and the K_2CO_3 in a flask with f̄x. of the water, and apply heat until a clear solution is obtained. Allow this to cool, then add the lavender and as much distilled water as will make the bulk one pint.

Characters and Tests.—A reddish liquid, alkaline to test paper, and having the odour of lavender. Specific gravity, 1.009. Each fluid ounce contains 4 grains of arsenious acid. In five minims there is $\frac{1}{24}$ grain of arsenious acid. The tests are the same as for arsenious acid in solution.

Dose.—2 to 8 minims.

Liquor Arsenici Hydrochloricus. Hydrochloric Solution of Arsenic.

Take of arsenious acid, in powder, gr. lxxx.; hydrochloric acid, f̄ij.; distilled water, a sufficiency. Boil the arsenious acid with the hydrochloric acid, and 4 ounces of the water, until it is dissolved, then add distilled water to make the bulk up to one pint. This is of the same strength as the Liq. arsenicalis. This is a colourless, acid liquid. Nitrate of silver gives a white curdy precipitate. Other tests same as for Liq. arsenicalis.

Dose.—2 to 8 minims.

Actions and Uses.—Caustic, irritant, tonic, alterative, anti-periodic. As a caustic it was formerly employed in cancerous and malignant ulcerations, such as lupus, noli-me-tangere, cancer, fungus hoematodes; but it has now given place to other remedies free from the risk of poisoning by absorption. As an irritant it is a very

potent poison, three or four grains having occasioned death. Its most conspicuous effects are inflammation of the alimentary mucous membrane; at other times the most marked symptom is intense depression of the circulation, death taking place from mortal faintness; or, as Orfila observes, "the vital properties of the heart being destroyed." Secondary affections, such as epileptic convulsions, partial palsy, dyspepsia, and emaciation are also witnessed. In poisoning, the stomach-pump should be used, or, failing it, an emetic of sulphate of zinc, vomiting being aided by demulcent drinks. The hydrated sesquioxide of iron, and magnesia in the gelatinous condition, or calcined, are important antidotes.

Medicinal Actions.—In small doses it is a tonic, and perhaps in virtue of this, alterative, getting rid of various morbid conditions of the system, on which the atony depends. It is widely given as an antiperiodic, but in ague it is inferior to quinia. Arsenic is often of great service in chronic cutaneous diseases, such as lepra and psoriasis, its action being favoured by combination with iodide of potassium. Chronic rheumatism has sometimes been benefited by it. We need hardly say that so powerful a remedy must be carefully watched. The physiological effects are, increased pulse, tenderness of the eyes, puffiness of the eyelids, whiteness of the tongue, heat and dull pain along the alimentary canal. When these occur it is time to intermit its use. Given in the form of pill with bread-crumbs; but the liquor is the preferable way of prescribing it. It should always be given after food. It is excreted by the kidneys, the liver, and the intestines.

Sodæ Arsenias. Arseniate of Soda. $\text{Na}_2\text{HAsO}_4 \cdot 7\text{H}_2\text{O}$.

Characters and Tests.—In colourless hexahedral prisms, with an acrid taste; soluble in water. The solution is alkaline, giving white precipitates with chloride of barium, chloride of calcium, and sulphate of zinc, and a brick-red precipitate with nitrate of silver; all of which are soluble in nitric acid.

Dose.— $\frac{1}{16}$ to $\frac{1}{8}$ grain.

LIQUOR SODÆ ARSENIATIS.—Arseniate of soda rendered anhydrous by a heat not exceeding 300° , 4 grains; distilled water one fluid ounce; dissolve.

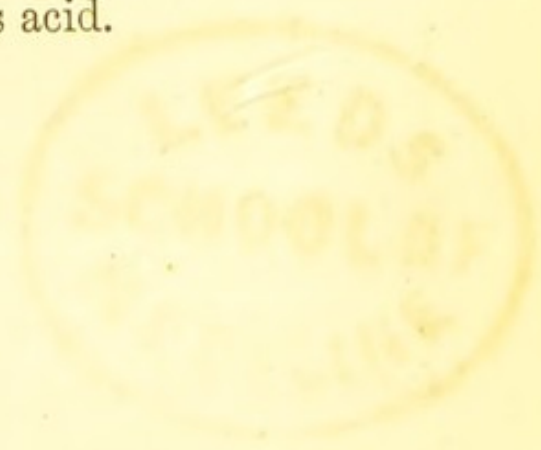
Dose.—5 to 10 minims.

Ferri Arsenias. Arseniate of Iron. $\text{Fe}_3\text{As}_2\text{O}_8$, partially oxidised.

Characters and Tests.—A tasteless amorphous powder, of a green colour, insoluble in water, but readily dissolved by hydrochloric acid. This solution gives a copious light-blue precipitate with the ferrocyanide of potassium, and a still more abundant one, of a deeper colour, with the ferricyanide of potassium. Other tests, those for arsenic in solution.

Dose.— $\frac{1}{16}$ th to $\frac{1}{2}$ grain.

Actions and Uses.—Tonic, and said to be useful in cutaneous diseases with anæmia. As an alterative, however, it is inferior to arsenious acid.



I R O N. Fe = 56.

Ferrum.

Wrought iron in the form of wire or nails, free from oxide.

Ferrum Redactum. Reduced Iron.

Metallic iron, with a variable amount of magnetic oxide of iron. Prepared by reducing the peroxide by means of a stream of dry hydrogen gas. See *Brit. Phar.*

Characters and Tests.—A fine greyish-black powder, strongly attracted by the magnet, and exhibiting metallic streaks when rubbed with firm pressure in a mortar. It dissolves in hydrochloric acid, with the evolution of hydrogen, and the solution gives a light-blue precipitate with the ferrocyanide of potassium.

Dose.—1 to 5 grains.

TROCHISCI FERRI REDACTI.—Reduced Iron Lozenges. Each lozenge contains 1 grain of reduced iron, besides sugar, gum acacia, and water.

Dose.—1 to 6 lozenges.

Actions and Uses.—Iron in a metallic state exerts but little influence on the animal body, but it becomes oxidated in the stomach, and then acts as a tonic. When its use is continued for some time (and it does require to be continued for a considerable time), the pulse becomes quicker and fuller, the digestion improved, the secretions augmented, and the blood, and consequently the complexion, more florid. In the pathological condition of anæmia, the blood is deficient in quantity and in the relative proportion of the red corpuscles, and that is the malady in which we look to iron for certain benefit. Whether the blood derives a direct

accession of iron or not, it is not so easy to say, but the red corpuscles are very much increased under its use. In enlargement of the liver and spleen, we also often derive benefit from it, and probably because these are connected with a morbid condition of the blood. In dyspepsia, with loss of tone or deficient secretion; in chlorosis, amenorrhœa, chronic dysentery, and neuralgia; in dropsical affections, valvular disease of the heart, and albuminuria, iron will often be found useful. But it should be borne in mind that it is in the anemic state, and allied disorders, that we expect to obtain the best results. When iron or its preparations are pushed too far, or given to very plethoric people, headache, giddiness, and weight about the limbs, are apt to be occasioned; and they do not agree well where there is irritability of the digestive organs. They are tolerated, in general, best just after a meal. As their employment has to be continued for a good while, it is well to change the preparations.

Ferri Oxidum Magneticum. Magnetic Oxide of Iron.

Magnetic oxide of iron, Fe_3O_4 , with about 9 per cent. of peroxide of iron, and 20 per cent. of water. Prepared by acting on the sulphate and persulphate of iron with a solution of soda.

Characters and Tests.—Brownish-black, tasteless, strongly magnetic. It dissolves without effervescence in hydrochloric acid, and the solution gives blue precipitates with both the yellow and red prussiates of potash.

Dose.—5 to 10 grains.

Actions and Uses.—These resemble the actions and uses of reduced iron. Once highly esteemed as a chalybeate tonic, under the name *æthiops martis*, but lost

ground, and fell into disuse, owing to its varying composition. There is no reason now for not reviving its use.

Ferri Carbonas Saccharata. Saccharated Carbonate of Iron.

Carbonate of iron, FeCO_3 , mixed with peroxide of iron and sugar, and forming at least 37 per cent. of the mixture. Prepared by acting on the sulphate of iron with the carbonate of ammonia, and finally mixing the carbonate of iron so formed with sugar.

Characters and Tests.—Small coherent lumps, of a grey-brown colour, with a sweet, very feeble chalybeate taste. It dissolves with effervescence in warm hydrochloric acid.

Dose.—5 to 20 grains.

PILULA FERRI CARBONATIS.—Saccharated carbonate of iron, \mathfrak{zj} .; confect. roses, $\mathfrak{z}\frac{1}{4}$. M. Divide into 5 gr. pills. A good tonic pill in anæmia.

Dose.—1 to 4 pills.

Actions and Uses.—A chalybeate tonic, much superior to the ferri oxidum hydratum (otherwise named the carbonate, or sesquioxide), the sugar, as discovered by a German chemist, preventing the absorption of oxygen by the protoxide, and maintaining it in this latter form. It is of considerable service in anæmia and neuralgia, and is very well suited as a tonic for delicate females and even children. It is often beneficial to combine this preparation with quinine.

Ferri Peroxidum Hydratum. Hydrated Peroxide of Iron.

Formerly called ferri oxid., ferri sesquioxid., ferrugo; red oxide. $\text{Fe}_2\text{O}_3.\text{H}_2\text{O}$.

Characters and Tests.—A reddish-brown powder, tasteless, odourless, and not magnetic. It dissolves in hydrochloric acid with the aid of heat, and the solution gives a copious precipitate with the yellow, but none with the red, prussiate of potash, showing it to be a *ferric* salt.

Dose.—5 to 30 grains.

Actions and Uses.—A chalybeate tonic, but not of much power. It was formerly a good deal employed in neuralgic affections, especially tic douloureux; for which, however, it often fails. As a palliative in cancerous diseases, it does little good. Its chief use is to form the next preparation.

EMPLASTRUM FERRI.—Hydrated peroxide of iron, ʒj. ; Burgundy pitch, ʒij. ; lead plaster, ʒviiij. Add the peroxide to the Burgundy pitch and lead plaster, previously melted together, and stir the mixture constantly till it stiffens on cooling.

Actions and Uses.—Affords mechanical support to a weak or relaxed part; and does good sometimes over the heart in nervous palpitation. It is also applied over the lumbar region in amenorrhœa.

Ferri Peroxidum Humidum. Moist Peroxide of Iron.

Hydrated peroxide of iron, Fe_2O_3 , H_2O , with about 86 per cent. of uncombined water.

Preparation.—Solut. persulph. iron, fʒiv. ; solution of soda, fʒxxxiiij. ; dist. water, a sufficiency. Add the persulphate to the dist. water, and gradually pour the dilute solution into the solution of soda, stirring well for a few minutes; collect the precipitate on a calico filter, and wash it with dist. water until the filtrate ceases to give a precipitate with chloride of barium.

Lastly, enclose the precipitate without drying it in a porcelain pot, whose lid is made tight by a luting of lard, or in a stoppered bottle. This preparation should be recently made.

Characters and Tests.—A soft, moist, pasty mass, of a reddish-brown colour; dissolves readily in dilute hydrochloric acid, without the aid of heat, forming a solution which gives a copious blue precipitate with the ferrocyanide of potassium. A little of it dried at 212° gives off moisture when further heated in a test tube.

Dose.— $\bar{3}$ ij. to $\bar{3}$ ss.

Actions and Uses.—Chalybeate, and being more soluble, may be more efficient than the anhydrous peroxide. Its chief use, however, is as an antidote for arsenic, and it is the best. It should be given fresh and moist, and in the proportion of 12 to 1 of the arsenic swallowed.

Ferri Phosphas. Phosphate of Iron.

Phosphate of Iron, $\text{Fe}_3\text{P}_2\text{O}_8$, partially oxidated.

Characters and Tests.—A slate-blue amorphous powder, insoluble in water, soluble in HCl. The solution yields precipitates with both red and yellow prussiates of potash.

Dose.—5 to 10 grains.

Actions and Uses.—Tonic, but not much employed. Given in simple amenorrhœa and chlorosis with occasional benefit. Recommended in rickets, but here has produced little good. Said to diminish voracious appetite. It is contained in the next preparation.

SYRUPUS FERRI PHOSPHATIS.—Syrup of the Phosphate of Iron. Prepared by the action of the sulphate

of iron on the phosphate and acetate of soda, and afterwards adding dilute phosphoric acid and sugar.

Characters and Tests.—A clear syrupy fluid with a chalybeate taste. It gets brown, and deposits when long kept. It contains one grain of the phosphate of iron in each fluid drachm.

Dose.—fʒj.

Actions and Uses.—Tonic, and said by some to be alterative, getting rid of cachetic conditions by enriching the blood, or in some other way. I have not obtained such good results from it as from other preparations of iron.

The two following preparations are not officinal :—

SYRUPUS FERRI PHOSPH. Co. (Parish's Syrup or Chemical Food).—In every fʒj. there are gr. j. phosph. ferri, and gr. ij½. phosph. lime, besides soda and potass. Useful as a tonic in debility. *Dose.*—fʒj. to fʒij.

SYRUPUS FERRI PHOSPHATIS CUM QUINIA ET STRYCHNIA (Easton's Syrup).—Each fʒj. contains gr. j. phosphate of iron; gr. j. phosphate of quinia, and gr. ⅓½ of strychnia. *Dose.*—fʒj. It is a clear liquid, but becomes red on keeping. It is a very powerful tonic.

Ferri Sulphas. Sulphate of Iron. $\text{FeSO}_4 \cdot 7\text{H}_2\text{O}$.

Characters and Tests.—In green-coloured oblique-rhombic prisms, with a styptic taste; soluble in water, insoluble in rectified spirit. Gives a white precipitate with chloride of barium, and a blue one with the ferricyanide of potassium; and on exposure to the air gradually becomes turbid, depositing a reddish-brown sediment. It gives no precipitate with sulphuretted hydrogen.

Adulterations.—The sesquioxide, known by the

yellowish-brown colour of the crystals; and copper, which may be discovered by immersing a polished bit of iron in an acid solution of the salt, when the copper will adhere to it.

Dose.—1 to 5 grains. Best given in pills, but may be given in solution. It enters into the composition of the officinal *pilula aloes et ferri*, 1 part in 7.

Ferri Sulphas Granulata. Granulated Sulphate of Iron. $\text{FeSO}_4 \cdot 7\text{H}_2\text{O}$.

Characters and Tests.—In small granular crystals of a pale-green colour and mildly styptic taste; soluble in water, insoluble in rectified spirit. Other tests same as for sulphate. In this case it is crystallised from spirit.

Dose.—1 to 5 grains.

Ferri Sulphas Exsiccata. Dried Sulphate of Iron.
 $\text{Fe}_2\text{SO}_4 \cdot \text{H}_2\text{O}$.

Sulphate of iron, $\bar{\text{z}}$ iv. Expose it in a porcelain capsule to a moderate heat, which may be finally raised to 400° , until aqueous vapour ceases to be given off. Reduce the residue to a fine powder, and preserve in a stoppered bottle. Is the best form for pills. 3 grains of the dried are equal to 5 grains of the crystallised salt.

Characters and Tests.—A greyish cream-coloured powder, resembling fine sand, soluble in water. Of a chalybeate taste. Other tests the same as for the sulphate.

Dose.— $\frac{1}{2}$ grain to 3 grains.

Incompatibles.—The alkalies and their carb.; nitric acid; lime water; nitrate and tartrate of potash;

iodide of potassium ; borax ; acetate of lead ; vegetable astringents.

Actions and Uses.—Irritant, astringent, and tonic. They are not very strong irritants, but over-doses cause pain in the stomach, sickness, and vomiting ; and a few drachms have proved fatal to a child. They are excellent chalybeate tonics in dyspepsia, anemic amenorrhœa, and astringents in chronic mucous discharges, such as leucorrhœa. In solution some employ them topically in erysipelas, and for ill-conditioned ulcers, but they are not very successful in these cases. Being ferrous salts, they are very powerful tonics. The best form for pills is the dried sulphate. This, combined with quinia and nux vomica, forms an excellent tonic pill ; and where there is constipation or sluggishness of the bowels, it does very well to add a little aloin.

Formula.—Aloin, gr. $\frac{1}{6}$; quiniæ sulphatis, gr. i. ; ferri sulph. exsiccatae, gr. iss. ; pulv. myrrhæ, gr. $\frac{1}{4}$; extract. nucis vomicæ, gr. ss. ; extract. gentianæ *q. s. ut fiat pil.*

Sig.—One pill three times a day after food.

Ferrum Tartaratum. Tartarated Iron.

Tartrate of iron and potash.

Characters and Tests.—Thin transparent scales, of a deep garnet colour, slightly deliquescent, somewhat sweet, and rather astringent, soluble in water, and sparingly soluble in spirit. The aqueous solution acidulated with HCl gives a copious blue precipitate with the yellow, but none with the red prussiate of potash. When the salt is boiled with solution of soda, peroxide of iron separates, but no ammonia is evolved,

thereby distinguishing this salt from the ammio-citrate of iron, which it somewhat resembles.

Dose.—5 to 10 grains.

Actions and Uses.—A weak chalybeate tonic, said to be easily assimilated by the digestive organs. It is probably one of the least effectual of all the salts of iron. It is, however, highly recommended by some for children.

Ferri et Ammoniaë Citras. Citrate of Iron and Ammonia.

Characters and Tests.—In thin transparent scales of a deep red colour, with tinge of olive-green, slightly sweetish and astringent in taste; feebly reddens litmus paper; is soluble in water; nearly insoluble in spirit. Heated with solution of potash, it evolves ammonia, thus distinguishing it from the preceding salt.

Dose.—5 to 10 grains.

VINUM FERRI CITRATIS.—Wine of Citrate of Iron. Citrate of iron and ammonia, gr. clx.; orange wine, Oj. Dissolve. Each f̄ contains gr. 8 of the citrate of iron and ammonia.

Dose.—f̄j. to f̄ss.

Actions and Uses.—An excellent tonic, and may be given to delicate people where, from irritability of the stomach, the stronger ferruginous preparations cannot be borne. It is much less of an astringent, too, and therefore more suitable where there is a tendency to constipation.

Ferri et Quiniaë Citras. Citrate of Iron and Quinia.

Citric acid combined with peroxide of iron, protoxide of iron and quinia.

Characters and Tests.—Thin greenish golden-yellow scales, somewhat deliquescent, and entirely soluble in cold water. The solution is slightly acid, and is precipitated reddish-brown by solution of soda, white by solution of ammonia, blue by the ferrocyanide and ferricyanide of potassium, and greyish-black by tannic acid. Taste, bitter and chalybeate.

Dose.—5 to 10 grains.

This, like the preceding preparation, may be given in water or a bitter infusion.

Actions and Uses.—An excellent tonic in debility after severe diseases, and in the less severe forms of neuralgia. It combines the properties of quinine and iron.

Ferri Iodidum. Iodide of Iron.

FeI_2 , with about 18 per cent. of water of crystallisation, and a little oxide of iron. Prepared by boiling together fine iron wire and iodine.

Characters and Tests.—Crystalline, green, with a tinge of brown, inodorous, deliquescent, soluble in water, forming a slightly green solution, which gradually deposits a rust-coloured sediment, and acquires a red colour. Its solution gives a copious blue precipitate with the red prussiate of potash. Mixed with mucilage of starch, it acquires a blue colour on the addition of chlorine.

Dose.—1 to 5 grains.

This is a needless preparation, inasmuch as it is so unstable that it is seldom, if ever, used in medicine, and is not even employed for preparing either of the two following preparations, in both of which, however, it exists.

PILULA FERRI IODIDI.—Fine iron wire, gr. xl. ; iodine, gr. lxxx. ; refined sugar, gr. lxx. ; liquorice root powder, gr. cxl. ; dist. water, min. l. Agitate the iron with the iodine and water in a strong stoppered ounce phial, until the froth becomes white. Pour the fluid upon the sugar in a mortar, triturate briskly, and gradually add the liquorice.

Dose.—3 to 8 grains.

One part of iodide of iron in 3·6 of pill.

SYRUPUS FERRI IODIDI.—Syrup of the Iodide of Iron. Fine iron wire, ʒj. ; iodine, ʒij. ; refined sugar, ʒxxviiij. ; dist. water, fʒxiiij. Prepare a syrup by dissolving the sugar in fʒx. of the water, with the aid of heat. Digest the iodine and the iron wire in a flask, at a gentle heat, with the remaining fʒiiij. of the water, till the froth becomes white ; then filter the liquid, while still hot, into the syrup, and mix. The product should weigh two pounds, eleven ounces, and should have the specific gravity 1·385. Contains 4·3 grains of iodide of iron in fʒj.

Characters and Tests.—A transparent, almost colourless fluid, with a syrupy consistence, and a chalybeate taste. Solution of chlorine and mucilage of starch strike a deep blue colour.

Dose.—fʒss. to fʒj.

Actions and Uses.—Tonic and deobstruent. Although its tonic property may be the strongest, it is by no means a feeble deobstruent. In enlarged and indurated cervical and mesenteric glands—strumous—it is often of decided benefit, softening and diminution resulting at times in a few days after its employment. Chronic rheumatism occasionally improves under it ; but its success is by no means great in chlorosis,

amenorrhœa, secondary syphilis, and cutaneous diseases. Along with cod-liver oil, it does seem occasionally to arrest the progress of emaciation in some cases of phthisis. The iodide of iron does not keep well, and the syrup is commonly employed. The pill also keeps well.

Liquor Ferri Perchloridi Fortior. Strong Solution of Perchloride of Iron.

Perchloride of iron, Fe_2Cl_6 , in solution in water.

Characters and Tests.—An orange-brown solution, without smell, but with a powerful styptic taste, miscible with water and alcohol in all proportions. Specific gravity, 1.44. Diluted with water, it is precipitated white by nitrate of silver, and blue by the ferrocyanide, but not by the ferricyanide of potassium. It is used to prepare the two following preparations:—

LIQUOR FERRI PERCHLORIDI.—Solution of the Perchloride of Iron. Strong solution of perchloride of iron, $\text{f}\bar{\text{v}}$.; dist. water, $\text{f}\bar{\text{xv}}$. Mix, and preserve in a stoppered bottle. Used in same cases as the next preparation.

Dose.—10 to 30 minims.

TINCTURA FERRI PERCHLORIDI.—Tincture of the Perchloride of Iron (Steel Drops). Strong solution of perchloride of iron, $\text{f}\bar{\text{v}}$.; rect. spt., $\text{f}\bar{\text{xv}}$. Same strength as the weaker liquor, which has been introduced to save the spirit.

Dose.—10 to 30 minims.

Characters.—Of a dark, reddish-brown colour, and a slightly acrid, but strongly styptic, taste. Specific gravity, 0.992.

TINCTURA FERRI ACETATIS.—Tincture of the Acetate

of Iron. Is made by decomposing the acetate of potash in a solution of persulphate of iron. It has an acetous odour, soon decomposes, and deposits largely. It is not much used. Actions are those of the tincture of the perchloride, but weaker.

Dose.—5 to 30 minims.

Actions and Uses.—Iron has only two properties, tonic and astringent, and in virtue of its astringency, when sufficiently concentrated, it becomes styptic and caustic. The strong solution is used as a caustic and styptic externally for arresting hæmorrhages, and is one of the most effectual which we possess. In medicinal doses it is an excellent tonic and astringent. As a tonic it is useful in anæmia, chlorosis, and simple amenorrhœa, in pale and weak females. As a tonic and astringent it is serviceable in chronic genito-urinary mucous discharges, in passive hæmorrhages from the kidneys and bladder, and in spasmodic stricture of the urethra. Its diuretic power is considerable; and it does good in dropsies with debility.

Erysipelas is a disease for which iron may almost be regarded as a specific. It requires, however, to be given in full doses, and these must be frequently repeated, the frequency depending on the virulence of the disease. In bad cases $\bar{3}$ ss. doses should be given every two hours, and in very bad cases, every hour, until the inflammation is subdued. It has also been recommended in chronic Bright's disease. It is best given well diluted in water, or a non-astringent vegetable infusion. It should be administered after meals, and on account of its local action on the teeth, it should be sucked through a glass tube.

Incompatibles.—Alkalies and their carb. ; lime water ;

carbonate of lime ; magnesia and carb. ; and astringent vegetable preparations.

Liquor Ferri Pernitratis. Solution of Pernitrate of Iron.

Pernitrate of iron, Fe_3NO_3 , in solution in water.

Characters and Tests.—A clear, reddish-brown solution, slightly acrid and astringent to the taste ; gives a blue precipitate with the ferrocyanide of potassium. Specific gravity, 1.107. It gives no precipitate with the red prussiate of potash.

When to a little of it placed in a test tube half its volume of pure sulphuric acid is added, and then a solution of sulphate of iron is poured on, the whole assumes a dark brown colour.

Dose.—10 to 40 minims.

Actions and Uses.—Tonic, and an excellent astringent. It is found useful in chronic mucous diarrhoea, in the diarrhoea of feeble and nervous females, and in the colliquative diarrhoea of phthisis. It is an excellent remedy in menorrhagia. In scrofulous children with enlarged glands, lenteric diarrhoea, and obstinate ophthalmia, it is also beneficial, especially along with cod-liver oil.

Liquor Ferri Persulphatis. Solution of Persulphate of Iron.

Characters and Tests.—A dense solution of a dark-red colour, inodorous, and very astringent. It gives a white precipitate with chloride of barium, and a blue precipitate with the yellow, but not with the red, prussiate of potash. Specific gravity, 1.441.

Actions and Uses.—It is used for making various preparations of iron. It is a powerful caustic and

styptic; and, when diluted, is a powerful astringent internally.

Mistura Ferri Aromatica. Aromatic Mixture of Iron.

Pale cinch. bark, $\bar{3}j.$; columba powder, $\bar{3}ss.$; cloves, $\bar{3}\frac{1}{4}$; fine iron wire, $\bar{3}ss.$; compt. tinct. card., $f\bar{3}ij.$; tinct. orange peel, $f\bar{3}ss.$; peppermint water, sufficiency. See *Brit. Phar.* Aromatic Chalybeate in anæmia and chlorosis.

Dose.— $f\bar{3}j.$ to $f\bar{3}ij.$

Mistura Ferri Composita. Compound Mixture of Iron.

Sulph. iron, gr. xxv.; carb. potash, gr. xxx.; myrrh, powder, gr. lx.; sugar, gr. lx.; spt. of nutmeg, $f\bar{3}iv.$; rose water, $f\bar{3}ixss.$ Triturate the myrrh and carb. potash with the sugar, the spt. nutmeg, and $f\bar{3}vij.$ of the rose water, the latter being gradually added until a uniform mixture is obtained. To this add the sulphate of iron, previously dissolved in the remaining ounce of rose water, and enclose the mixture at once in a tightly corked bottle. Commonly known as "Griffith's Mixture." A very useful stimulant and tonic in amenorrhœa, with anæmia.

Dose.— $f\bar{3}j.$ to $f\bar{3}ij.$

Vinum Ferri. Iron Wine.

Preparation.—Fine iron wire (about No. 35), $\bar{3}j.$; sherry, Oj. Macerate for thirty days in a closed vessel, the iron being almost, but not quite wholly, immersed in the wine, and the vessel frequently shaken and the stopper removed; then filter.

Dose.— $f\bar{3}j.$ to $f\bar{3}iv.$ It tastes like sherry, and contains little iron. It is the worst of all the preparations of iron.

LEAD. Pb=207.**Plumbi Oxidum.** Oxide of Lead. PbO.*Synonym.*—Lythargyrum.*Characters and Tests.*—In brick-red, heavy scales. Soluble without effervescence in dilute nitric and acetic acids; either solution, when neutral, giving a copious yellow precipitate with iodide of potassium.*Actions and Uses.*—Seldom employed by itself. Occasionally as an external astringent in excoriations and superficial ulcerations. Its chief use is for making the next preparation.**EMPLASTRUM PLUMBI.**—Oxide of lead, lbiv.; olive oil, cong. j.; water, Oiiijss. Diachylon plaster. A useful strapping for wounds, etc., and the basis of a number of plasters.**Plumbi Nitras.** Nitrate of Lead. $\text{Pb}(\text{NO}_3)_2$.In colourless octahedral crystals, opaque, permanent in the air, of a sweet astringent taste, soluble in water and alcohol. The aqueous solution gives a black precipitate with sulphuretted hydrogen, white by dilute H_2SO_4 , and yellow by KI.

Used for the preparation of plumb. iodid.

Plumbi Iodidum. Iodide of Lead. PbI_2 .

Is prepared by the action of nitrate of lead on iodide of potassium.

Characters and Tests.—A fine powder of a golden-yellow colour, tasteless and odourless.*Dose.*—1 to 3 grains in pill.**EMPLASTRUM PLUMBI IODIDI.**—Iod. plumb, $\bar{3}j$.; soap plaster and resin plaster, of each, $\bar{3}iv$.

UNGUENTUM PLUMBI IODIDI.—Iod. plumb., gr. lxxij ; ung. simp., ℥j. M.

Actions and Uses.—Seldom given internally. Employed chiefly in the shape of ointment to indolent ulcers, enlarged glands, and in skin diseases occurring in scrofulous persons. In porrigo capitis it seems to do good.

The ointment stains the skin yellow, and on this account, the ointment of the iodide of cadmium is to be preferred.

Plumbi Carbonas. Carbonate of Lead.

Characters and Tests.—A soft, heavy, white powder, darkened by sulph. hydrog., insoluble in water, soluble with effervescence in dilute nitric acid, which solution is precipitated yellow by iod. potass., and white by sulph. acid.

UNGUENTUM PLUMBI CARBONATIS.—Carbonate of lead, in fine powder, gr. lxxij. ; simple ointment, ℥j. Mix.

Actions and Uses.—External astringent, and aids the cicatrisation of excoriations and ulcerations. It sometimes does good in chronic eczema, and other skin diseases attended with itching and discharge.

Plumbi Acetas. Acetate of Lead. $Pb(C_2H_3O_2)_2 \cdot 3H_2O$.

Characters and Tests.—In white masses of interlaced acicular crystals, slightly efflorescent, having an acetous odour, and a sweet astringent taste. Its solution in water slightly reddens litmus, gives a yellow precipitate with iodide of potassium, and is precipitated white by sulphuric acid, acetic acid being set free. Its solution in distilled water is clear, or has only a slight muddiness, which vanishes on the addition of acetic acid.

Dose.—1 to 4 grains in pill.

PILULA PLUMBI CUM OPIO.—Pill of Lead and Opium. Acetate of lead, fine powder, gr. xxxvj. ; opium, in fine powder, gr. vj. ; confection of roses, gr. vj. Beat into a mass. Excellent for sedative and astringent purposes. Each pill of four grains contains 3 grains of acetate of lead, $\frac{1}{2}$ grain of opium and $\frac{1}{2}$ grain of confection of roses.

Dose.—5 to 10 grains.

UNGUENTUM PLUMBI ACETATIS.—Ointment of Acetate of Lead. Acetate of lead, gr. xij. ; benzoated lard, ℥j. Mix.

SUPPOSITORIA PLUMBI COMPOSITA.—Compound Lead Suppositories. Each suppository contains gr. iii. of acetate of lead, and gr. i. of opium.

Actions and Uses.—Sedative and astringent in diarrhœa, dysentery, etc.

Liquor Plumbi Subacetatis. Solution of Subacetate of Lead.

Subacetate of Lead, $Pb_2C_4H_6O_5$, dissolved in water.

Characters and Tests.—A dense, clear, colourless liquid, of alkaline reaction, and sweet astringent taste, becoming turbid by exposure to the air, and forming with mucilage of gum arabic an opaque white jelly. Specific gravity, 1.26. Sulphuric acid gives a white precipitate, acetic acid being set free.

LIQUOR PLUMBI SUBACETATIS DILUTUS.—Diluted Solution of Subacetate of Lead. Solut. subacet. lead, f℥ij. ; rect. spt., f℥ij. ; dist. water, f℥xixss. Mix. A useful lotion for superficial inflammations, and for the inflammatory stages of many skin diseases.

UNGUENTUM PLUMBI SUBACETATIS COMPOSITUM.—Compound Ointment of Subacetate of Lead. Sol. subacet. of lead, f℥.vj. ; camphor, gr. lx. ; white wax, ℥viiij. ;

almond oil, Oj. M. Soothing and astringent application to superficial inflammations.

Actions and Uses.—Irritant, and a sedative astringent. In large doses, it occasions inflammation of the alimentary canal, and the antidotes are sulphate of magnesia, phosphate and sulphate of soda, emetics, and doses of castor oil and opium. When lead is conveyed into the body in small but protracted quantities, it induces a variety of effects, the aggregate of which has been termed lead-poisoning, or plumbism. The symptoms are constipation, dyspepsia, dejection of spirits, and fits of colic. Ultimately, apoplectic symptoms may ensue, or paralysis of the extensor muscles of the arms and fingers. A blue line upon the gums is also observed. Painters, plumbers, and workers in lead are most liable to this, and it is supposed that the carbonate of lead is the preparation most likely to induce it. The treatment is abandonment of the occupation for a time, baths, tonics, iodide of potassium, and the antidotes named above. The diseases for which acetate of lead is given are diarrhœa, dysentery, and passive hæmorrhages, in which, by its combined sedative and astringent action, it is of great service. In hæmoptysis, hæmatemesis, hæmaturia, and menorrhagia it proves of great use; and it is often successful in the way of arresting the profuse expectorations of some cases of bronchitis and phthisis, together with the diarrhœa and colliquative sweating of the latter. It should not be too long administered where there is a tendency to dyspepsia or irritable stomach. Externally, in the form of lotion (often with a little morphia), it is widely used in erythema, erysipelas, and superficial inflammations generally; in ophthalmia, leucorrhœa, gonorrhœa, and in skin

eruptions attended with inflammation. In ulceration of the cornea it should not be used, as it is apt to produce an indelible white stain.

Incompatibles.—Hard water; mineral acids and salts; the alkalies; lime water; opium; iod. potass.; tinct. galls; albuminous fluids; and many other vegetable infusions.

ANTIMONY. Sb=122.

Antimonium Nigrum. Black Antimony.

Synonyms.—Prepared sulphuret of antimony. Native sulphide of antimony, Sb_2S_3 , purified from siliceous matter by fusion, and afterwards reduced to fine powder.

Characters and Tests.—A greyish-black crystalline powder. Dissolves almost entirely in boiling hydrochloric acid, giving off sulphuretted hydrogen.

Uses.—Not employed in medicine; but used for preparing antimon. sulphuratum and liquor antimonii chloridi.

Antimonium Sulphuratum. Sulphurated Antimony.

Sulphide of antimony, Sb_2S_3 , with a small and variable amount of oxide of antimony, Sb_2O_3 .

Characters and Tests.—An orange-red powder, readily dissolved by caustic soda, also by hydrochloric acid with the evolution of sulphuretted hydrogen, and the separation of a little sulphur.

Dose.—1 to 5 grains.

Actions and Uses.—Diaphoretic, of no great value. An ingredient of the comp. calomel pill, one part in five.

PILULA HYDRARGYRI SUBCHLORIDI COMPOSITA.—See under Hydrargyri Subchloridum.

Liquor Antimonii Chloridi. Solution of Chloride of Antimony. "Butter of Antimony."

Black antimony, ℥j., dissolved in four pints of hydrochloric acid.

Characters and Tests.—A heavy liquid of yellowish-red colour. Gives an orange precipitate with sulphuretted hydrogen. A little of it dropped into water gives a white precipitate, and the filtered solution lets fall a copious deposit on the addition of the nitrate of silver. The specific gravity of the solution is 1.47.

Actions and Uses.—Caustic; rarely employed in practice in this country. Has been used by German oculists in staphyloma, the tumour being touched with a camel's-hair pencil. Occasionally applied to malignant tumours. Never given internally. Used to prepare the next preparation.

Antimonii Oxidum. Oxide of Antimony. Sb_2O_3 .

Characters and Tests.—A white powder, fusible at a low-red heat, insoluble in water, but readily dissolved by hydrochloric acid. Its solution gives an orange colour with sulphuretted hydrogen. The solution dropped into distilled water gives a white precipitate.

Dose.—1 to 4 grains.

Actions and Uses.—Diaphoretic and sedative, but not much to be trusted. Occasionally it has seemed to do good in catarrh and pneumonia. Used for preparing pulv. antimonialis.

PULVIS ANTIMONIALIS.—Antimonial Powder. Oxide of antimony, ℥j. ; phosphate of lime, ℥ij. Mix.

Dose.—3 to 10 grains.

Actions and Uses.—Sedative and diaphoretic. This compound was formerly very indefinite and irregular

in its composition, and therefore annoyingly uncertain in its action. Now that we have got something definite, we may be able to place more reliance upon it; although possessing the antim. tart., we can always have the same actions in an enhanced degree. It may be given in the early stages of fevers and inflammatory diseases, in catarrh, and, combined with opium, in acute rheumatism. It is a substitute for "James' Powder."

Antimonium Tartaratum. Tartarated Antimony.
Tartar Emetic.

A tartrate of potash and antimony, $\text{KSbC}_4\text{H}_4\text{O}_7 \cdot \text{H}_2\text{O}$. Prepared by boiling together oxide of antimony, and cream of tartar.

Characters and Tests.—In colourless transparent crystals, with triangular facets, soluble in water, and less so in proof spirit. It decrepitates and blackens on the application of heat. Its solution in water gives, with HCl , a white precipitate, soluble in excess, and which is not formed if tartaric acid be previously added. It gives an orange with sulphuretted hydrogen.

Dose.—As a diaphoretic, $\frac{1}{16}$ th to $\frac{1}{6}$ th of a grain; as an emetic, 1 to 2 grains. It is used to prepare the next two preparations.

VINUM ANTIMONIALE.—Antimonial Wine. Tart. antim. gr. xl.; sherry, Oj. Dissolve. It contains two grains in each fluid ounce.

Dose.—As an emetic, $\text{f}\bar{\text{3}}\text{ss.}$ to $\text{f}\bar{\text{3}}\text{j.}$; as an expectorant, diaphoretic, and sedative, 5 to 40 minims.

UNGUENTUM ANTIMONII TARTARATI.—Ointment of Tartarated Antimony. Tart. antim., $\frac{1}{4}$ ounce; simple ointment, 1 ounce. Mix.

Actions and Uses.—An important drug, from its different actions and varied applications. It is an irritant poison in large doses ; in small, a diaphoretic, sedative, expectorant, and emetic. In poisoning, we have inflammation of the alimentary tract, diarrrhœa, and vomiting.

As a sedative, it has been given to lower the frequency and force of the heart's action, and thus arrest local inflammation. Its sedative action has been sought in two ways. First (and what may be termed the heroic way), it has been given in one, two, or three-grain doses every two hours or so ; and, second, in the milder and safer nauseating dose of $\frac{1}{6}$ th or $\frac{1}{4}$ th grain. Experience, however, has shown that, in the presence of active inflammation, doses sufficient to develop the symptoms of poisoning in the healthy state are wonderfully borne. As a nauseating sedative, in doses of $\frac{1}{6}$ th grain or so, every hour or two, it has rendered great service in erysipelas, arachnitis, acute bronchitis, pneumonia, and pleuritis, and especially in the last two diseases. The best results in these cases are obtained when nausea and diaphoresis are both kept up ; and the latter is best and most vigorously sustained when the former exists, and perhaps is dependent on it. As an expectorant, it may be given in small doses of $\frac{1}{12}$ th grain often repeated, or in emetic doses. The former plan answers well in acute inflammation of the substance of the lungs, the latter in hooping-cough. As an emetic, in doses of gr. ij. or so, it operates effectually in from twenty minutes to half-an-hour, causing nausea and depression. It is thus employed for the evacuation of the stomach, not in cases of poisoning, for it is too tardy and depressant for that, but in ordinary cases, and, above all,

with the view of cutting short, or aborting at an early stage, acute inflammations, such as croup, pertussis, ophthalmia, hernia humoralis, and bubo. In continued fever, especially the type of the present time, it is not at all successful. Being a specific emetic, it acts when injected into the veins, and it has been thus employed to promote by vomiting the expulsion of solid bodies located in the œsophagus. As a relaxant in dislocations, strangulated hernia, and rigidity of the os uteri, it has been superseded by chloroform; but I occasionally meet with cases of unyielding os, where, the anæsthetic completely failing, I obtain softness and pliability from this nauseating drug.

Catharsis is seldom sought from antim. tart., but, along with sulph. magnes., it has done good as a cooling cathartic in acute inflammations and sthenic fevers. Externally, in the form of ointment, or on the face of a plaster, it raises a profuse crop of pustules; and thus proves an excellent counter-irritant in internal diseases of the head, thorax, abdomen, and medulla spinalis, in muscular and neuralgic pains, and diseases of joints. Care, however, should be taken not to apply the ointment on any portion of the chest which is exposed.

Antidotes.—Tannin, or astringent decoctions.

Incompatibles.—Alkalies and their carb.; acids; plumb. acet.; hyd. corrosiv. sub.; aq. calc. chlor.; calc. earths; some of the metallic oxides; hydrosulphurets; strong astringent infusions and decoctions.

MERCURY. Hg=200.

Hydrargyrum. Mercury.

Characters and Tests.—A metal brilliantly lustrous and easily divisible into spherical globules. Fluid at common temperatures. Volatilises with heat without any residue.

PILULA HYDRARGYRI.—Mercurial or Blue Pill. Mercury, $\bar{3}$ ij. ; confection of roses, $\bar{3}$ ij. ; liquorice powder, $\bar{3}$ j. Rub the mercury with the confection until metallic globules are no longer visible, then add the liquorice, and mix the whole well together. Divide into five-grain pills. To produce the specific effect for which it is often employed, it is given in small doses, frequently repeated, and should be combined with a little opium. As a cathartic, taken at night, and followed in the morning by a purgative draught, it is useful in slight biliary disorders.

Dose.—3 to 8 grains.

HYDRARGYRUM CUM CRETA—Mercury with Chalk ; “Grey Powder.” Mercury, by weight, $\bar{3}$ j. ; prep. chalk, $\bar{3}$ ij. Rub in a porcelain mortar until metallic globules cease to be visible to the naked eye, and the mixture acquire a uniform grey colour.

Characters and Tests.—A powder of a light-grey colour, free from grittiness, insoluble in water, partly dissolved by dilute HCl, leaving the mercury in a finely divided state.

Dose.—3 to 8 grains.

UNGUENTUM HYDRARGYRI.—Ointment of Mercury ; “Blue Ointment.” Mercury, $\bar{1}$ bj. ; prepared lard, $\bar{1}$ bj. ; prepared suet, $\bar{3}$ j. Rub them together until metallic globules disappear. This may be applied to produce

salivation, from $\bar{3}$ ss. to $\bar{3}$ ij. being rubbed into the inside of the thighs, or axilla. A quicker plan is to blister the surface previously. Used also in enlarged glands, and over the inflamed part in phlegmonous erysipelas. Used in the preparation of the three following preparations.

UNGUENTUM HYDRARGYRI COMPOSITUM.—Compound Ointment of Mercury. Oint. of mercury, $\bar{5}$ vj. ; yellow wax, olive oil, of each, $\bar{3}$ ij. ; camphor, $\bar{3}$ iss. Mix. “Scott’s Dressing.” Useful for obstinate glandular swellings, and said to do good in carbuncle.

LINIMENTUM HYDRARGYRI.—Liniment of Mercury. Ointment of mercury, $\bar{3}$ j. ; solut. ammonia, $f\bar{3}$ j. ; liniment of camphor, $f\bar{3}$ j. Melt the oint. and linim. with a gentle heat, then add the solut. gradually, and agitate. A stimulating application to indolent swellings. Salivation may result from it.

SUPPOSITORIA HYDRARGYRI.—Mercurial Suppositories. Ointment of mercury, gr. lx. ; benzoated lard and white wax, of each, gr. xx ; oil of theobroma, gr. lxxx. Divide into twelve equal parts. Each suppository contains 5 grains of the ointment of mercury.

EMPLASTRUM HYDRARGYRI.—Mercurial Plaster. Is prepared by heating together olive oil and sulphur, and triturating this mixture with mercury until globules are no longer visible, then adding lead plaster previously melted, and mixing the whole thoroughly. Applied as a stimulant over enlarged glands, and over the liver in chronic induration.

EMPLASTRUM AMMONIACI CUM HYDRARGYRO.—Ammoniacum and Mercury Plaster. Contains ammoniacum, mercury, olive oil, and sulphur. As a resolvent in indolent buboes, nodes, and enlarged glands.

Actions and Uses.—In the metallic state, mercury, like other metals, is of little service, and but little employed in practice, being only, and that very rarely, had recourse to as a mechanical agent in obstruction of the bowels—a very questionable kind of treatment. When oxidated, however, and otherwise combined, it assumes an immense importance, few drugs possessing so great a variety of actions, or admitting of such a variety of applications. It then becomes physiologically an irritant, corrosive, cholagogue, cathartic, diuretic, stimulant, and an exciter of a singular condition or chain of symptoms, salivation being the most prominent. And as a result of these actions, separately or combinedly, it is therapeutically an antiphlogistic, sedative, deobstruent, alterative, and antisiphilitic; or perhaps it is this latter specifically, or in virtue of some occult power. The irritant and corrosive actions of mercurials are seen in increased vascularity, inflammation, ulceration, and sloughing. Of all the physiological effects, however, the most wonderful is that termed mercurialism, or mercurial erethism. This singular state, which may be occasioned by repeated small quantities, or one large dose, is divisible into a few species. 1. A peculiar febrile excitement with increased pulse, fetor of the breath, and a metallic taste; then redness, tenderness, swelling, and sponginess of the gums, increase of saliva, ulceration of the gums, buccal membrane, and fauces. 2. High fever, nervous symptoms, intense salivation, deep ulceration, sloughing and gangrene of the gums, cheeks, throat, tongue. This is a condition attended with great risk of life. 3. A train of nervous symptoms, a continued tremor and convulsive twitching of the muscles of the extremities, jaw,

and tongue, with paralysis, leading to difficulty in walking or speaking; there are also delirium, loss of memory, sleeplessness, dry and brown skin. This has been called shaking palsy, or *tremblement metallique*, and occurs generally among gilders and workers in quicksilver mines exposed to the mercurial vapour. 4. Great depression, irregular action of the heart, sighing, trembling, a weak pulse, a sense of coldness, pale and contracted countenance, and proneness to death on sudden exertion. This variety of condition is probably in part owing to certain unknown constitutional peculiarities; for we find some individuals who are slowly acted upon, others violently affected by a single small dose, and some, again, in whom mercurialism shows itself after the mercurial has been stopped. Again, children under ten years of age, in general, bear as much as an adult. By watching the action of mercury in each particular case, we are, in general, enabled to keep its action within due bounds, such as is shown by fetor, slight tenderness of the gums, and moderate salivation—action enough for specific curative purposes. Sudden changes of temperature while using it are apt to occasion eczema, and other cutaneous diseases (scaly), with fever, and internal inflammations, especially of the serous membranes. Scrofulous people are unfavourable subjects for mercury, swelling and suppuration of glands, diseases of the skin and bones, being occasioned by its use. The results are still more grave when the syphilitic taint concurs. Various methods and remedies are recommended for combating the symptoms of mercurial action. At an early stage, brisk saline purgatives are useful, with a warm, uniform atmosphere, and the throat and neck kept cool. If there be much

swelling and pain, leeches may be applied behind the jaws, and the warm bath at times. Nauseating doses of tartarated antimony and acetate of lead in ten-grain doses, three or four times a-day, have been of service. The mouth may also be relieved by gargles of alum, tannin, catechu, borax, and honey, or a mild solution of chloride of lime. Cordials and opiates are also approved by some, and of course the mercury is discontinued immediately. But we must now come to the therapeutical powers of mercury. As an antiphlogistic it is employed in fevers ; it is most serviceable in severe remittents and yellow fever. It is more useful still in acute and internal inflammations, and especially in those which give rise to the effusion of coagulable lymph, such as croup, laryngitis, pericarditis, peritonitis (particularly puerperal), meningitis, pneumonia, pleuritis, hepatitis, and emphatically so in iritis. In metritis and synovitis it is also of service, but is of more doubtful advantage in nephritis. Very large doses in the form of calomel often abort a tropical dysentery, and arrest malignant cholera. In acute inflammations, advantage is sometimes derived from previous local blood-letting. As an antisymphilitic, mercury possesses an ancient reputation. It was formerly imagined to be the only remedy, and that large doses were indispensable ; we now know that the virus may be exterminated by other means, but perhaps most effectually by it ; and well enough by more moderate doses. For this purpose, as well as the preceding, calomel, or the green iodide, combined with a little opium to prevent draining away by the bowels, is best adapted. The corrosive sublimate is preferred by others. They are given in small dozes two or three times a-day until moderate

salivation is induced. As a deobstruent, it is employed in congestion and enlargement of the liver, in some cases of jaundice and obstruction of the bowels, in glandular swellings, in morbid deposits, in inflammatory adhesions, in effusions into shut sacs, fibrinous effusions into the aqueous humour, in paralysis resulting from cerebral disorder, and partial palsy depending on disorder of particular nerves. Many now employ the iodide of potassium instead, and probably in some constitutions with equally good results, and somewhat less risk of detriment. For most of the above purposes, slight mercurial action is necessary. As an alterative, given in small doses at intervals, and stopping short of mercurial action, the tongue becomes cleaner, the secretions more natural, the appetite improved, the skin more vigorous in action, and gradually various chronic morbid states, such as skin eruptions, torpidity of the bowels, and enlargement and induration of the mesenteric and other glands, disappear. Small doses of pil. hydrarg. or calomel every other night answer well. As a sedative, its action is peculiar and limited, having this effect only in large doses (calomel) in enteric inflammation. As an anthelmintic, diaphoretic, and diuretic, it is most useful along with other drugs, whose action it seems to promote.

Grey Powder is an admirable laxative for children, and acts by increasing the hepatic, pancreatic, and intestinal secretions. Along with a little rhubarb, it is of great service in the diarrhœa of the young, depending on irregular action of the liver with deficient biliary secretion. As an alterative, it is also serviceable in infantile cutaneous diseases. It is well adapted for adults, and it is not altogether correct to say that

grown-up people require as much to produce catharsis as would induce salivation.

Hydrargyri Sulphas. Sulphate of Mercury. HgSO_4 .

Characters and Tests.—A white, crystalline, heavy powder, rendered yellow by water, volatilised by heat. Used only to prepare calomel and corrosive sublimate.

Hydrargyri Subchloridum. Subchloride of Mercury.
 HgCl .

Synonyms. — Calomelas. Calomel. Hydrargyri Chloridum. Prepared by acting on the sulphate of mercury with mercury and common salt.

Characters and Tests.—A heavy and almost tasteless powder, of a dull-white hue; becoming yellowish by rubbing in a mortar. A solution of potash or lime renders it black. Entirely volatilised by a sufficient heat. Insoluble in water, spirit, or ether. Digested with solution of potash, it becomes black; and the clear solution, acidulated with nitric acid, gives a copious white precipitate with nitrate of silver. It is entirely volatilised by a sufficient heat.

Dose.— $\frac{1}{2}$ grain to 5 grains.

It is contained in the three following preparations.

PILULA HYDRARGYRI SUBCHLORIDI COMPOSITA.—Compound Calomel Pill. Subchlor. of mercury, antimon. sulphurat., of each, $\bar{3}j$. ; guaiacum resin, $\bar{3}ij$. ; castor oil, sufficient to make a proper mass. Formerly called Plummer's Pill. Given in syphilis, etc.

Dose.—5 to 10 grains.

LOTIO HYDRARGYRI NIGRA.—Black Mercury Lotion. Subchlor. of mercury, gr. xxx. ; solution of lime, $f\bar{3}x$.

Mix. Commonly called Black Lotion or Black Wash. Used in syphilitic ulcers and sores, and in varicose ulcers. HgCl is decomposed, and black oxide, Hg_2O , is formed.

UNGUENTUM HYDRARGYRI SUBCHLORIDI.—Ointment of Subchloride of Mercury, or Calomel Ointment. Subchlor. of mercury, gr. lxxx. ; lard, $\bar{3}j$. Mix.

Actions and Uses.—Irritant, alterative, antiphlogistic, or sedative, diuretic, cathartic, diaphoretic, sialogogue ; and not more varied in its properties and applications than often useful in its results. When introduced into the system it is partly reduced to the metallic state, and partly into corrosive sublimate. In very large doses it destroys not so much by its irritant power, as by the induction of intense salivation, and extreme nervous prostration. As a sedative or antiphlogistic, it is given in doses of from 10 to 20 grains, with benefit in the dysentery and cholera of warm climates ; and in smaller doses, along with a little opium, it is of signal service in acute internal inflammations, such as peritonitis, pleuritis, pericarditis, hepatitis, metritis, etc. As a diuretic it acts best along with others, such as digitalis or squills, and seems to increase their activity. It is an excellent cathartic alone in small doses, and combined with other cathartics, such as jalap, or scammony, its action is all the more effectual and certain. It is thus an excellent vermifuge for children, killing and expelling the parasites from the intestines. As a diaphoretic it is most energetic, along with a little opium, and is thus given in febrile disorders. As an alterative it is given in small doses, frequently repeated (and with a little opium to prevent draining away by the bowels), in syphilis, and other blood diseases mani-

fested by cutaneous eruptions; and on the development of its physiological action, an improvement of the system generally results. Children are not quite so susceptible to the action of this drug as adults.

Professor Rutherford found from his experiments that calomel does not increase the secretion of bile, but proved that calomel and corrosive sublimate combined act as a most powerful cholagogue.

Hydrargyri Perchloridum. Perchloride of Mercury.
HgCl₂.

Synonyms.—Corrosive Sublimate, Hydrargyri Bichloridum. Prepared by mixing together sulphate of mercury, common salt and black oxide of manganese, and afterwards applying heat when the perchloride of mercury sublimes.

Characters and Tests.—In heavy colourless masses of prismatic crystals, possessing a highly acrid metallic taste, more soluble in alcohol, and still more so in ether than water. Its aqueous solution gives a yellow precipitate with caustic potash, a white precipitate with ammonia, and a curdy white precipitate with nitrate of silver. Entirely soluble in ether. When heated it sublimes without decomposing, or leaving any residue.

Dose.— $\frac{1}{16}$ to $\frac{1}{8}$ grain.

LIQUOR HYDRARGYRI PERCHLORIDI.—Solution of Perchloride of Mercury. Perchloride of mercury, chloride of ammonium, of each, gr. x. ; dist. water, Oj. Dissolve.

Dose.—fʒss. to fʒij. Each drachm contains $\frac{1}{16}$ grain.

LOTIO HYDRARGYRI FLAVA.—Yellow Mercurial Lotion.
“Yellow Wash.” Perchlor. mercury, gr. xvij. ; solu-

tion of lime, f̄x. Mix. HgCl_2 is converted into the yellow oxide of mercury, HgO .

Actions and Uses.—An intensely irritant poison, a few grains inflaming and corroding the alimentary tube, and occasioning death. In some cases there is a great depression of the nervous system, with coma. In poisoning, give a moderate quantity of albumen, such as the white of egg (the yolk is also efficacious); in their absence, give flour, milk, or the protochloride of tin. Notwithstanding its poisonous properties, it is a great favourite with many for anti-venereal purposes; and for chronic rheumatism, periostitis, and arthritis, depending on the syphilitic taint. I should be disposed to place it as an alterative for these purposes above calomel, or the blue pill, and on equal terms with the green iodide of mercury; corrosive sublimate, however, being given in much smaller doses.

Professor Rutherford found that corrosive sublimate increased the secretion of bile. One-eighth of a grain acted as a powerful cholagogue. He also combined corrosive sublimate with calomel in the proportion of a $\frac{1}{20}$ grain of the former to 1 grain of the latter, and found that the secretion of bile rose enormously. These two substances combined in the above proportion acted as a very powerful cholagogue. Given in pill or in solution as follows: \mathcal{R} hydrargyri perchloridi, gr. ij.; spiritus rectificati, f̄ss.; infusi calumbæ, f̄xviiij.; liquoris morphiæ hydrochloratis, f̄ij. Misc. Sumat cochleare parvum bis terve die. Each teaspoonful contains $\frac{1}{12}$ th of a grain. If there is much intestinal irritation excited, it should be stopped.

The lotion is used in much the same way and for the same diseases as black mercurial lotion.

Incompatibles. — Alkalies and their carb., lime, antim. tart., nitrate of silver, acetate of lead, iodide of potassium, albumen, decoction of bark, soaps.

Hydrargyri Oxidum Rubrum. Red Oxide of Mercury.
HgO.

Characters and Tests. — An orange-red powder, readily dissolved by hydrochloric acid, and yielding a solution which, with caustic potash in excess, gives a yellow precipitate, and with solution of ammonia, a white. Entirely volatilised by a heat under redness, being at the same time decomposed into mercury and oxygen. Done in a test tube, no orange vapours are perceived.

UNGUENTUM HYDRARGYRI OXIDI RUBRI.—Ointment of Red Oxide of Mercury. Red oxide of mercury, reduced to very fine powder, gr. lxxij. ; yellow wax, $\bar{3}\frac{1}{4}$; oil of almonds, $\bar{5}\frac{3}{4}$. Mix. Useful in chronic inflammation of the edges of the eyelids.

Actions and Uses.—Formerly employed to salivate, but not now used internally. May be employed as a caustic to exuberant granulations, indolent ulcers, and venereal warts, but it is not equal to other caustics treated of. Its chief use is to form the ointment. The ointment is the best remedy for chronic inflammation of the eyelids.

Hydrargyri Oxidum Flavum. Yellow Oxide of Mercury. HgO.

This is a new preparation, and is prepared by decomposing HgCl_2 in a solution of soda, with the aid of heat. This is a *yellow* powder ; in other respects it

resembles the red oxide. It is this oxide which exists in yellow wash. The *yellow* oxide is said to be better for making an ointment than the red. It enters more readily into combination, and ought to supersede the crystalline red oxide.

Actions and Uses.—Same as the red oxide.

Hydrargyri Iodidum Viride. Green Iodide of Mercury. HgI .

Characters and Tests.—A dull green powder, insoluble in water, which darkens in colour on exposure to light. When gradually heated in a test tube, it yields a yellow sublimate, which upon friction becomes red, while globules of metallic mercury are left in the bottom of the tube. Entirely volatilised by a heat under redness. When it is shaken in a tube with ether, nothing is dissolved.

Dose.—1 to 3 grains in pill.

Actions and Uses.—Alterative, and much milder than the red iodide. May be employed with similar views, and for like purposes; and, being weaker, is adapted for the cutaneous diseases of children, especially those on the scalp; but here it should not be pushed far. Dose, for children, gr. $\frac{1}{6}$ to $\frac{1}{2}$, with a little aromatic powder; magnesia being alternated occasionally. It is of great service in arresting vomiting, especially combined with opium. It is decomposed by light, and should always be kept excluded from the light.

Hydrargyri Iodidum Rubrum. Red Iodide of Mercury. HgI_2 .

Characters and Tests.—A crystalline powder, of a vermilion colour, becoming yellow when gently heated

over a lamp on a sheet of paper; almost insoluble in water, dissolves sparingly in alcohol, but freely in ether, or in an aqueous solution of iodide of potassium. When digested with solution of soda, it assumes a reddish-brown colour; and the fluid cleared by filtration, and mixed with solution of starch, gives a blue precipitate on being acidulated with nitric acid. Entirely volatilised by a heat under redness.

Dose.— $\frac{1}{16}$ to $\frac{1}{4}$ grain in pill.

UNGUENTUM HYDRARGYRI IODIDI RUBRI.—Ointment of Red Iodide of Mercury. Red iodide of mercury, in fine powder, gr. xvj. ; simple oint., ℥j. Mix.

Actions and Uses.—Alterative and deobstruent, but possessing more of the actions of mercurials than of iodine. In not very large doses, it is an irritant poison, and it causes inflammation of the skin when left in contact with it. It may be given in secondary syphilis and in various scrofulous disorders; and some have found it useful in valvular disease of the heart, permitting regurgitation. In the form of ointment it may be topically applied in enlarged spleen and thyroid, and in chronic periostitic and glandular swellings, especially syphilitic. It is also useful over enlarged glands, and specially over the liver.

Hydrargyrum Ammoniatum. Ammoniated Mercury.

NH_2HgCl . White Precipitate.

Characters and Tests.—An opaque white powder, on which cold water, alcohol, and ether have no action. Digested with caustic potash it evolves ammonia. Entirely volatilised by a heat under redness. Boiled with a solution of chloride of tin, it becomes grey, and affords globules of metallic mercury.

Uses.—This preparation is not used internally. It is only used for making the next preparation.

UNGUENTUM HYDRARGYRI AMMONIATI.—Ointment of Ammoniated Mercury. Ammoniated mercury, gr. ℥xij. ; simple oint., ℥j. Mix.

Uses.—Useful in herpes, impetigo, sycosis menti, acne, etc.

Liquor Hydrargyri Nitratis Acidus. Acid Solution of Nitrate of Mercury.

Characters and Tests.—A colourless and strongly acid solution, giving a yellow precipitate with solution of potash added in excess. Specific gravity, 2.246. Does not give any precipitate when a little of it is dropped into hydrochloric acid diluted with twice its volume of water, showing absence of *mercurous* nitrate.

Actions and Uses.—An irritant and corrosive poison. Used occasionally as a caustic for cancer, lupus, sloughing ulcers, and small *nævi*. Should be applied with a glass rod.

Unguentum Hydrargyri Nitratis. Ointment of Nitrate of Mercury. Citrine Ointment.

Mercury, ℥iv. ; nitric acid, f℥xij. ; prepared lard, ℥xv. ; olive oil, f℥xxxij. Dissolve the mercury in the acid by a gentle heat ; melt the lard in the oil, by a water-bath, in a porcelain vessel capable of holding six times the quantity ; and while the mixture is hot, add the solution of mercury, also hot, mixing them thoroughly. If the mixture does not froth up, increase the heat till this occurs.

Uses.—A stimulating application to indolent ulcers, to the eyelids in ophthalmia, and in a

variety of skin diseases, such as herpes, ringworm, impetigo, lepra, psoriasis, rupia. In the milder skin diseases it may be diluted with lard, 1 to 3. This is a useful preparation.

CADMIUM. Cd=112.

Cadmii Iodidum. Iodide of Cadmium. CdI_2 .

Characters and Tests.—In flat micaceous crystals of a white, pearly lustre, melting at 600° or so, and forming an amber-coloured fluid.

Use.—Only used for preparing the ointment.

UNGUENTUM CADMII IODIDI.—Ointment of Iodide of Cadmium. Cadm. iodid., gr. lxxij. ; simp. oint., \mathfrak{z} j. Mix.

Actions and Uses.—This ointment is somewhat irritating and stimulating. It is used for the same diseases in which the ointment of the iodide of lead is used, and unlike the lead ointment, it does not stain the skin yellow, and in this respect it is preferable.

MANGANESE. Mn=55.

Manganesii Oxidum Nigrum. Black Oxide of Manganese. MnO_2 .

Characters and Tests.—A heavy black powder, which dissolves almost entirely in hydrochloric acid with evolution of chlorine, and gives off oxygen when heated to redness.

Use.—To produce chlorine gas.

Potassæ Permanganas. Permanganate of Potash.
 KMnO_4 .

Characters and Tests.—Dark-purple, slender prismatic crystals, odourless, with a sweet astringent taste, soluble in water. A single small crystal suffices to form, with an ounce of water, a rich purple solution, which is rendered brown by rectified spirit.

LIQUOR POTASSÆ PERMANGANATIS.—Solution of Permanganate of Potash. Permanganate of potash, gr. iv. ; dist. water., f̄ij. Dissolve.

Dose—f̄ij. to f̄iv.

Actions and Uses.—This fluid, diluted with water, is now pretty extensively employed (often under the name “Condy’s”), topically, to foul or gangrenous ulcers and fetid sores, and as a gargle in ulceration of the mouth and fauces; and these often improve speedily under it. It may be also employed as an injection to correct the fetor of dysenteric evacuations, and offensive discharges from the vagina and uterus in cases of malignant ulceration. The usual strength is f̄ij. of the liquor, or gr. ss. of the solid, to ʒij. water.

CERIUM. Ce=92.

Cerii Oxalas. Oxalate of Cerium. $\text{CeC}_2\text{O}_4 \cdot 3\text{H}_2\text{O}$.

A salt which may be obtained as a precipitate by adding a solution of oxalate of ammonia to a soluble salt of cerium.

Characters and Tests.—A white granular powder, insoluble in water, decomposed at a dull red heat into a reddish-brown powder, which dissolves completely, and without effervescence, in boiling hydrochloric acid,

and the resulting solution gives, with solution of sulphate of potash, a white crystalline precipitate.

Dose.—1 to 5 grains.

Actions and Uses.—Sedative and tonic, of considerable service in chronic vomiting, and the vomiting of pregnancy. Given also in irritable stomach and pyrosis, but with less benefit. Has been tried in chorea and epilepsy, but with unsatisfactory results. It has been found beneficial in preventing the disagreeable after-effects of opium. It may be given in pill or powder.

THE ALKALIES.

POTASSIUM. $K=39.1$.

Potassæ Carbonas. Carbonate of Potash.

K_2CO_3 , with about 16 per cent. of water of crystallisation.

Characters and Tests.—A white crystalline powder, alkaline and caustic to the taste, readily soluble in water, but insoluble in spirit. Very deliquescent, effervesces with dilute HCl, forming a solution which gives a yellow precipitate with perchloride of platinum. This last test is common to all the potash salts. 20 grains of carbonate of potash neutralise 17 grains of citric acid or 18 grains of tartaric acid.

Dose.—10 to 30 grains.

Actions and Uses.—Corrosive and irritant; antilithic, antacid, and diuretic. Corrodes the mucous membrane

of the alimentary canal, giving rise to vomiting (sometimes bloody), burning pain, and, provided death is averted, irritability of the stomach, indigestion, and emaciation. The antidotes are vinegar and fixed oils. Owing to its irritant nature and strong taste, it is not so much used as the bicarbonate, but it is an excellent remedy in deposits of lithic acid and the lithates. It is sometimes, in solution, injected into the bladder. It can only be given in solution on account of its deliquescence. It is best administered well diluted.

Potassæ Bicarbonas. Bicarbonate of Potash. KHCO_3 .

Is prepared by passing a stream of carbonic acid gas through a solution of carbonate of potash.

Characters and Tests.—Colourless right-rhombic prisms, not deliquescent, of a saline alkaline taste. Not corrosive. Bichloride of mercury gives at once a brick-red precipitate with a solution of carbonate of potash, but not with the bicarbonate. 20 grains of bicarbonate of potash neutralise 14 grains of citric acid, or 15 grains of tartaric acid.

Dose.—10 to 40 grains, in powder or solution.

Liquor Potassæ Effervescens. Potash Water.

A solution of potass. bicarb. in water (30 grains to the pint), with as much carbonic acid passed into it as can be done under a pressure of seven atmospheres.

Actions and Uses.—Antacid, antilithic, and diuretic. Used for the same purposes as the liquor potassæ, but acts more powerfully on the kidneys. It does not increase the flow of bile. It is an excellent remedy in acute rheumatism, and in all cases in which the urine

is abnormally acid. It is speedily absorbed into the blood, and increases the quantity of the urine, at the same time rendering that fluid more alkaline.

Potash Water is an agreeable and useful drink in rheumatic and other fevers, and in the lithic acid diathesis. It is best prescribed with a syphon.

Incompatibles.—Lime water; acetate of ammonia; chloride of ammonium; most of the metallic salts.

Liquor Potassæ. Solution of Potash.

KHO dissolved in water (27 grains in each fluid ounce). Prepared by mixing ℥xij. slaked lime in ℔j. of carb. potash, dissolved in a gallon of water, brought to the boiling point in a clean iron vessel; and the boiling continued for ten minutes, with constant stirring.

Characters and Tests.—A colourless transparent fluid, feeling somewhat soapy; odourless, of an extremely alkaline and caustic taste. Specific gravity, 1.058. It does not effervesce when added to an excess of diluted hydrochloric acid. Mixed with an equal volume of water, it gives no precipitate with solution of lime or oxalate of ammonia.

Dose.—15 to 60 minims, well diluted in some aromatic water.

Actions and Uses.—In large doses a corrosive and irritant poison, destroying animal textures. In small doses it is antacid and antilithic, and is given in dyspepsia, attended with acidity and gastrodynia, where it is of considerable service. In the lithic acid diathesis, from its solvent power over the urinary deposits, and in the acidity of the stomach of gouty patients, it is often beneficial. It is given with doubtful benefit in

chronic skin diseases, such as lepra and psoriasis ; but probably with more success in some of the manifestations of scrofula. In gonorrhœa it diminishes the acridity of the urine, lessening the pain of micturition. Taken for some time it diminishes nutrition, and is thus useful in some fatty diseases, and for promoting the absorption of redundant fat in those who happen to labour under excess of adipose tissue.

The salts of potassium increase the arterial pressure, but cause a fall in the pulse. These actions are supposed to be due to indirect action on the muscle of the heart. It is supposed that the potash salts also act as oxidating agents, since they not only increase the watery portion of the urine, but also the organic matter of that fluid. In bronchitis, accompanied with thick viscid expectoration, liquor potassæ, or one of the carbonates, will greatly benefit the patient by diminishing the viscosity of the sputum, and so favouring its expectoration.

Potassa Caustica. Caustic Potash.

Hydrate of potash, KHO, with some impurities. Made by boiling down liquor potassæ.

Characters and Tests.—In hard, white pencils, deliquescent, and strongly alkaline and corrosive. A watery solution, acidulated by nitric acid, gives a yellow precipitate with perchloride of platinum, and only scanty white precipitates with nitrate of silver and chloride of barium.

Actions and Uses.—Caustic, and a powerful corrosive and irritant poison ; antidotes—vinegar, fixed oils, lemon juice. It is not used internally, but as a caustic for making issues. This is done by covering the part

with several layers of adhesive plaster, and rubbing the potassa on through an aperture in the centre. A poultice is afterwards applied. Owing to its deliquescent character, it is not so convenient a caustic for general purposes; it may, however, be employed for the destruction of tumours, and the useless and unhealthy parts of ulcers. Mixed with gutta percha, it is less apt to attract moisture: and equal parts of the caustic and lime, with a little glycerine, form an excellent dry caustic for the destruction of growths. *Vienna paste* is a mixture of caustic potash and lime, thus:—
Caustic potash, ℥v.; slaked lime, ℥vj.; rect. spt., enough to make a mass.

Potassæ Acetas. Acetate of Potash. $KC_2H_3O_2$.

Produced by the action of acetic acid on carbonate of potassium.

Characters and Tests.—White, foliaceous, satiny masses, deliquescent, with a watery solution, of which tartaric acid causes a crystalline precipitate; sulphuric acid, the discharge of acetic acid; and a dilute solution of perchloride of iron strikes a blood-red colour. Neutral to test paper; entirely soluble in rectified spirit. Its solution is unaffected by sulphide of ammonium. It is used to prepare the tincture of the acetate of iron.

Dose.—10 to 60 grains.

Actions and Uses.—Cathartic and diuretic. It is rarely employed as a cathartic, but it is an excellent and widely used diuretic. In dropsies, especially ascites and hydrothorax, it is often beneficial; and it is generally useful combined with decoctum scoparii. It is a good remedy for albuminuria. Its influence in jaundice and some chronic skin diseases is doubtful.

Incompatibles.—Tartaric acid, the mineral acids, and their soluble salts.

Potassæ Citras. Citrate of Potash. $K_3C_6H_5O_7$.

Prepared by the action of citric acid on the carbonate of potassium.

Characters and Tests.—A white powder of feebly acid taste, deliquescent, and very soluble in water. Heated with H_2SO_4 , it forms a brown fluid, gives off an inflammable gas, and evolves the odour of acetic acid.

Dose.—20 to 60 grains.

Actions and Uses.—Refrigerant. Useful in gout, rheumatism, and scorbutus.

Potassæ Tartras. Tartrate of Potash. $K_2C_4H_4O_6$.

Prepared by the action of tartaric acid on carbonate of potassium.

Characters and Tests.—Small, colourless, four or six-sided prisms. Heated with sulphuric acid it forms a black tarry-looking fluid, evolving inflammable gas, and the odour of burned sugar. Acetic acid, added sparingly to its solution, causes the separation of a white crystalline precipitate. Entirely dissolved by its own weight of water.

Dose.—ʒj. to ʒss.

Actions and Uses.—A mild cathartic, but not much employed. It accelerates the action of other cathartics, such as scammony and jalap. Also slightly diuretic.

Potassæ Tartras Acidæ. Acid Tartrate of Potash.
 $KHC_4H_4O_6$.

Synonyms.—Potassæ Bitartras. Cream of Tartar.

Obtained from argol, which is deposited on the inside of wine-casks.

Characters and Tests.—A finely gritty white powder, or fragments of cakes crystallised on one surface; of an agreeable acid taste; sparingly soluble in water, insoluble in spirit. Heated in a crucible it evolves inflammable gas and the smell of burned sugar, and leaves a black residue.

Dose.—20 to 60 grains.

Adulterations.—Alum, wheaten flour, starch, and bisulphate of potash.

Actions and Uses.—An excellent mild cathartic, producing frequent watery discharges. Along with sulphur, it is a common and very suitable purgative in piles; and with jalap it forms an admirable hydragogue cathartic in dropsies. In small doses, largely diluted, it is also a useful diuretic. It enters into the composition of the *compound powder of jalap*, 9 in 15.

Imperial, a refrigerant and diuretic drink in fevers, is made by dissolving 160 grains or so in Oj. boiling water, and adding a little sugar and lemon peel.

Cream of Tartar Whey is made of the same strength, with boiling milk, the curd being removed. It is used for the same purpose, and both may be taken at pleasure.

Incompatibles.—The mineral acids, alkalies, lime water, acetate of lead, carbonates of potash and soda.

Potassæ Nitras. Nitrate of Potash. KNO_3 .

Synonyms.—Nitre. Saltpetre.

Characters and Tests.—In white masses or fragments of striated six-sided prisms, colourless, of a cool saline taste. Deflagrates when thrown into the fire; warmed in a test tube with sulphuric acid and copper wire, it evolves ruddy fumes.

Dose.—10 to 30 grains.

Actions and Uses.—In large doses it is an irritant, producing inflammation of the alimentary lining membrane, sinking of the pulse, attended with sickness, vomiting, purging, and sometimes proving fatal. In smaller doses it is diuretic, and useful in anasarca and ascites, but not equal to the acetate or acid tartrate. It is also a sedative and refrigerant, and is, in consequence, of service occasionally in hæmoptysis. It is a good deal employed by some physicians in acute rheumatism, but for this it is not a reliable remedy. When its use is continued for some time, it causes irritability of the stomach and nausea. It should not be given where there is an inflammatory affection of the kidneys, bladder, stomach, or bowels. In acute rheumatism, large doses, such as from ℥iv. to ℥vj., are given in the twenty-four hours.

Nitre Whey.—This is prepared by boiling ℥ii. in Oj. of fresh milk, and straining. It forms a refrigerant drink in fevers.

Incompatibles.—Alum, sulphuric acid, metallic sulphates, sulphate of magnesia.

Potassæ Chloras. Chlorate of Potash. KClO_3 .

Obtained by passing chlorine gas through a mixture of carbonate of potash and slaked lime.

Characters and Tests.—In colourless, rhomboidal, crystalline plates, with a saline taste, sparingly soluble in cold water. Explodes when triturated with sulphur. Its solution is not affected by nitrate of silver, or oxalate of ammonia. By heat it fuses, gives off oxygen gas, and leaves a white residue.

Dose.—10 to 30 grains.

TROCHISCI POTASSÆ CHLORATIS.—Chlorate of Potash

Lozenges. Each lozenge contains five grains of chlorate of potash, besides sugar and gum acacia.

Dose.—1 to 6 lozenges.

Actions and Uses.—It were hard to give a short name to this drug; it is refrigerant, but it is much more. Phagedenic ulcers, such as cancrum oris, seem to improve under it, and in some cases of scarlatina, continued fever, and even malignant cholera, temporary advantages, at least, have been gained. The tongue will sometimes get clean under it, too, in infantile remittents and other disorders of children, but it is not easy to say how. It is held by some to supply oxygen to the blood, and thus to prove useful in malignant fevers with defective arterialisation. It, however, passes through the system unchanged, and is not decomposed in the blood. It passes off by the urine, and the salivary glands. It is specially useful in aphthæ and ulcerations of the mouth and throat. In the disease known as fatty placenta, 10 grains, three times a-day for several weeks or months, will frequently enable the mother to bring forth a living child.

Potassæ Sulphas. Sulphate of Potash. K_2SO_4 .

Characters and Tests.—Colourless, hard, six-sided prisms, terminated by six-sided pyramids, which decrepitate strongly when heated; sparingly soluble in water, insoluble in alcohol. The aqueous solution is neutral to test paper, and gives no precipitate with oxalate of ammonia.

Dose.—15 to 60 grains.

Actions and Uses.—A mild cathartic and cholagogue, but not much used, being rather insoluble. It is a

good purgative for women after delivery, if we wish to check the secretion of milk.

Potassæ Bichromas. Bichromate of Potash. $K_2Cr_2O_7$.

Characters and Tests.—In large, red, four-sided tables; anhydrous; fuses below redness; at a higher temperature is decomposed, yielding green oxide of chromium and yellow chromate of potash.

Use.—It is not employed medicinally. It is used only for preparing the officinal sodæ valerianas.

Potassæ Prussias Flava. Yellow Prussiate of Potash.
 $K_4FeC_6N_6 \cdot 3H_2O$.

Synonym.—Ferrocyanide of potassium.

Obtained by fusing animal substances, such as the cuttings of horns, hoofs, and skins, with carbonate of potash, in an iron pot, lixivating the crude product with water, and purifying the salt by crystallisation.

Characters and Tests.—In large yellow crystals, permanent in the air, soluble in water, insoluble in alcohol. The aqueous solution precipitates deep blue with persulphate of iron, brick-red with sulphate of copper, and white with acetate of lead. Heated with diluted sulphuric acid, hydrocyanic vapours are evolved.

Actions and Uses.—Not employed in practice in this country. In America it was tried as a sedative, but did little good. It is used only for preparing acidum hydrocyanicum dilutum, and for testing.

Potassæ Prussias Rubra. Red Prussiate of Potash.
 $K_6Fe_2C_{12}N_{12}$.

Synonym.—Ferricyanide of potassium.

Characters and Tests.—In large, red, rhombic prisms. Its solution in water gives no precipitate with persul-

phate of iron. It gives a deep blue at once with the proto-salts of iron.

Use.—It is not used in medicine. It is officinal only as a substance for testing.

SODIUM. Na=23.

Sodæ Carbonas. Carbonate of Soda. $\text{Na}_2\text{CO}_3 \cdot 10\text{H}_2\text{O}$.

Prepared on the large scale from sea-salt.

Characters and Tests.—In large transparent crystals, of the oblique-rhombic form, efflorescent, with a disagreeable, alkaline, and caustic taste, odourless. Heat fuses it, depriving it of its water of crystallisation. It imparts a yellow colour to flame; acidulated with HCl, it gives no precipitate with the perchloride of platinum. These two tests are characteristic of all the salts of sodium, and distinguish them from the salts of potassium. 20 grains of the carbonate of sodium neutralise 9·7 grains of citric acid or $10\frac{1}{2}$ grains of tartaric acid.

Dose.—5 to 30 grains.

SODÆ CARBONAS EXSICCATA.—Dried Carbonate of Sodium. Na_2CO_3 . Prepared by exposing the carbonate in a porcelain capsule to a strong sand heat. It is about three times stronger than the other, and being of a strong caustic taste, it should be given either in the form of a pill, or in some sweet substance, such as the sugar of milk.

Dose.—3 to 10 grains.

Actions and Uses.—Irritant, diuretic, antacid, antilithic. As a diuretic it is not equal to the carbonate of potash. It is a good antacid, but is harsher to the

taste than the bicarbonate. It operates as an antilithic by correcting stomachic acidity and rendering the urine alkaline, but phosphatic deposits may result from this alkalinity. The bicarbonate is not open to this objection, because the excess of carbonic acid keeps the earthy phosphates in a state of solution. Alkalies in solution, well charged with carbonic acid, are thus useful in averting gravel.

Incompatibles.—Acids and their salts, magnesia, and lime water.

Sodæ Bicarbonas. Bicarbonate of Soda. NaHCO_3 .

Is obtained by passing carbonic acid gas through a solution of carbonate of sodium.

Characters and Tests.—In powder, or in indistinct rectangular prisms, white, odourless, with a mild alkaline taste. Perchloride of mercury gives a white, not a coloured, precipitate, and thus distinguishes it from the carbonate. 20 grains of bicarbonate of soda neutralise 16·7 grains of citric acid or 17·8 grains of tartaric acid.

Dose.—10 to 60 grains.

TROCHISCI SODÆ BICARBONATIS.—Bicarbonate of Soda Lozenges. Each lozenge contains 5 grains of sodæ bicarb., with gum and sugar.

Dose.—1 to 6 lozenges.

LIQUOR SODÆ EFFERVESCENS.—Effervescing Solution of Soda.

Synonyms.—Aqua Sodæ Effervescens. Soda Water. Each pint contains 30 grains of bicarbonate of soda, and as much carbonic acid as can be introduced with a pressure of seven atmospheres.

Actions and Uses.—An excellent antacid, antilithic

and diuretic, but it is not so energetic a diuretic as the bicarbonate of potash. Professor Rutherford has shown that it does not increase the flow of bile. It is much employed in the heartburn and vomiting of dyspepsia, along with tonics; and for making effervescing drinks. Used also as a lotion in skin diseases, papular and vesicular. For lotion, gr. x. to xx. to f̄j. water.

Incompatibles.—Acids; metallic salts, except those of magnesia; lime water.

Sodæ Citro-Tartras Effervescens. Effervescent
Citro-Tartrate of Soda.

Bicarb of soda, ̄xviij.; tartaric acid, ̄viiij.; citric acid, ̄vj.. Mix thoroughly; place in a pan heated to 220° or so, stir, and separate the granules when they form by means of a sieve.

Common Name.—Granular Effervescent Citrate of Magnesia.

Dose.—̄j. to ̄ij.

Actions and Uses.—A refrigerant and antacid drink in continued and rheumatic fevers.

Liquor Sodæ. Solution of Soda.

NaHO. Dissolved in water, 18·8 grains in each f̄j. Prepared by boiling slaked lime in a solution of carbonate of sodium.

Characters and Tests.—Specific gravity, 1·047. It is distinguished from liquor potassæ by giving no precipitate with tartaric acid.

Actions and Uses.—Irritant. Used for preparing valerianate of soda, and sulphuretted antimony.

Soda Caustica. Caustic Soda.

Hydrate of Soda. NaHO ., with some impurities. Prepared by boiling down liquor sodæ to a certain consistence, and then pouring the fluid into moulds.

Characters and Tests.—In hard, whitish fragments of cakes, or in sticks, intensely alkaline, and very corrosive. Gives a yellow colour to flame.

Actions.—Corrosive and irritant.

Antidotes.—Fixed oils and vinegar.

Sodæ Tartarata. Tartarated Soda. $\text{NaKC}_4\text{H}_4\text{O}_6\cdot 4\text{H}_2\text{O}$.

Synonyms.—Sodæ et potassæ tartras. Rochelle Salts. Prepared by the combination of carb. sodæ and potass. acid tart.

Characters and Tests.—In colourless, transparent, right-rhombic prisms, eight and twelve-sided, of a saline taste. Heated with H_2SO_4 , it blackens, and gives off the odour of burnt sugar. It imparts a yellow colour to flame. Soluble in cold water. A strong solution gives a crystalline precipitate, with a small quantity of acetic acid.

Dose.— $\bar{3}$ ij. to $\bar{3}$ ss.

Actions and Uses.—A mild laxative, with a not unpleasant taste, and suitable for persons with a delicate stomach. It is also a feeble cholagogue. It is contained in the well-known Seidlitz powders, the formula for which is as follows:—In the blue paper, gr. cxx. Rochelle salts, and gr. xl. bicarb. sodæ; with some sugar and the least flavour of ess. limon. In the white paper, gr. xxxvij. acid tartaric.

Sodii Chloridum. Common Salt. NaCl .

Characters and Tests.—In small, white cubes, odour-

less, and with a pleasant, saline taste. Gives a yellow colour to flame, and a precipitate with nitrate of silver.

Actions and Uses.—Stimulant, cathartic, emetic, and feeble cholagogue. It is used by mankind over the world as an adjunct to diet, and it stimulates gently the digestive organs. It also prevents so far the growth of worms in the intestines, these parasites being more profuse where little salt is used, or where it is necessarily absent for a time. As a cathartic, it is useful in the way of aiding others, and it is the chief constituent of many mineral waters. In pretty full doses, such as $\bar{3}j.$ or $\bar{3}ij.$, it may be employed as an emetic, if sulphate of zinc or mustard be not at hand. Warmed, it is applied to the surface of the body as a stimulant, or irritant, in severe pains of various kinds; and a solution is sometimes thrown up the rectum as an anthelmintic. It is also employed in the preparation of hydrochloric acid, calomel, and corrosive sublimate.

Sodæ Sulphas. Sulphate of Soda. $\text{Na}_2\text{SO}_4 \cdot 10\text{H}_2\text{O}$.

Synonym.—Glauber salts.

May be obtained from the residue left in the manufacture of hydrochloric acid, by neutralising it with carbonate of soda, and crystallising from solution in water.

Characters and Tests.—In transparent, oblique prisms, bitter taste, efflorescent, soluble in water, insoluble in spirit.

Heated with a solution of potash no odour of ammonia is evolved, and no precipitate is formed. It imparts a yellow colour to flame.

Dose.— $\bar{3}ij.$ to $\bar{3}j.$

Actions and Uses.—A saline cathartic, increasing the

intestinal secretions considerably. It is more nauseous than the sulphate of magnesia, and grips rather more; hence it is less employed. Professor Rutherford has proved that this salt is a decided cholagogue. It is contained in many mineral springs, as the waters of Carlsbad.

Sodæ Acetas. Acetate of Soda. $\text{NaC}_2\text{H}_3\text{O}_2 \cdot 3\text{H}_2\text{O}$.

Characters and Tests. — Colourless, transparent crystals, soluble in water; solution when dilute not precipitated by chlor. barium. or nit. argent.

Used in the preparation of ferri arsenias, ferri phosph., acetic ether, etc.

Sodæ Nitras. Nitrate of Soda. NaNO_3 .

A native salt, colourless, purified by crystallisation from water.

Employed only to prepare sodæ arsenias.

Sodæ Phosphas. Phosphate of Soda. $\text{Na}_2\text{HPO}_4 \cdot 12\text{H}_2\text{O}$.

Characters and Tests. — Transparent, colourless, oblique-rhombic prisms, inodorous, and with a cooling saline taste; efflorescent. Tastes like common salt. Its solution gives a yellow precipitate with AgNO_3 .

Dose. — $\bar{3}$ ij. to $\bar{3}$ j.

Actions and Uses. — A gentle saline cathartic, and, in consequence, as well as owing to its not unpleasant taste, it is well adapted for children and delicate people. It possesses a solvent action on uric acid, and may be given as a laxative where there is a tendency to this deposit. It is also a decided cholagogue. For children it may be given in soup or other diet without their knowledge.

Incompatibles.—Lime water, magnesia, the mineral acids, nitrate of silver, and acetate of lead.

Sodæ Hypophosphis. Hypophosphite of Soda.
 NaPH_2O_2 .

Obtained by the action of carbonate of sodium on a solution of hypophosphate of lime.

Characters and Tests.—A white granular salt, having a bitter, nauseous taste, deliquescent, soluble in water and spirit, but insoluble in ether.

Dose.—5 to 10 grains.

Actions and Uses.—A stimulant to the nervous system, and recommended in the early stages of phthisis, and in nervous debility. In large doses, it acts as an irritant, producing headache, diarrhoea, and gastric irritation. It is chiefly in the early stage of phthisis that it does good.

Sodæ Benzoas. Benzoate of Soda. (Not Official.)

Prepared by decomposing the carbonate of soda with benzoic acid.

Characters and Tests.—Efflorescent pointed crystals, soluble in water, sparingly in alcohol.

Dose.—10 to 20 grains.

Actions and Uses.—This substance, though not officinal, is a very important medicinal agent. Professor Rutherford found that it was a powerful stimulant of the liver. As a cholagogue, it is one of the best which we possess.

Sodæ Salicylas. Salicylate of Soda.

This substance has lately been introduced into medicine as a powerful hepatic stimulant. In doses of 20 grains, it increases rapidly the secretion of bile.

It is a certain, rapid, and powerful cholagogue. It has also been recommended in rheumatic fever, and other febrile states of the system, and excellent results have been obtained by its use.

BORON. B=11.

Borax. Borax. $\text{Na}_2\text{B}_4\text{O}_7 \cdot 10\text{H}_2\text{O}$.

Synonym.—Biborate of soda. A native salt. It may also be made by boiling together boracic acid and carbonate of soda.

Characters and Tests.—In transparent, colourless crystals, sometimes slightly effloresced, with a weak alkaline reaction, insoluble in rectified spirit, soluble in water. Its solution burns with a green flame. A hot saturated solution, when acidulated with any of the mineral acids; lets fall, as it cools, a scaly crystalline deposit (boracic acid).

Dose.—5 to 40 grains.

MEL BORACIS.—Honey of Borax. Borax powder, gr. lxxiv. ; clarified honey, ℥j. M.

GLYCERINUM BORACIS.—Glycerine of Borax. Borax, ℥j. ; glycerine, f̄iiv. Rub them together in a mortar until the borax is dissolved.

Actions and Uses.—Astringent, antilithic, emmenagogue. As an astringent it is used externally as a lotion, gargle, or electuary, for aphthous ulceration of the mouth and throat, chapped nipples, mercurial salivation, and some skin diseases, such as ring-worm and pityriasis. For these latter, a solution in vinegar, gr. xxx. to the ounce, is employed. The mel boracis is well adapted for the sore mouth of children. As an

antilitic it does not stand very high, but it does at times correct the uric acid deposit. As an emmenagogue it often fails; but when it does stimulate the uterus, it is with considerable vigour. Like ergot, to which, however, it is inferior, it exerts most power over the active uterus; hence any good we obtain from it is got during labour, or about a menstrual period; and given at this latter time we occasionally obtain fair results in scanty menstruation.

Acidum Boracicum. Boracic Acid. H_3BO_3 .

Characters and Tests.—It occurs in hexagonal, pearly scales, soluble in alcohol, less so in water, and burns with a green flame.

Actions and Uses.—This substance is not officinal except for testing purposes, to detect the turmeric sometimes added to rhubarb. It turns turmeric brown, but does not affect rhubarb. It is an antiseptic, and arrests fermentation and putrefaction. It has lately been extensively employed on account of these properties as a surgical dressing. It is used as a lotion, as an ointment, and as boracic lint. It forms an excellent dressing to wounds and ulcers. It is not so apt to irritate as some other antiseptics. It deserves to be more extensively used.

LITHIUM. L=7.

Lithiæ Carbonas. Carbonate of Lithia. L_2CO_3 .

Characters and Tests.—White powder, or small, crystalline grains, alkaline in reaction, soluble in 100 parts of cold water; insoluble in alcohol, and communicates a red colour to flame.

Dose.—3 to 6 grains.

LIQUOR LITHIÆ EFFERVESCENS.—Effervescing Solution of Lithia, “Lithia Water.” Carbonate of lithia, gr. x. ; water, Oj. Along with as much carbonic acid as can be introduced under a pressure of seven atmospheres.

Dose.—f̄v. to f̄x.

Characters and Tests.—Same as for potash and soda waters, except that, on evaporating to dryness, it yields a white residue answering to the tests for carbonate of lithia.

Actions and Uses.—Diuretic, rendering the urine alkaline, and very useful in gout, owing to its power of dissolving and eliminating the urates. In this respect it stands higher than the salts of potash. Useful also in some skin diseases, such as urticaria, prurigo, and lichen.

Lithiæ Citras. Citrate of Lithia. $L_3C_6H_5O_7$.

Prepared by decomposing the carbonate of lithia with citric acid.

Characters and Tests.—An amorphous, white powder, deliquescent, and soluble in water. Heated to redness it blackens, evolving inflammable gases; and the residue, neutralised by hydrochloric acid, yields with rectified spirit a solution which burns with a crimson flame.

Dose.—5 to 10 grains.

Actions and Uses.—These may be said to be the same as those of the carbonate. On account of its being a deliquescent salt, it cannot be given in powder. It should always be given in solution.

AMMONIUM. NH_4 .

Ammonii Chloridum. Chloride of Ammonium. NH_4Cl .

Synonyms. — Sal ammoniac. Ammoniaë hydrochloras; Ammoniaë murias.

May be prepared by neutralising hydrochloric acid with ammonia and evaporating to dryness. It is usually prepared by sublimation.

Characters and Tests.—In colourless, translucent, fibrous masses, tough and difficult to powder; soluble in water and rectified spirit. Heated with caustic potash it evolves ammonia, and with AgNO_3 it forms a curdy, white precipitate. It is completely volatilised by heat.

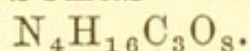
Dose.—5 to 20 grains.

Actions and Uses.—When concentrated it is an irritant. It has been supposed by some to deteriorate the blood, and has been found to increase the solids of the urine. It has a special action on the mucous membranes, and has been found in most of the secretions of the body. Professor Rutherford found that it lowered the secretion of bile, probably by acting as a purgative, and so draining the portal system, and thus preventing the re-absorption of a portion of the bile after it has been poured into the alimentary canal. Professor Rutherford found that all purgatives which were not hepatic stimulants lessened the secretion of bile in virtue of their purgative action, and that cholagogues which were also purgatives have their cholagogue action so far modified. It may be said to be stimulant, deobstruent, diaphoretic, diuretic, emmenagogue, and cholagogue. It is specially useful in chronic

bronchitis, and also in acute bronchitis after the inflammatory stage is past. It seems to have done good occasionally in amenorrhœa, and rarely in hooping-cough. Of late more used in cases of severe neuralgia, and does good where iron, iodide of potassium, arsenic, and quinia have failed. For such cases give thirty-grain doses thrice a-day. Forms an excellent discutient application, along with spirit and vinegar, in ecchymosis, contusions, and sprains. Along with nitre it forms a refrigeratory mixture, useful for lessening the heat and pain of inflamed parts.

Formula for Ecchymosis, etc.—℞. Ammonii chloridi, ʒj.; spiritus rectificati, fʒij.; acidi acetici diluti, ʒxviij.; misce.

Ammoniæ Carbonas. Carbonate of Ammonia.



Synonym.—Sesquicarbonate of ammonia.

A volatile and pungent ammoniacal salt, produced by submitting a mixture of sulphate of ammonia, or chloride of ammonium and carbonate of lime, to sublimation.

Characters and Tests.—In translucent, crystalline masses, with a strong ammoniacal odour, and alkaline reaction; soluble in cold water, and sparingly in spirit. It volatilises with heat, and is readily dissolved by acids with effervescence. 20 grains of carbonate of ammonia neutralise $23\frac{1}{2}$ grains of citric acid, or $25\frac{1}{2}$ grains of tartaric acid.

Dose.—3 to 10 grains.

Actions and Uses.—Antacid and stimulant. Given to rouse the vital powers in the adynamic stage of continued fevers, and in chronic bronchitis attended with debility. Useful as “smelling salts” in fainting.

Liquor Ammoniaë Acetatis. Solution of Acetate of Ammonia.

Acetate of ammonia. $\text{NH}_4\text{C}_2\text{H}_3\text{O}_2$, dissolved in water. Prepared by neutralising 10 ounces of acetic acid with carbonate of ammonia, and adding $2\frac{1}{2}$ pints of water.

Characters and Tests.—A transparent, colourless liquid, with a saline taste; other tests the same as those for ammonia in solution.

Dose.— $\text{f}\bar{\text{3}}\text{ij.}$ to $\text{f}\bar{\text{3}}\text{vj.}$

Actions and Uses.—A very trustworthy diaphoretic, as a general rule not exciting the circulation much. Useful in catarrh, and slight febrile attacks. It seems peculiarly adapted for accelerating the elimination of alcohol from the system, and may thus be given in cases of stupefaction from “strong drink.”

Liquor Ammoniaë Citratis. Solution of Citrate of Ammonia.

Citrate of ammonia, $3\text{NH}_4\text{C}_6\text{H}_5\text{O}_7$, dissolved in water.

Prepared by dissolving three ounces of citric acid in one pint of water, and neutralising the solution with strong solution of ammonia.

Dose.— $\text{f}\bar{\text{3}}\text{ij.}$ to $\text{f}\bar{\text{3}}\text{vj.}$

Actions and Uses.—Same as the preceding.

SPIRITUS AMMONIÆ AROMATICUS.—Aromatic Spirit of Ammonia. Sal volatile. Carb. ammon., $\bar{\text{3}}\text{viiij.}$; strong solut. of ammon., $\text{f}\bar{\text{3}}\text{iv.}$; volatile oil of nutmeg, $\text{f}\bar{\text{3}}\text{iv.}$; oil of lemon, $\text{f}\bar{\text{3}}\text{vj.}$; rect. spt., Ovj. ; water, Oij. Mix, and distil Ovij.

Test.—Specific gravity, 0.87.

Dose.—fʒss. to fʒj.

Actions and Uses.—Antacid, stimulant, and anti-spasmodic. Used in similar cases with the carbonate. Useful for correcting acidity in the stomach where it exists in the gaseous form; and it does good by rousing (and otherwise) individuals from the stupor of alcoholic drinks.

Liquor Ammoniaë Fortior. Strong Solution of Ammonia.

Ammoniacal gas, NH_3 , dissolved in water, and constituting 32·5 per cent. of the solution.

Characters and Tests.—A colourless liquid, with an intensely pungent odour, and strong alkaline reaction. Specific gravity, 0·891. One fluid drachm contains 15·83 grains of ammonia, NH_3 .

LIQUOR AMMONIÆ.—Solution of Ammonia. Strong solut. of ammonia, Oj. ; dist. water, Oij. Mix.

Tests.—Specific gravity, 0·959. Each fluid drachm contains 5·2 grains of ammonia.

LINIMENTUM AMMONIÆ.—Liniment of Ammonia. Liquor ammon., ʒjj. ; olive oil, ʒiij. Mix together with agitation.

Actions and Uses.—A strong corrosive and narcotic poison, inflaming and corroding the parts with which it comes into contact, and occasioning tetanus and coma. Its antidotes are vinegar, lemon juice, tartaric acid. It is not given internally. Externally it produces irritation, redness, and vesication; hence it is used as a counter-irritant in many affections. It forms a speedy blister, and may be employed for sudden attacks of internal inflammation, as in retrocedent gout. In the form of liniment, mixed with oil, it forms an

excellent rubefacient in sore throat, over joints in chronic rheumatism, and over the chest in bronchitis.

LINIMENTUM CAMPHORÆ COMPOSITUM.—See Camphor.

Ammoniæ Phosphas. Phosphate of Ammonia.
 $(\text{NH}_4)_2\text{HPO}_4$.

Characters and Tests.—In colourless, transparent prisms; soluble in water, insoluble in rectified spirit. Heated with caustic potash, ammonia is evolved. AgNO_3 gives a yellow precipitate.

Dose.—5 to 20 grains.

Actions and Uses.—This substance has been proved to be a powerful cholagogue, and as it does not stimulate the intestinal glands, it is a valuable medicine in certain affections of the liver. It has also been recommended in gout and rheumatism to help the solution of the urates.

Ammoniæ Benzoas. Benzoate of Ammonia.
 $\text{NH}_4\text{C}_7\text{H}_5\text{O}_2$.

Characters and Tests.—In colourless, laminar crystals, soluble in water and alcohol. It gives a bulky, yellowish precipitate with persalts of iron. It sublimes without any residue.

Dose.—10 to 20 grains.

Actions and Uses.—Given in bronchitis with occasional benefit, in genito-urinary mucous discharges, and phosphatic deposits in the urine. It is also a powerful stimulant of the liver, and increases greatly the quantity of bile, and may be given when a cholagogue action is required.

Ammoniæ Nitras. Nitrate of Ammonia. NH_4NO_3 .

Characters and Tests.—A white, deliquescent salt, in confused crystalline masses, having a bitter, acrid taste.

Soluble in less than its own weight of water, and sparingly soluble in rectified spirit. Heated to 350° or 450° , it is converted into nitrous oxide gas and water ($\text{NH}_4\text{NO}_3 = \text{N}_2\text{O} + 2\text{H}_2\text{O}$).

Use.—Only to prepare nitrous oxide gas, N_2O , which is much used as an anæsthetic by dentists in the extraction of teeth.

ALKALINE EARTHS.

CALCIUM. $\text{Ca}=40$.

Marmor Album. White Marble. CaCO_3 .

Used for the production of carbonic-acid gas.

Creta. Chalk. CaCO_3 .

Native friable carbonate of lime. Used for producing carbonic-acid gas, and for preparing the next preparation.

Creta Præparata. Prepared Chalk.

Carbonate of lime, CaCO_3 , nearly pure.

Characters and Tests.—A white amorphous powder, effervescing with acids, and dissolving perfectly, or with a mere trace of residue, in dilute hydrochloric acid. This solution, supersaturated with ammonia, gives, with oxalate of ammonia, a white precipitate.

Dose.—10 to 60 grains.

Calcis Carbonas Præcipitata. Precipitated Carbonate of Lime. CaCO_3 .

Characters and Tests.—A white crystalline powder, insoluble in water, dissolving in HCl with effervescence. The solution, when neutralised by ammonia, lets fall a copious white precipitate on the addition of oxalate of ammonia.

Dose.—10 to 60 grains.

Actions and Uses.—Antacid, and, in virtue of this, astringent. Useful in acidity of the stomach, with diarrhoea, and well adapted for children. It is used externally in bed-sores, erysipelas, and some simple cutaneous diseases. A solution in water by means of an excess of CO_2 ("Carrara water") is very useful as a drink in dyspepsia, with acidity and flatulence. Preparations of lime should not be given where there is a tendency to deposit of phosphates in the urine. Is contained in the *Trochisci Bismuthi*—4 grains in each lozenge.

Mistura Cretæ. Chalk Mixture.

Preparation.—Chalk, $\bar{3}\frac{1}{4}$; gum acacia powder, $\bar{3}\frac{1}{4}$; syrup, $\bar{f}\bar{3}\bar{s}$. ; cinnam. water, $\bar{f}\bar{3}\bar{v}\bar{i}\bar{j}\bar{s}$. M.

Dose.— $\bar{f}\bar{3}\bar{j}$. to $\bar{f}\bar{3}\bar{i}\bar{j}$.

Actions and Uses.—Astringent, and useful in simple diarrhoea.

PULVIS CRETÆ AROMATICUS.—Aromatic Powder of Chalk. *Synonym*—Confectio Aromatica. — Cinnam. powder, $\bar{3}\bar{i}\bar{v}$. ; nutmeg and saffron, in powder, of each, $\bar{3}\bar{i}\bar{i}\bar{j}$. ; cloves, $\bar{3}\bar{j}\bar{s}$. ; cardamon seeds, $\bar{3}\bar{j}$. ; refined sugar, $\bar{3}\bar{x}\bar{x}\bar{v}$. ; prepared chalk, $\bar{3}\bar{x}\bar{j}$. Mix thoroughly, and pass through a fine sieve.

Dose.—10 to 60 grains.

Actions and Uses.—Antacid, aromatic, and astringent. An excellent powder in the diarrhoea of children.

PULVIS CRETÆ AROMATICUS CUM OPIO.—Aromatic Powder of Chalk and Opium. Aromatic powder of chalk, $\bar{\text{ix}}\frac{3}{4}$.; opium powder, $\bar{\text{ij}}\frac{1}{4}$. Mix thoroughly, and pass through a fine sieve; finally, rub it lightly in a mortar.

Dose.—10 to 40 grains.

40 grains contain one grain of opium.

Actions and Uses.—Astringent, antacid, aromatic, and sedative. It is an excellent remedy in the diarrhoea of adults attended with pain.

Calx. Lime. CaO.

An alkaline earth CaO, with some impurities, obtained by calcining chalk or limestone, so as to expel carbonic acid.

Characters and Tests.—In light lumps, externally dirty-white colour, which readily absorb water, crack, and fall into powder with the development of much heat. Used to prepare the next preparation.

CALCIS HYDRAS (CaH₂O₂).—Slaked Lime. Lime recently burned, ℥ij. ; dist. water, Oj. Pour the water on it, and set aside to cool. Pass through an iron wire-sieve; keep in a well-stoppered bottle. Used to prepare the liquor calcis and liquor calcis saccharatus.

LIQUOR CALCIS.—Lime Water. Slaked lime, $\bar{\text{ij}}$.; distilled water, cong. j.

Test.—Ten fluid ounces contain 5·6 grains of lime, CaO.

Dose.— $\bar{\text{f}}\bar{\text{ij}}$. to $\bar{\text{f}}\bar{\text{iv}}$.

Actions and Uses.—Antacid, and serviceable in dyspepsia, with heartburn, and irritability of the stomach. In diarrhoea it will sometimes answer well

when more powerful remedies fail. In the vomiting and irritability of the stomach of infants, a little, often repeated during the day, enables them to retain their milk better, promoting also its digestion. As an antilithic, it does good by correcting acidity, and forming the soluble lithate of lime. It may be given in poisoning with oxalic, hydrochloric, and nitric acids. The use of it should be occasionally suspended.

It is also used to prepare *linimentum calcis*, *lotio hydrargyri flava*, and *lotio hydrargyri nigra*.

LIQUOR CALCIS SACCHARATUS.—Saccharated Solution of Lime. Slaked lime, ʒj. ; refined sugar, ʒij. ; dist. water, Oj. This is a stronger solution, 7·11 grains in each fʒ ; but in some constitutions it does not answer well, concretions of carbonate of lime forming in, and constipating, the bowels.

Dose.—15 to 60 minims.

Incompatibles.—Vegetable and mineral acids ; metallic and alkaline salts ; ant. tart. ; and most vegetable infusions and decoctions.

LINIMENTUM CALCIS.—Liniment of Lime. Solution of lime, fʒij. ; olive oil, fʒij. M. Commonly called “Carron Oil.” Very useful in recent scalds and burns. It does very well to add five grains of chloral hydrate to each ounce of liniment.

Calcis Phosphas. Phosphate of Lime. $\text{Ca}_3\text{P}_2\text{O}_8$.

Characters and Tests.—A light, white, amorphous powder, insoluble in water, but soluble without effervescence in dilute nitric acid.

Dose.—10 to 20 grains.

Uses.—Given in mollities ossium, rickets, and un-united fractures, but with poor results. Is used to prepare *pulvis antimonialis* ; two parts in three.

Calcis Hypophosphis. Hypophosphite of Lime.

Characters and Tests.—A white crystalline salt, with a pearly lustre, and a bitter, nauseous taste. Insoluble in rectified spirit; soluble in six parts of cold water and only slightly more soluble in hot water.

Dose.—5 to 10 grains.

Actions and Uses.—Tonic in debility and phthisis. Specially recommended as an excellent nervine tonic in the early stage of the latter disease.

Calcii Chloridum. Chloride of Calcium. $\text{CaCl}_2.$

Characters and Tests.—In white agglutinated masses, dry, but very deliquescent. Soluble in water and alcohol.

Dose.—10 to 20 grains.

MURIATE OF LIME, in crystal, consists of equal parts by weight of water and dried chloride of calcium. It is useful in sickness and glandular diseases.

Dose.—2 to 10 grains.

Actions and Uses.—It has been highly recommended in enlarged glands, especially in persons of a scrofulous constitution. It requires to be continued for a considerable period, and will often succeed after iodide of iron and cod-liver oil have failed. It was highly recommended by the late Dr J. Warburton Begbie in the *Edinburgh Medical Journal* for July 1872.

MAGNESIUM. Mg=24.

Magnesiæ Sulphas. Sulphate of Magnesia. $MgSO_4 \cdot 7H_2O$.

Synonym.—Epsom salts.

Characters and Tests.—In minute, colourless, transparent, rhombic prisms, soluble in water, possessing a bitter taste. Solution gives white precipitates with chloride of barium, and with a mixed solution of ammonia, chloride of ammonium, and phosphate of soda.

Dose.—ʒj. to ʒss.

ENEMA MAGNESIÆ SULPHATIS.—Enema of Sulphate of Magnesia. Sulphate of magnesia, ʒj.; olive oil, fʒj.; mucilage of starch, fʒxv.

Dissolve the sulphate of magnesia in the mucilage of starch, add the oil, and mix.

MISTURA SENNÆ COMPOSITA. Contains one ounce of sulphate of magnesia in every five fluid ounces.

Actions and Uses.—A refrigerant cathartic, producing watery evacuations, without, in general, causing nausea or griping. It is well adapted for most forms of febrile and inflammatory affections. Its nauseous taste is well concealed by acid. sulph. dil. It lessens the secretion of bile in virtue of its purgative action.

Magnesiæ Carbonas. Carbonate of Magnesia.

$(MgCO_3)_3 \cdot MgO \cdot 5H_2O$.

Characters and Tests.—A white, granular powder; the magnesiæ carbonas penderosum of Dublin. Is prepared by decomposing the sulphate of magnesia with the carbonate of soda in *boiling water*, and evaporating to dryness. Fifty grains calcined at a red heat are reduced to twenty-two.

Dose.—10 to 60 grains.

It is contained in Trochisci Bismuthi, $2\frac{1}{2}$ grains in each lozenge nearly.

LIQUOR MAGNESIÆ CARBONATIS.—Solution of Carbonate of Magnesia. *Synonym.* — Fluid magnesia. Prepared by impregnating water, in which freshly-precipitated carbonate of magnesia is suspended, with CO_2 . One fluid ounce contains gr. xiiij. of carb. magnesiæ.

Dose.— $\text{f}\bar{\text{3}}\text{j}$. to $\text{f}\bar{\text{3}}\text{ij}$.

LIQUOR MAGNESIÆ CITRATIS.—Solution of Citrate of Magnesia. This preparation is made by decomposing the carbonate of magnesia with citric acid, and afterwards adding bicarbonate of potash, gr. xl. to Oss. It contains syrup of lemons. It is highly charged with carbonic-acid gas, and the bottle must be secured with wire or string.

Dose.— $\text{f}\bar{\text{3}}\text{v}$. to $\text{f}\bar{\text{3}}\text{x}$.

Uses.—An excellent effervescing cooling laxative, etc.

Magnesiæ Carbonas Levis. Light Carbonate of Magnesia. $(\text{MgCO}_3)_3 \cdot \text{MgO} \cdot 5\text{H}_2\text{O}$.

Characters and Tests.—A very light powder, found under the microscope to be partly amorphous, with many slender prisms intermixed.

Dose.—10 to 60 grains.

Is prepared from a *cold* solution ; in other respects, in the same way as the heavy carbonate.

Magnesia. Magnesia. MgO .

Prepared from the *heavy* carbonate by driving off CO_2 by heat.

Characters and Tests.—A white powder, insoluble in water, but readily dissolved by acids, without effervescence.

Dose.—10 to 60 grains.

Magnesia Levis. Light Magnesia. MgO .

Prepared from the *light* carbonate by driving off CO_2 by heat.

Characters and Tests.—A bulky, white powder, differing from the foregoing only in its greater lightness.

Dose.—10 to 60 grains.

PULVIS RHEI COMPOSITUS. — Compound Powder of Rhubarb. Gregory's Mixture. Rhubarb powder, $\bar{5}$ ij.; light magnesia, $\bar{5}$ vj.; ginger powder, $\bar{3}$ j. Mix well, and pass through a fine sieve.

Dose.—20 to 60 grains.

Actions and Uses.—Magnesia is laxative, antacid, and antilithic. As a laxative, it is very mild, and given chiefly to children, where it is also very useful in correcting the hyperacid condition of the alimentary canal which so often prevails. It is of great service in preventing heartburn and gastrodynia, given either alone, or with a tonic or aromatic, a little before meals; and it is beneficial in gout at times, owing to its antacid and antilithic action. As an antilithic, it acts by correcting acidity, and by forming the soluble lithate of magnesia, where free lithic acid or the lithate of ammonia prevails. Combined with rhubarb and ginger, it forms a good laxative and stomachic, long popularly known as Gregory's Powder. It has been used for solidifying copaiba, and as an antidote for arsenic. The carbonates of magnesia are the weakest.

ALUMINIUM. Al=27·5.

Alumen. Alum.

A sulphate of alumina and ammonia, crystallised from solution in water, $\text{NH}_4\text{Al}(\text{SO}_4)_2, 12\text{H}_2\text{O}$.

Characters and Tests.—In colourless, transparent, crystalline masses, exhibiting the faces of the regular

octahedron, with an acid, sweetish, astringent taste. Its solution gives, with caustic potash or soda, a white precipitate, soluble in excess, and evolves ammonia when heated. Its solution gives a precipitate with chloride of barium, but does not acquire a blue colour from the addition of the yellow or red prussiate of potash—thus distinguishing it from *iron alumen*, in which the aluminium is substituted by *iron*.

Dose.—10 to 20 grains.

ALUMEN EXSICCATUM—Dried Alum. Alum heated in a porcelain capsule until aqueous vapour ceases to be disengaged; dried, and reduced to fine powder.

Actions and Uses.—An energetic astringent. Useful in chronic diarrhœa, dysentery, menorrhagia, hæmoptysis, and hæmatemesis. At times it does good in pyrosis; and in colica pictonum it is found occasionally to allay the tormina and sickness of that ailment, when combined with a little opium. Topically it is applied to arrest bleeding from small vessels.

A little of the dried alum applied to the fauces, by blowing it through a glass tube, has done good in the early stages of inflammatory sore throat. Dissolved in water, it makes an excellent gargle, in relaxed uvula and tonsils, in ulceration of the mouth and tongue, in spongy gums, and excessive salivation.

For pyrosis, gr. x. to xx. thrice daily, in infus. calumbæ. Formula for lead colic;—℞ Aluminis, ʒij. ; liquoris morphiæ hydrochloratis, fʒij. ; syrupi zingiberis, fʒvj. ; infusi calumbæ, fʒj. Misc. Capiat, ʒss. omnibus sextis horis.

Incompatibles.—Alkalies and their carbonates, lime, magnesia, acet. plumb., salts of mercury, and substances containing tannin.

ORGANIC MATERIA MEDICA.

I.—MEDICINES DERIVED CHIEFLY FROM THE ORGANIC WORLD. THEY ARE PRODUCED IN TWO WAYS—EITHER BY DESTRUCTIVE DISTILLATION, OR BY FERMENTATION.

Acidum Carbolicum. Carbolic Acid. $\text{HC}_6\text{H}_5\text{O}$.

Synonym.—Phenic acid.

An acid obtained from coal-tar oil by fractional distillation and subsequent purification.

Characters and Tests.—In colourless acicular crystals, which at a temperature of 95° become an oily fluid, having an odour and taste resembling creasote. Specific gravity, 1.065. Is slightly soluble in water, but freely soluble in alcohol, ether, and glycerine. It does not redden blue litmus paper, and is, therefore, not a true *acid*. A slip of deal dipped into it, and afterwards into HCl, and then allowed to dry in the air, acquires a greenish-blue colour. It coagulates albumen. It does not affect the plane of polarisation of a ray of polarised light.

Dose.—1 to 3 grains.

GLYCERINUM ACIDI CARBOLICI.—Glycerine of Carbolic Acid. Carbolic acid, \mathfrak{z} j. ; glycerine, $\mathfrak{f}\mathfrak{z}\mathfrak{i}\mathfrak{v}$. ; rub well till dissolved. Resembles glycerine in appearance, but has the odour of carbolic acid.

Dose.—5 to 10 minims.

SUPPOSITORIA ACIDI CARBOLICI CUM SAPONE.—Carbolic Acid Suppositories. Carbolic acid, gr. xij. ; curd soap, clxxx. ; starch, a sufficiency. To be divided into

12 equal parts, so that each suppository contains 1 grain of carbolic acid.

Actions and Uses.—Carbolic acid, applied to the skin, is an irritant and caustic. It coagulates the albumen, and renders the part white. It has also the power of destroying the low forms of organic life, and this property has led to its extensive use in surgery as an antiseptic. It prevents and arrests fermentation and putrefaction. According to Pasteur, Lister, and others, the formation of unhealthy pus is mainly, if not solely, due to the presence of germs, which are found floating abundantly in the atmosphere. These are destroyed by carbolic acid. Surgeons are employing it extensively in wounds and bruises, in abscesses and compound fractures. In such cases it seems to do good in its threefold capacity of caustic, stimulant, and antiseptic. For example, it represses granulations where they are exuberant, invigorates weak and unhealthy sores, and averts the tendency to suppuration. Ample evidence has already been afforded of its value in such cases, suppuration having been, if not averted, at least much diminished; and irritative fever, and the risks of hectic and pyæmia averted. Did the drug do nothing more than this, it would stamp it as one of the most valuable of modern times. But it has a wider range of useful application. It is of service in burns; in ulcers; in skin diseases, such as lepra, psoriasis, porrigo, and scabies; and even in lupus it fails not to leave a beneficial mark. When carbolic acid is taken internally, it speedily appears in the urine, rendering that fluid of a dark colour, and giving it the odour of carbolic acid. Its chief use internally is to allay vomiting, which it properly does by an anæ-

thetic action. In this respect, however, it is in no way superior to creasote. As an injection (gr. j. to f̄iv. aq.), it corrects fetor of the bowel or bladder; and foul breath is combated well by a gargle of the strength of gr. j. to the f̄j.

The glycerine of carbolic acid, somewhat diluted, is useful in certain forms of skin disease. The suppositories are useful in diarrhoea and dysentery. For surgical purposes it is used in various forms, and of different degrees of strength. Gauze impregnated with carbolic acid is extensively used as an antiseptic dressing. A solution of carbolic acid in oil (1 to 8) has also been found very useful; and watery solutions of various degrees of strength, from 1 in 40 to 1 in 100, have all been found beneficial. It is also good for general disinfecting purposes.

Creasotum. Creasote.

A product of the distillation of wood tar.

Characters and Tests.—A liquid, colourless or with a yellowish tinge, with a strong empyreumatic odour; sparingly dissolved by water, but freely by alcohol, ether, and glacial acetic acid. Coagulates albumen. Specific gravity, 1·071. It turns the plane of polarisation to the right. Other tests like carbolic acid.

Dose.—1 to 3 drops.

Adulterations.—Fixed and volatile oils. Its purity may be known by its being colourless, by its entire solubility in acetic acid, and by leaving no translucent stain on white filtering paper when dropped on it, and exposed for ten minutes to a temperature of 212°.

MISTURA CREASOTI.—Creasote Mixture. Creasote, min. xvj.; glacial acetic acid, min. xvj.; spt. of

juniper, f̄ss. ; syrup, f̄j. ; dist. water, f̄xv. Mix the creasote with the acid, gradually add the water, and lastly the syrup and spt. of juniper. Each fluid ounce contains one minim of creasote.

Dose.—f̄j. to f̄ij.

VAPOR CREASOTI.—Inhalation of Creasote. Creasoti, min. xij. ; boiling water, f̄viiij. For inhalation.

UNGUENTUM CREASOTI.—Ointment of Creasote. Creasote, f̄j. ; simple oint., ̄j. Mix thoroughly.

Actions and Uses.—Irritant, styptic, sedative, and antiseptic. In large doses it occasions giddiness, dimness of vision, depression of the heart's action, convulsions, and coma. Half a fluid drachm will kill a rabbit in a few minutes. When introduced into a vein, it kills by paralyzing the heart. As a styptic, it arrests hæmorrhage, but is not much used in this way. As a stimulant and astringent, externally in the form of lotion or ointment, it has been of service in skin diseases, such as lepra, psoriasis, porrigo, etc. ; and indolent ulcers, and those arising from burns, assume a more healthy appearance under it. It is one of the most successful topical remedies for toothache, a drop or two into the cavity—previously cleaned—seldom failing to give relief. Internally, creasote is a valuable sedative in the vomiting of pregnancy, of hysteria, of sea-sickness, and even often allaying for a time that depending on organic disease. In diabetes it has been given to allay excessive thirst, but often fails. Given in a full wine-glassful of some aromatic water, or dropped on sugar. As its action is transient, it should be repeated frequently. It has also been found useful in diarrhœa and dysentery.

Pix Liquida. Tar.

A bituminous liquid obtained from the wood of *Pinus sylvestris*, *Linn.*, and other pines, by destructive distillation.

Characters and Tests.—Thick, viscid, brownish-black, of a peculiar aromatic odour. Water agitated with it acquires a pale brown colour, sharp empyreumatic taste, and acid reaction.

UNGUENTUM PICIS LIQUIDÆ. — Ointment of Tar. Tar, ℥v. ; yellow wax, ℥ij. Melt the wax with a gentle heat, add the tar, and stir the mixture briskly while it cools. An excellent form for various scaly and pustular skin diseases.

Actions and Uses.—Formerly employed as a stimulant, diaphoretic, and expectorant, in chronic catarrh, and in the form of inhalation in phthisis and other chest complaints, but now seldom used internally. It is one of the best remedies for external use in lepra, psoriasis, and tinea capitis.

Spiritus Rectificatus. Rectified Spirit.

Alcohol, C_2H_6O , with 16 per cent. of water. Specific gravity, 0.838, obtained by the distillation of fermented saccharine fluids, and by rectification, if necessary.

Characters and Tests.—Colourless, transparent, mobile, and inflammable, with a peculiar and agreeable odour and a hot taste. Burns with a blue flame, without smoke. Twenty-three tinctures are made with rectified spirit.

SPIRITUS TENUIOR.—Proof Spirit. Rect. spt., Ov. ; dist. water, Oij. Mix. Specific gravity, 0.920. Forty-one tinctures are made with proof spirit.

Actions and Uses — Stimulant, irritant, sedative, diuretic, but seldom used alone in medicine. It is most extensively used, however, in pharmacy, as a solvent, and for preparing alcohol (absolute), and the spiritus tenuior. A few observations on alcoholic fluids are made under Wine.

Spiritus Vini Gallici. Spirit of French Wine.

Synonym.—Brandy.

MISTURA SPIRITUS VINI GALLICI.—Mixture of Spirit of French Wine. Spirit of French wine, cinnamon water, of each, $\text{f}\bar{\text{z}}\text{iv}$.; the yolk of two eggs; refined sugar, $\bar{\text{z}}\text{ss}$. M. A useful and pleasant stimulant in the adynamic stage of fever, and in other states of prostration.

Dose.— $\text{f}\bar{\text{z}}\text{j}$. to $\text{f}\bar{\text{z}}\text{ij}$.

Vinum Xericum. Sherry.

A Spanish wine.

Character.—A transparent liquid of a pale yellow colour, containing about 18 per cent. of alcohol.

Actions and Uses.—Stimulant. Used in the preparation of most of the wines in the pharmacopœia. About the use and utility of alcoholic liquids in medicine there is considerable contrariety of opinion, the temperance question coming in often, even among professional men, to bias the mind, and prevent a calm estimate of their therapeutical effects and position. We think there is little doubt but that, whether in the form of wines, whisky, brandy, etc., they are often useful stimulants, helping to tide patients over periods of weakness and exhaustion. In fevers, in convalescence from acute diseases, and in debility from pro-

tracted discharges, they are often of great service, and in cases of shock from injury, or faintness and exhaustion from other causes, benefit is derived. In general, they should not be used where there is acute local inflammation.

Vinum Aurantii. Orange Wine.

Wine made in Britain by the fermentation of a saccharine solution, to which the fresh peel of the bitter orange has been added.

Characters and Tests.—A venous liquid, having a golden sherry colour, and a taste and aroma derived from the bitter orange peel. It contains about 12 per cent. of alcohol, and is but slightly acid.

Used to prepare quinine wine and citrate of iron wine.

Æther Purus. Pure Ether. $C_4H_{10}O$.

Ether free from alcohol and water.

Test.—Specific gravity not exceeding 0.720.

Æther. Ether.

Synonym.—Æther sulphuricus, Ed., Dub. Oxide of ethyl, $C_4H_{10}O$, with about 8 per cent. by volume of alcohol.

Characters and Tests.—A colourless, very volatile and inflammable liquid, emitting a strong and characteristic odour, and boiling below 105° . Poured on the hand it evaporates rapidly, producing a sensation of cold. Specific gravity, 0.735.

Dose.—20 to 60 minims.

SPIRITUS ÆTHERIS.—Spirit of Ether. Ether, f̄3x., rectified spirit, Oj. Mix.

Tests.—Specific gravity 0·809.

Dose.—30 to 90 minims.

It is used to prepare ethereal tincture of lobelia. It is more miscible in mixtures than the ether.

Actions and Uses.—Narcotic, antispasmodic, stimulant, anæsthetic, and an external refrigerant. Inhaled, it is a speedy, and, if properly administered, a safe anæsthetic. It was used as an anæsthetic in America, and also in this country, before chloroform. After the discovery of the virtues of chloroform, it was, in a great measure, abandoned, but of late years it has been preferred by some surgeons for the purpose of producing anæsthesia. It is also a powerful diffusive stimulant. It is speedily absorbed, and increases the action of the heart. It is given as a stimulant in asphyxia, fainting, and the adynamic stages of various fevers, but the short-lived nature of its action renders it inferior to alcoholic fluids. It is of most service as an antispasmodic, combined with opium, in stomach-cramp, hiccup, and flatulent colic; and in asthma and hysterical aphonia. It acts as a carminative by its vapour attracting the gases evolved in the stomach; and it is a powerful external refrigerant, owing to its rapid evaporation, often relieving headache of various kinds.

Æther Aceticus. Acetic Ether. $C_2H_5C_2H_3O_2$.

Is prepared by distilling acetate of soda, rectified spirit, and sulphuric acid.

Characters and Tests—A colourless liquid, with an agreeable ethereal odour. Specific gravity, 0·910. Soluble in ether and rectified spirit. One part dissolves in eleven or twelve parts of water at 60°.

Dose.—20 to 60 minims.

Actions and Uses.—Much the same as those of ether. It is more agreeable in mixtures, and is a better solvent for cantharides in the liq. epispasticus and other preparations.

Spiritus Ætheris Nitrosi. Spirit of Nitrous Ether.

Characters and Tests.—A spirituous solution containing nitrous ether, $C_2H_5NO_2$. Specific gravity, 0.845. A slightly yellow fluid, mobile, inflammable, of an apple-like odour; sweetish, cool, sharp taste.

Dose.—fʒss. to fʒij.

Actions and Uses.—A stimulating diuretic, diaphoretic, and antispasmodic. It is useful, along with squill and potash, in cardiac dropsy, and (but less so) in that arising from renal disease. It is given to increase the flow of urine, and thus to help the solution of deposits in gravel, and to diminish the acrimony of the urine in gonorrhœa. Along with liquor ammoniæ acetatis (Mindererus spirit), it is an excellent diaphoretic in catarrh and the early stages of fevers. In large doses it is a narcotic poison; in smaller doses it sometimes produces griping and pain in the stomach. This is corrected by mixing it with juniper and potash.

Chloroformum. Chloroform. $CHCl_3$.

Characters and Tests.—A limpid, colourless liquid, of an agreeable ethereal odour, and sweet taste. Mixes with alcohol and ether in all proportions; and dissolves slightly in water, communicating to it a sweetish taste. Burns, though not readily, with a green and smoky flame. Specific gravity, 1.49.

Preparation.—Chlorinated lime, lbx.; rect. spt., fʒxxx.; slaked lime, a sufficiency; water cong., iij.; sulphuric acid, a sufficiency; chloride of calcium, in

small fragments, $\bar{3}$ ij. ; dist. water, \bar{f} ix. Place the water and spirit in a capacious still, and raise the mixture to a temperature of 100° . Add the chlor. lime, and \bar{l} v. of the slaked lime, mixing thoroughly. Connect the still with a condensing worm encompassed by cold water, and terminating in a narrow-necked receiver; and apply heat, so as to cause distillation, taking care to withdraw the fire the moment that the process is well established. When the distilled product measures $\bar{3}$ l. the receiver is to be withdrawn. Pour its contents into a gallon bottle half-filled with water, mix well by shaking, and set at rest for a few minutes, when the mixture will separate into two strata of different densities. Let the lower stratum, which constitutes crude chloroform, be washed by agitating it in a bottle with $\bar{3}$ ij. of the dist. water. Allow the chloroform to subside, withdraw the water, and repeat the washing with the rest of the distilled water in successive quantities of $\bar{3}$ ij. at a time. Agitate the washed chloroform for five minutes in a bottle, with an equal volume of sulphuric acid; allow the mixture to settle, and transfer the upper stratum of liquor to a flask containing the chlor. calc., mixed with $\bar{3}$ ss. of slaked lime, which should be perfectly dry. Mix well by agitation. After the lapse of an hour, connect the flask with a Liebig's condenser, and distil over the pure chloroform by means of a water bath. Preserve the product in a cool place, in a bottle with an accurately ground stopper.

SPIRITUS CHLOROFORMI. — Spirit of Chloroform. Chloroform, \bar{f} 3j. ; rect. spt., \bar{f} 3ix. Dissolve.

Test.—Specific gravity, 0.871.

Dose.—20 to 60 minims.

TINCTURA CHLOROFORMI COMPOSITA. — Compound Tincture of Chloroform. Chlorof., f̄ij. ; rect. spt., f̄viiiij. ; tinct. cardam. comp., f̄x. Mix.

Dose.—20 to 60 minims.

AQUA CHLOROFORMI.—Chloroform Water. Chloroform, f̄j. ; dist. water, f̄xxv. Put them into a two-pint stoppered bottle, and shake them together until the chloroform is entirely dissolved in the water.

Dose.—f̄ss. to f̄ij.

LINIMENTUM CHLOROFORMI.—Liniment of Chloroform. Chloroform, f̄ij. ; liniment of camphor, f̄ij. Mix.

Actions and Uses.—Narcotic, stimulant, sedative, antispasmodic, anæsthetic. In large doses it is a narcotic poison, producing profound coma and death from syncope, or from asphyxia. In medicinal doses it is sedative and antispasmodic, and has been given in tetanus, hydrophobia, hysteria, cancerous diseases, painful digestion, chronic vomiting, neuralgia, asthma, and spasmodic cough. In all of these diseases, with the exception of the second, excellent results will often be obtained. In irritable cough especially, and some cases of hysteria, decided benefit almost invariably accrues. As an external application, well diluted, chloroform is useful in neuralgia and muscular rheumatism, but far inferior to opium, belladonna, or aconite ; and it subdues the itching, if it does not promote the cure, of some skin diseases, such as lichen, prurigo, and urticaria. Such are some of the uses and applications of chloroform, but it has another property of a higher kind, which has won for it a name and unrivalled fame throughout the civilised world, namely, that of inducing insensibility to pain. For its introduction for this purpose, we are indebted to the late distinguished

Professor of Midwifery in the University of this city, whose early labours and experiments in connection with it entitle him to the gratitude of mankind. As an anæsthetic, it stands *per se*, and unequalled; no previous or subsequent one being so safe, speedy, or effectual. When inhaled in doses of from fʒss. to fʒss. coma is produced, generally in a few minutes, with stertorous respiration, upturning and fixing of the eyes, muscular relaxation, unconsciousness, and insensibility to pain. The pulse is sometimes stronger, at other times weaker and quicker. This comatose condition is preceded by a variety of feelings, sensations, and manifestations on the part of the patient, such as ringing in the ears, fulness in the head, dizziness, agreeable ideas and sights, change in the colour of objects. In some there is a tendency to laughter and calm repose, in others, to sonorous talk and turbulence. The state of insensibility lasts, in general, about ten minutes, but may be prolonged much longer; after this, there is a revival of consciousness and sensibility, with mayhap no recollection of what passed, and often neither sickness, headache, nor exhaustion. Some few do not tolerate it well, excessive depression of the heart's action resulting; but it is not easy to say what are the conditions which contra-indicate it. I have administered it frequently without any apparent bad effects in phthisical patients, and some where there were suspicions, if not more, of cardiac disease, and I know that this is the experience of not a few. It is better, however, to be very chary and cautious in these cases, and the pulse and respiration—which in the soundest patient demand the strictest vigilance—should be observed with increased care. If the former become

weak and the latter irregular, it is better then to suspend its use. In some few, the tongue becoming powerless, falls backward, threatening asphyxia; in these cases it is grasped, and pulled forwards, and the process of stupefaction may be carried on as before. When death is threatened, either from an overdose or constitutional peculiarity, a current of cold air should be directed across the face, cold water applied to the head and chest, ammonia held to the nostrils, and artificial respiration and galvanism resorted to if required. On the partial revival of the patient, internal stimulants may be given. The therapeutical applications of chloroform, in the form of inhalation, may almost be inferred from the foregoing remarks; wherever a painful operation has to be borne, there will it be found a boon. For the prevention of pain, during surgical operations, it is in daily use; and there are some cases, such as dislocations, strangulated hernia, and catheterism in spasmodic stricture, where it serves a twofold purpose, namely, that of a relaxant, as well as a prophylactic of pain. The exceptions to its use during surgical operations are few; those about the mouth and nose are unfavourable to it, owing to the risk of blood flowing into the air passages while the patient is insensible. Further, in midwifery practice, chloroform has been of incalculable service, not more in the way of banishing the pain of natural labour, than of facilitating interference in that which is not natural. For anæsthetic purposes, from fʒj. to fʒij. is poured on a handkerchief hollowed somewhat like a cup, and inhaled by the mouth and nostrils—the handkerchief being brought gradually into contact with the face, the patient lying on his back, with head slightly elevated.

Chloral Hydras. Hydrate of Chloral. $C_2HCl_3O.H_2O$.

Chloral produced by the action of dry chlorine gas on anhydrous alcohol, purified by treatment with sulphuric acid and lime, and finally converted into the solid hydrate by water.

Characters and Tests.—In colourless crystals, not deliquescent. It has a pungent, but not an acrid odour, and a pungent and rather bitter taste. Soluble in less than its own weight of distilled water, rectified spirit, or ether, and in four times its weight of chloroform.

Dose.—5 to 30 grains.

SYRUPUS CHLORAL.—Syrup of Chloral. Each fluid drachm contains gr. x. of the hydrate of chloral.

Dose.—fʒss. to fʒij.

Actions and Uses.—Sedative, hypnotic, and antiseptic. This is one of the best and purest hypnotics we possess. It produces sound and placid sleep, and generally without any bad effects afterwards. This substance was known in 1832, but it was not till 1869 that it was introduced into medical practice by Professor Leibreich of Berlin. He discovered that alkalis decompose it into chloroform and a formate of the alkali, and so was led to try its effect as a hypnotic, believing that the alkalies of the blood would decompose it into chloroform and a formate. Without discussing the correctness of this theory, it is sufficient to state that it acts speedily and effectually as a hypnotic, generally producing sleep within half-an-hour, and frequently within five or ten minutes. It is a safe medicine for children, and may be given in doses of one grain for every year up to twenty years. The Editor has frequently given it to infants, and in some

cases to children only two weeks old, and always with the best results. Chloral may be given in all cases of nervous irritability and mental excitement, and is specially good in delirium tremens. It is one of the best medicines for delirium tremens, given in doses of 40 grains or more. It is also good in whooping-cough, asthma, and other spasmodic diseases, and is one of the most powerful drugs in tetanus. Possibly no other medicine acts so powerfully in subduing the spasms of that disease. It probably acts here in much the same way as it acts as an antidote to strychnia poisoning. It has been found that within certain limits it is a perfect antidote to strychnia. It is a good medicine for producing sleep in fevers, in inflammation of the membranes of the brain, and for arresting infantile convulsions. It is not equal to opium in subduing pain, but it is superior for producing sleep in cases of mere irritability of the nervous system. It answers well for the insane.

As an antiseptic it is of great service. Dr Keen of Philadelphia was the first to discover the wonderful effects of chloral in this respect; and the Editor has repeated and extended Dr Keen's experiments, by which it is clearly proved that chloral is one of the most powerful antiseptics in the pharmacopœia. Even a weak solution of gr. v. to the ounce of water will preserve animal tissues from decay. It does not coagulate the albumen of the tissues, and in this respect is superior to carbolic acid or spirit. A solution of 5 to 15 grains to the ounce of water may be used as a preservative fluid for injecting subjects for the dissecting rooms. It may also be used as a lotion, 5 to 15 grains to the ounce of water, for ulcers and wounds,

or for injecting into the cavities of abscesses. In such cases it acts as an antiseptic, sedative, and astringent. Patients tell that, whilst the wound smarts at first, very speedily a soothing effect is produced. Lint, soaked in a solution containing 15 to 20 grains to the ounce of water, applied to warts and covered with gutta percha, is the best application to remove these troublesome excrescences. It causes no pain, and very speedily the warts are diminished in size. Chloral lotion may also be used in conjunctivitis, and as an application to sore nipples.

Alcohol Amylicum. Amylic Alcohol. $C_5H_{12}O$.

Specific gravity, 0·818.

Synonym.—Fousel Oil.

Characters and Tests.—A colourless liquid, with a penetrating and oppressive odour, and a burning taste. When pure, its specific gravity is 0·818, and its boiling point 270° . Sparingly soluble in water, but soluble in all proportions in alcohol, ether, and essential oils. Exposed to the air in contact with platinum-black, it is slowly oxidised, yielding valerianic acid.

Uses.—Unimportant; used in the preparation of the valerianate of soda, and the next preparation.

Amyl Nitris. Nitrite of Amyl. $C_5H_{11}NO_2$.

Produced by the action of nitric or nitrous acid on amylic alcohol.

Characters and Tests.—An ethereal liquid of a yellowish colour and peculiar odour. Specific gravity, 0·877. Insoluble in water, but freely soluble in rectified spirit. Added drop by drop to caustic potash while fused by heat, it forms valerianate of potash.

Dose.—By inhalation, the vapour of 2 to 5 minims.

Actions and Uses.—A stimulant of unrivalled potency, and demanding caution in its use. A single drop inhaled raises the pulse 30 to 50 beats in a few seconds, and occasions singularly bright flushing of the countenance. It diminishes the arterial pressure, and lessens the temperature of the body. Has been recommended in angina pectoris, for which it is a good remedy. It is also useful in asthma.

Cerevisiæ Fermentum. Beer Yeast.

The ferment obtained in brewing beer.

Characters.—Viscid, semi-fluid, frothy; exhibiting under the microscope round or oval confervoid cells.

Dose.— $\bar{3}\frac{1}{2}$ to $\bar{3}j.$, in camphor water, every three or four hours.

CATAPLASMA FERMENTI. — Yeast Poultice. Beer yeast, $\bar{f}\bar{3}vj.$; flour, $\bar{3}xiv.$; water, heated to 100° , $\bar{f}\bar{3}vj.$ Mix the yeast with the water, and stir in the flour. Place the mass near the fire till it rises.

Actions and Uses.—Has been recommended as a stimulant in typhoid fever, but appears to do little good. There are better carminatives for tympanitis; and it is not equal to the charcoal poultice as an application to foul sores. As an application to recent bruises, spread on lint, it does seem to promote restoration. As an application to foul sores, it is rather a painful poultice.

W A T E R S.

Aqua. Water.

Natural water, the purest that can be obtained, cleared if necessary by filtration.

Tests.—Free from odour, taste, and visible impurity.

Aqua Destillata. Distilled Water. H_2O .

Tests.—A fluid ounce of it, evaporated in a clean glass capsule, leaves scarcely a visible residue. It is not affected by sulphuretted hydrogen, oxalate of ammonia, chloride of barium, or solution of lime.

Uses.—This answers best for most pharmaceutical purposes, and should be used in mixtures containing any of the following articles:—Argent, nit.; plumb. acet.; ferri sulph.; zinci sulph.; antim. tart.; acid. sulphuric; hydrarg. corrosiv. sub.; liq. plumb. subacet.

Mineral Waters.

These form an important class, and possess considerable healing virtues. The benefits alleged to accrue from their use are in many cases, no doubt, due to their surroundings and accessories—pure air, exercise, rural scenery, social pleasures, and exemption from the toils of business. The more common substances existing in them are sulphur, iron, acids, and various salts. They are cold and warm—the latter being termed *thermal*. They may be divided into—1. Chalybeate; 2. Saline; 3. Sulphurous; 4. Acidulous.

Chalybeate.—These contain iron in the form of carbonate, sulphate, etc. Their action is tonic,

strengthening the pulse, augmenting muscular tone, and improving the condition of the blood, and are useful in debility, scrofula, amenorrhœa, etc. A few may be named—Hartfell, near Moffat, *cold*; Tunbridge, in Kent, *cold*; Bath, in Gloucestershire, *thermal*.

Saline.—In these we have salts such as sulph.-soda, sulph.-magnesia, etc. They are mostly purgative. They are given in constipation, to restore the healthy action of the bowels, and help digestion. *Examples*: Seidlitz, in Bohemia, *cold*; Epsom, in Surrey, *cold*; Leamington, in Gloucestershire, *cold*.

Sulphurous.—These owe their character to hydro-sulphuric acid, free, and combined with soda, lime, etc. They have a disagreeable odour. Their action is stimulant and diaphoretic. They are given in chronic skin diseases, chronic rheumatism, chlorosis, amenorrhœa, secondary syphilis, and dyspepsia, due to disordered action of the liver. *Examples*.—Moffat and Strathpeffer, *cold*; Aix-la-Chapelle, *thermal*; Harrogate, *cold*.

Acidulous.—These are characterised by the presence of carbonic-acid gas, with various salts of soda, lime, etc. They have an acid taste, and sparkle on being poured. They are stimulant and diuretic, and are given in dyspepsia, in dropsy with debility, in chlorosis, and deposit of phosphates in the urine. They stimulate considerably, but transiently, the nervous and vascular systems. *Examples*.—Seltzer, *cold*; Spa, *cold*; Scarborough, *cold*; Carlsbad, *thermal*.

There are several thermal springs which owe their virtues apparently to their temperature; for they contain but an insignificant amount of solid matter. Such are Matlock, Buxton, Wildbad, Aix-en-Provence.

II.—VEGETABLE SUBSTANCES.

I.—*THALAMIFLORÆ*.**RANUNCULACEÆ.**—THE BUTTER-CUP FAMILY.

The plants of this order have narcotico-acrid properties, and many of the plants are poisonous. There are only two officinal plants, but others are frequently used in medicine.

I.—*ACONITUM NAPELLUS*, *Linn.*

Aconite, Monkhood, or Wolfsbane. This plant is easily recognised by its peculiar blue flowers. These form an indefinite raceme. The upper sepal is hooded in a remarkable manner, hence the name, Monkhood. The plant is from 2 to 3 feet in height, is a herbaceous perennial, and is a native of the mountainous parts of Central Europe, but is found naturalised in England and Scotland. The leaves and root are officinal.

Aconiti Folia. Aconite Leaves.

The fresh leaves and flowering tops of *Aconitum Napellus*, *Linn.* Monkhood. Gathered when about one-third of the flowers are expanded, from plants in Britain.

Characters.—Leaves smooth, palmate, divided into five deeply-cut, wedge-shaped segments, exciting when chewed a sensation of tingling; flowers numerous, irregular, deep blue, in racemes. Used for preparing the next preparation.

EXTRACTUM ACONITI.—Extract of Aconite. Prepared from the fresh leaves and flowering tops of aconite. For preparation, see *Brit. Phar.*

Dose.—1 to 2 grains.

Aconiti Radix. Aconite Root.

The dried root of *Aconitum Napellus*, *Linn.* Imported from Germany, or cultivated in Britain, and collected in the winter or early spring, before the leaves have appeared.

Characters.—From one to three inches long, not thicker than the finger at the crown, tapering, wrinkled, blackish-brown, internally whitish. A minute portion cautiously chewed causes prolonged tingling and numbness.

Analysis.—An alkaloid named aconitia, combined with aconitic acid. It also contains alkaloids napaline and aconella, the latter is supposed to be identical with narcotine, one of the alkaloids of opium. It also contains mannite, cane sugar, resin, and fatty matter.

TINCTURA ACONITI.—Tincture of Aconite. Aconite root, powder, $\bar{3}ij\frac{1}{2}$; rectified spirit, Oj. Macerate 48 hours, then percolate, and add spirit to make a pint.

Dose.—5 to 15 minims.

LINIMENTUM ACONITI.—Liniment of Aconite. Aconite root, powder, $\bar{3}xx.$; camphor, $\bar{3}j.$; rectified spirit, $\bar{f}xx.$ Macerate seven days, and percolate; the product should be Oj.

Aconitia. Aconitia.

An alkaloid, $C_{30}H_{47}NO_7$, obtained from aconite root.

Characters and Tests.—A white, usually amorphous solid, soluble in 150 parts of cold and 50 of hot water;

much more soluble in alcohol and ether. Rubbed on the skin it causes tingling and protracted numbness. A very active poison, possessing in a concentrated degree the properties of the other forms. It melts with heat, and burns with a smoky flame, leaving no residue when burned with free access of air. It is only used to form the next preparation.

UNGUENTUM ACONITÆ. — Ointment of Aconitia. Aconitia, gr. viij. ; rect. spt., f̄ss. ; prepared lard, ʒj. Dissolve the aconitia in the spirit, add the lard, and mix thoroughly.

Actions and Uses.—Sedative anodyne, and a powerful poison. A minute portion causes a tingling sensation and numbness, while larger quantities induce depression of the vital powers, the effects being confusion, loss of sight, and of common sensation, paralysis of the voluntary muscles, death taking place from paralysis of the respiratory muscles. Externally it acts chiefly on the superficial sensory nerves, and tends to extinguish pain. It is one of the best external applications for neuralgia of all kinds. It is also good in sciatica, lumbago, pleurodynia, etc. It should not be applied to a mucous surface or to broken skin. Internally it subdues the action of the heart, and is used in acute inflammations, especially pneumonia, tonsilitis, rheumatism, pleurisy, and acute inflammations generally. Aconite not only lowers the action of the heart, but lessens the strength of the pulse. It also diminishes the number of the respirations. It is supposed by some to “destroy the functions of nitrogenous tissues,” and this explains its action on the circulation and the respiration.

The liniment and ointment are most useful as

external applications for subduing pain, especially of the neuralgic and rheumatic kind. For internal use the tincture is generally given in small doses, frequently repeated, every hour or so, until an effect on the heart is produced. The action of the heart must be carefully watched on all occasions.

II.—*PODOPHYLLUM PELTATUM*, *Linn.* May Apple.

This is a perennial plant with a creeping rhizome. The stem is erect, often nearly a foot in length, and bearing on its summit two peltate leaves, on petioles 2 to 4 inches long, and between these leaves there is a solitary white flower. The fruit is fleshy, about the size of an egg, and is somewhat oval in shape. The plant is a native of the United States of America, and is generally found in moist, shady woods, or in marshy ground. The officinal part is the underground stem or rhizome.

Podophylli Radix. Podophyllum Root.

The dried rhizome of *Podophyllum peltatum*, *Linn.* Imported from North America.

Characters.—In pieces of different lengths, about two lines thick, wrinkled longitudinally, reddish-brown externally, whitish within, breaking with a short fracture; accompanied with pale-brown rootlets. Powder yellowish-grey, sweetish in odour, bitterish subacid, and nauseous in taste.

Use.—Employed for preparing the next preparation.

Podophylli Resina. Resin of Podophyllum.

A resin obtained from podophyllum, by means of rectified spirit.

Characters and Tests.—A greenish-brown, amorphous powder, soluble in rectified spirit and in ammonia; precipitated from the former solution by water, from the latter by acids. Almost entirely soluble in pure ether.

Dose.— $\frac{1}{4}$ to 1 grain.

Actions and Uses.—Cathartic, cholagogue, and alterative. This drug has been extensively employed in America for a considerable period. As an alterative, it possesses no great power. It seems to be useful in the way of increasing and improving the biliary secretions, thus doing good in hepatic derangements of minor importance; the stools, tongue, and appetite, also sharing in the amelioration. It is somewhat uncertain in its action, or else some are much more susceptible than others; for what will painfully operate on one, may not affect another. It is a powerful cholagogue, but its action on the liver is somewhat lessened on account of its being also a violent cathartic. It frequently causes painful griping, and therefore should be prescribed along with henbane or belladonna.

Formula.—℞ Podophylli resinæ, gr. iij.; pulveris rhei, gr. xxiv.; extracti hyoscyami, gr. xx. Misc. Divide in pilulas duodecim.

Dose.—1 or 2 pills.

It is better to give small doses, until it is seen how the patient bears it.

There are no other officinal plants in this order; the seeds, however, of—

DELPHINIUM STAPHISAGRIA, *Linn.*, Stavesacre, have been employed as a decoction, and as an ointment for destroying pediculi. The plant is 3 or 4 feet high, much branched, and covered with long, soft,

spreading hairs. It is a native of the countries bordering on the north of the Mediterranean, and of Asia Minor.

The seeds, *Staphisagriæ semina*, are triangular, dark brown, and wrinkled. They have a bitter, nauseous taste. They contain a volatile oil and an alkaloid, *delphinia*, on which their activity depends. They are said to contain other two alkaloids, and an acid called delphinic acid. They are called in Germany "*louse seeds*." For this purpose they are most valuable and safe, and they ought to be officinal.

Another plant of this natural order, though not officinal, is possessed of considerable medicinal virtue.

ACTÆA RACEMOSA, *Linu.*—*Cimicifuga racemosa* of other botanists. Black Snakeroot. Black Cohoste. This is a perennial plant, several feet in height, and is a native of the moist, shady woods of North America. It is officinal in the United States. The parts used in medicine are the rhizome and rootlets, called *Cimicifuga*. The rhizome is collected in autumn, when it is most active. The rhizome varies from $\frac{1}{4}$ to 1 inch in thickness, several inches in length, and with a variable number of rootlets attached. The active principle, *cimicifugin*, a kind of impure resin, is soluble in alcohol, and hence we have a tincture—one of root to four of spirit, and given in doses of 30 to 60 minims. This substance has long been used in the United States as a remedy in acute rheumatism, chorea, and epilepsy, and the late Sir James Y. Simpson strongly recommended its use in this country. A strong tincture or liniment has been highly recommended as an external application for subduing inflammation.

MAGNOLIACEÆ.—THE MAGNOLIA FAMILY.

The plants of this order have bitter and aromatic tonic properties.

This order contains only one officinal plant—*Illicium anisatum*, *Linn.*, Star Anise. In China *Oleum Anisi* is distilled from the fruit of this plant. The bark of *Drymis Winteri*, which is tonic and aromatic, is extensively used in America for dyspepsia, but is not officinal in this country.

MENISPERMACEÆ.—THE MOON-SEED FAMILY.

The plants of this order have bitter and narcotic properties. Only two plants are officinal in this natural order.

I.—*JATEORRHIZA CALUMBA*, *Miers*. Calumba.

Cocculus palmatus, D.C., *Jateorrhiza palmata* of some botanists. This is a hairy twining plant. The stem is seldom more than $\frac{1}{2}$ inch thick, but grows to a great length, often climbing to the summits of trees, and is herbaceous. The leaves are very large. The root, which is the officinal part, is large and fleshy.

Calumbæ Radix. Calumba Root.

The root of the *Jateorrhiza Columba*, *Jateorrhiza palmata* or *Cocculus palmatus*, sliced transversely, and dried. From the forests of Eastern Africa, between Ibo and Zambesi.

Characters.—Slices flat, somewhat circular, about 2 inches in diameter, and from 2 to 4 lines thick, softer

and thinner towards the centre, greyish-yellow, bitter. A decoction, when cold, is blackened by a solution of iodine.

Dose in powder.—5 to 20 grains.

Analysis.—A crystalline, bitter, neutral principle, calumbin, berberia, calumbic, acid, starch, volatile oil, gum, etc.

Adulterations.—The root of bryonia epigœa, and that of Frasera Walteri (false calumba), have been sold for the true. The former has an acrid, bitter taste; the latter is known by its infusion becoming dark-green on the addition of a sequisalt of iron, an infusion of the true root remaining unchanged.

EXTRACTUM CALUMBÆ.—Extract of Calumba. Prepared by macerating the calumba in water, and evaporating to a proper consistence for forming pills.

Dose.—2 to 10 grains.

TINCTURA CALUMBÆ.—Tincture of Calumba. Calumba, ℥iiss.; proof spt., Oj. Macerate 48 hours, percolate, add spirit to make up. Oj.

Dose.—fʒss. to fʒij.

INFUSUM CALUMBÆ.—Infusion of Calumba. Calumba, ℥ss.; cold dist. water, fʒx. Macerate one hour, and strain.

Dose.—fʒj. to fʒij.

Incompatibles.—Iodine, nitrate of silver, and acetate of lead.

Actions and Uses.—An admirable bitter tonic, and free of astringency. Of service in dyspepsia, with defective tone, irritability, and diminished secretion. In vomiting, apart from inflammatory or organic disease, it is often very useful. This anti-emetic action is probably due to the calumbin, which possesses slightly

sedative properties. In the advanced stages of diarrhoea and dysentery, with want of tone and debility, good results, at times, follow its use. On account of its want of astringency, it may be combined along with the persalts of iron.

II.—CHONDRODENDRON TOMENTOSUM, *Ruiz and Pavon.*

Pareira-brava. Velvet Leaf or Wild Vine of Brazil. This plant has been proved to furnish the officinal pareira root, and not the *Cissampelos Pareira*, *Linn.*, as stated in the British Pharmacopœia. The plant is a woody climber of large size, and climbs to the summits of the highest trees in the forests. The ripe fruit resembles a large bunch of grapes. It is a native of the forests of Brazil and Peru. The officinal part is the root.

Pareiræ Radix. Pareira Root.

The dried root, from Brazil.

Characters.—Cylindrical, oval pieces, entire, or split longitudinally, $\frac{1}{2}$ in. to 4 in. diam., and 4 in. to 4 ft. in length. Bark greyish-brown, longitudinally wrinkled, crossed transversely by annular elevations; interior woody, yellowish-grey, with well marked, often incomplete, concentric rings. Taste at first sweetish and aromatic, afterwards very bitter.

Dose.—Powder (but not a good form), 30 to 40 grains.

Analysis.—Cissampeline, on which its activity is supposed to depend, and which is an alkaloid, and identical with berberia and buxine, the last obtained from the common boxwood. It exists only in the proportion of 0·5 per cent. Besides this alkaloid, it

also contains starch, hence is turned blue by iodine, and is thus distinguished from the false Pareira-brava.

EXTRACTUM PAREIRÆ.—Extract of Pareira. This is prepared by digesting the pareira in boiling water, and evaporating to a proper consistence for pills.

Dose.—10 to 20 grains.

EXTRACTUM PAREIRÆ LIQUIDUM.—Liquid Extract of Pareira.—This is a fluid preparation, and contains three fluid ounces of rectified spirit in each 16 fluid ounces.

Dose.—f̄ss. to f̄ij.

DECOCTUM PAREIRÆ.—Decoction of Pareira. Pareira, ʒiiss.; dist. water, Oj. Boil 15 minutes, and strain. The product should be Oj.

Dose.—f̄j. to f̄ij.

Actions and Uses.—Tonic and diuretic. It seems to act specifically on the urinary organs, giving tone to the mucous membrane, and ultimately diminishing secretion. It is thus useful in chronic inflammation of the bladder and urethra.

PAPAVERACEÆ.—THE POPPY FAMILY.

The plants of this order have a milky juice, and generally possess well-marked narcotic properties. Only two plants are officinal.

I.—PAPAVER RHŒAS, *Linn.* Common Red Poppy.

This plant is common in corn-fields, and is one of the indigenous medicinal plants. It has large red petals, and is easily recognised from the other native poppies by its smooth-rounded capsule, and its spreading hairs on the peduncle. The officinal parts are the petals.

Rhœados Petala. Red Poppy Petals.

The fresh petals of *Papaver Rhœas*, *Linn.*, from indigenous plants.

Characters.—When fresh, scarlet, and of a heavy poppy odour; when dry, scentless, and more dingy red.

SYRUPUS RHŒADOS.—Syrup of Red Poppy. Contains sugar, water, and spirit. Specific gravity, 1.330.

Dose.—fʒj.

Uses.—Feebly narcotic, but only employed for making the syrup, which is only used for colouring mixtures.

II.—PAPAVER SOMNIFERUM, *Linn.* White Poppy.

This plant is easily known by its being quite glabrous. In this respect it differs from all the other poppies. It is generally supposed to be a true native of South-Eastern Europe and Asia. It has, however, been long a cultivated plant, and is found in many parts of Britain fairly established as an introduced plant, if not truly indigenous. The officinal part is the capsule.

Papaveris Capsulæ. Poppy Capsules.

The nearly ripe dried capsules of the white poppy, *Papaver somniferum*, *Linn.* Cultivated in Britain.

Characters.—About $2\frac{1}{2}$ in. diam., globular, crowned by sessile stellate stigma.

EXTRACTUM PAPAVERIS.—Extract of Poppies. Prepared by water and spirit from poppy capsules, and is of the consistence for making pills.

Dose.—2 to 5 grains.

SYRUPUS PAPAVERIS.—Syrup of Poppies. Prepared from poppy capsules. Contains water, spirit, and sugar. Specific gravity, 1.320.

Dose.—fʒj.

DECOCTUM PAPAVERIS. — Decoction of Poppies. Poppy capsules, bruised, ʒiv.; dist. water, Oij. Boil ten minutes, and strain. The product should be Oij.

Uses.—Chiefly for fomenting inflamed and pained parts, in the form of decoction. The other preparations are not important.

Opium. Opium.

The inspissated juice, obtained by incision from the unripe capsules of the poppy, *Papaver somniferum*, *Linn.*, grown in Asia Minor.

Characters.—Irregular lumps, from ʒiv. to ℥ij., enveloped in a poppy leaf, and generally covered with rumex seeds; when fresh, plastic, tearing with an irregular, slightly-moist, chestnut-brown surface, shining when rubbed smooth with the finger, having a most peculiar odour, and nauseous, bitter taste.

Test.—One hundred grains of opium should yield at least 6 to 8 grains of morphia.

Dose.— $\frac{1}{2}$ to 2 grains.

PULVIS OPII COMPOSITUS.—Compound Powder of Opium. Opium powder, ʒiss.; black pepper, powder, ʒij.; ginger powder, ʒv.; caraway fruit, powder, ʒvj.; tragacanth, ʒss. Mix thoroughly; pass through fine sieve. Every ten grains contain one grain of opium.

Dose.—2 to 5 grains.

CONFECTIO OPII.—Confection of Opium. Compound powder of opium, 192 grains, syrup, 1 fluid ounce. Mix. One grain of opium is contained in 40 grains nearly.

Dose.—5 to 20 grains.

PILULA SAPONIS COMPOSITA.—Compound Pill of Soap. *Synonym.* Pilula Opii, 1864. Opium in fine powder, $\bar{3}$ ss.; hard soap, $\bar{3}$ ij.; dist. water, a sufficiency. Reduce the soap to a fine powder, add the opium with the water, and beat into a uniform mass.

Dose.—3 to 5 grains.

PILULA PLUMBI CUM OPIO.—See Acetate of Lead. Contains one part of opium in eight.

EXTRACTUM OPII.—Extract of Opium. This is prepared by macerating opium in water, and evaporating to a proper consistence for forming pills. It is about twice the strength of opium.

Dose.— $\frac{1}{2}$ to 2 grains.

EXTRACTUM OPII LIQUIDUM. Liquid Extract of Opium. Each fluid ounce contains nearly 22 grains of the extract of opium. Each pint contains four fluid ounces of rectified spirit.

Dose.—10 to 40 minims.

VINUM OPII.—Wine of Opium. Ext. op., $\bar{3}$ j.; cinnamon and cloves, of each, gr. lxxv.; sherry, Oj. Macerate seven days. Each fluid ounce contains nearly 22 grains of the extract of opium.

Dose.—10 to 40 minims.

TINCTURA OPII.—Tincture of Opium. Opium, $\bar{3}$ iss.; proof spt., Oj. Macerate seven days, strain, express, and filter; then add proof spirit to make Oj. It contains the soluble matter of 33 grains of opium nearly in 1 fluid ounce.

Dose.—5 to 40 minims.

It is used to prepare the *enema* and *linimentum*.

TINCTURA OPII AMMONIATA.—Ammoniated Tincture of Opium. Opium, gr. c.; saffron, benzoic acid, of

each, gr. clxxx.; oil of anise, f̄3j. ; strong solution of ammon., f̄3iv.; rect. spt., f̄3xvj. Macerate for seven days, filter. Commonly called Scotch Paregoric. Anodyne and antispasmodic. It contains 5 grains of opium in each fluid ounce.

Dose.—f̄3ss. to f̄3j.

TROCHISCI OPII.—Opium Lozenges. Contain ext. op. ($\frac{1}{10}$ th gr. in each lozenge), tolu, sugar, acacia, liquorice-water.

Dose.—1 to 6 lozenges.

ENEMA OPII.—Enema of Opium. Tincture of opium, f̄3ss.; mucilage of starch, f̄3ij. Mix. Useful in dysentery, irritation of the rectum, etc. Opium acts in this way nearly as energetically as by the mouth.

LINIMENTUM OPII.—Liniment of Opium. Tincture of opium, f̄3ij.; liniment of soap, f̄3ij. Mix. An anodyne liniment for rheumatic and other pains.

EMPLASTRUM OPII.—Opium Plaster. Opium in powder, ̄3j.; resin plaster, ̄3ix. Melt the resin plaster by means of a water bath; then add the opium by degrees, and mix thoroughly.

Opium enters into the composition of—pil. ipecacuanhæ cum scilla, 1 part in $23\frac{1}{2}$ nearly; tr. camph. co. gr. ij. to f̄3j.; pulv. cret. aromat. cum opio, 1 in 40; pulv. kino co., 1 in 20; pulv. ipecac. co., 1 in 10; and of unguent. gallæ cum opio, gr. xxxij. to the ounce of unguent. gallæ.

Incompatibles.—Plumb. acet., zinc. sulph., copper, and iron, corros. sub., and astringent vegetable preparations.

Adulterations.—Moisture, sand, stones, leaves, seeds, etc. The best test of opium is the quantity of morphia yielded by it.

Actions and Uses. — Narcotic, sedative, antispasmodic, hypnotic. In large doses it is a narcotic poison, occasioning giddiness, stupor, depression of the circulation and respiration, relaxation of the muscles, contraction of the pupils, then deep stupor, and death. These are to be met by the stomach pump, stimulating emetics, cold affusion, ammonia to the nostrils, making the patient move about supported, internal stimulants, as brandy and coffee, galvanism, and artificial respiration, maintained, if need be, for hours. In smaller doses, opium produces, first, excitement of the system, increased pulse and heat, with various very pleasurable sensations; then, in about an hour or so, fulness in the head, a benumbing of the limbs, disinclination to exertion, and apathy are experienced, and ultimately the flight of pain, and the advent of sleep. This sleep may continue from six to twelve hours, after which there are generally sickness, want of appetite, headache, and languor, with depression and indisposition for any effort. Constipation and a checking of the mucous secretions also result. If approaching sleep be battled with and resisted, we may have a state of high excitement of the brain and nervous system prolonged for hours, during which there is an intensifying of the various faculties of the mind; excogitation and speech becoming more original, profound, or brilliant; or, if the individual cannot be troubled with the application of his mental powers to any walk of study, he may indulge in the strangest fancies, and perform the oddest freaks. Other symptoms are observed, and probably due to idiosyncrasy. For example, some instead of obtaining sleep, are rendered feverish and extremely miserable—with anxiety, restlessness, intense itchiness, frequent pulse,

headache, and horrible visions. Again, there are dry tongue, intense thirst, vomiting, discomfort of body, and wretchedness of mind. In some there is unusual susceptibility to the action of the drug, a small dose proving a powerful soporific; and this is almost always the case with children. Individuals, again, are to be met with, who tolerate considerable quantities without experiencing the usual effects. Further, and this is of considerable importance, habit diminishes susceptibility more or less in all. The man who is merged into a deep sleep by a grain of opium, or thirty minims of the tincture to-day, may, if he continue to use it, require ten times that quantity in fewer months; and from an ounce to ten ounces of the tincture may be taken daily by the regular opium eater. This large quantity, however, is not partaken of with impunity. Each successive dose is followed by depression and misery, though productive for the time of perhaps pleasant feelings and mental activity; and the body also suffers: there are want of appetite, indigestion, and emaciation, sallow complexion, and often early decrepitude, and shortening of life. Certain states of the system, too, counteract or modify its action; larger doses are borne in most cases of extreme pain or spasm; in diarrhoea and dysentery, in the advanced stages of peritonitis and pneumonia, in uterine hæmorrhage, in delirium tremens (apparently, at least), in tetanus and hydrophobia, and in some kinds of mania. Combination with other drugs also alters its action; it has fewer disagreeable concomitants when given with camphor; and along with ipecacuanha, we may often safely extend the dose. The physiological action of opium is developed by whatever channel it may find its way into the

circulation, whether by the rectum or mouth, vein, wound, or skin-denuded surface. But we must now come to the therapeutics of the drug. It is given, speaking generally, to procure sleep, to subdue spasm, and assuage pain. It is a valuable remedy in the advanced stages of pleurisy, pneumonia, peritonitis; in diabetes, gastritis, enteritis, dysentery, diarrhœa, and cholera. It is also useful in acute rheumatism, in gout (for allaying the pain), in spasm of the ureter or gall duct from the passage of calculi, in colic, neuralgia, tetanus, and hydrophobia. In continued fever, it is given to induce sleep, where there are watchfulness and delirium, without much vascular excitement, but here it should be given with care, and well watched. It is invaluable in the cerebral disturbance which sometimes occurs from the eighth to the tenth day of the eruption of small-pox; and in intermittent fever, a large dose at the beginning of the cold stage sometimes arrests the fit. Along with ether, it is of service in asthma; ordinary catarrh is often cut short by an early dose, and it is an excellent remedy in diabetes, along with attention to diet. In rupture of the uterus, given speedily in full doses, it has at times saved the patient's life. Externally, in the form of lotion, liniment, plaster, etc., it is used to subdue pain and check inflammation, as in neuralgia, erysipelas, gout, rheumatism, etc., and as an enema in piles, spasm, and tenesmus. It is also injected into the urethra to allay pain in ischuria, nephritis, spasmodic stricture, and urethral inflammation. Of the various preparations for internal use, the solid opium, in the form of one grain pills, will be found very beneficial for most purposes.

Analysis.—Opium is one of the most complex sub-

stances used in medicine. It contains many alkaloids and a well-marked acid. The following are the chief constituents of opium:—

1. Alkaloids.

Substances.	Action.
Morphia ($C_{17}H_{19}NO_3$), . . .	Narcotic.
Codeia ($C_{18}H_{21}NO_3$), . . .	Narcotic.
Narcotina ($C_{22}H_{23}NO_7$), . . .	Bitter tonic.
Thebaia ($C_{19}H_{21}NO_3$), . . .	Stimulant resembling Strychnia.
Papaverin ($C_{20}H_{21}NO_4$), . . .	Sedative.
Narcein ($C_{22}H_{29}NO_9$), . . .	Hypnotic.
Meconin ($C_{10}H_{10}O_4$), . . .	Hypnotic.
Cryptopia ($C_{23}H_{25}NO_5$), . . .	Hypnotic.

2. Acid.

Meconic Acid ($H_3C_7HO_7 \cdot 3H_2O$), . . . Inert.

Unimportant.

Bitter extractive, albumen, gluten, caoutchouc, lignin, salts, etc.

The most important constituent of opium is *morphia*. It is not officinal, but two of its salts are officinal in the British Pharmacopœia, the hydrochlorate and the acetate.

Morphiæ Hydrochloras. Hydrochlorate of Morphia.

Synonym.—Morphiæ Murias. The hydrochlorate of an alkaloid, $C_{17}H_{19}NO_3 \cdot HCl \cdot 3H_2O$. Prepared from opium.

Characters and Tests.—White flexible acicular prisms of a silky hue, with a bitter taste, and soluble in water and spirit. Entirely destructible by heat, leaving no residue. Twenty grains of the salt, dissolved in $\bar{3}$ ss.

warm water, with ammonia added slightly in excess, give, on cooling, a crystalline precipitate, which, when washed with a little cold water, and dried by exposure to the air, weighs 15·18 grains. The aqueous solution gives a white curdy precipitate with nitrate of silver, showing it to be a *chloride*. It gives a white precipitate with potash, soluble in excess. It becomes orange-red with nitric acid, and greenish-blue with perchloride of iron, showing it to be a salt of *morphia*.

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

LIQUOR MORPHIÆ HYDROCHLORATIS.—Solution of Hydrochlorate of Morphia. Take of hydrochlorate of morphia, gr. iv.; dilute hydrochloric acid, min. viij.; rectified spirit, f̄ij.; distilled water, f̄vj. Mix the acid, spirit and water, and dissolve the hydrochlorate in the mixture. Each fluid ounce contains 4 grains of hydrochlorate of morphia.

Dose.—10 to 60 minims.

TROCHISCI MORPHIÆ.—Morphia Lozenges. Hydrochlor. morph.; tinc. tolu; sugar and acacia. Each lozenge contains gr. $\frac{1}{36}$ of hydrochlor. morph.

Dose.—1 to 6 lozenges.

TROCHISCI MORPHIÆ ET IPECACUANHÆ.—Morphia and Ipecacuanha Lozenges. Same as preceding, with the addition of ipecac. Each contains $\frac{1}{36}$ of hydrochlor. morph. and gr. $\frac{1}{12}$ of ipecac. These lozenges are useful for allaying irritable cough.

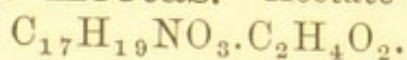
Dose.—1 to 6 lozenges.

SUPPOSITORIA MORPHIÆ.—Morphia Suppositories. Morph. hydrochlor., gr. vj.; white wax, gr. xx.; benz. lard, gr. lxiv.; oil of theobroma, gr. xc. Mix. Divide into xij. Each suppository contains $\frac{1}{2}$ grain of hydrochlorate of morphia.

SUPPOSITORIA MORPHIÆ CUM SAPONE.—Morphia Suppositories, with Soap. Morphia hydrochlor., gr. vj.; glycerine of starch, gr. 1; curd soap, gr. c.; starch, a sufficiency. To be divided into 12 equal parts, so that each suppository contains gr. $\frac{1}{2}$ of morph. hydrochlor.

Uses.—Same as those of Suppositor. morph. hydrochlor.

Morphiæ Acetas. Acetate of Morphia.



A white powder, soluble in water and spirit. Sulphuric acid added to it gives off odour of acetic acid. Other tests the same as for hydrochlorate.

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

LIQUOR MORPHIÆ ACETATIS.—Solution of Acetate of Morphia. Acetate of morphia, gr. iv.; dilute acetic acid, min. viij.; rect. spt., f̄ij.; dist. water, f̄vj. Each fluid drachm contains $\frac{1}{2}$ grain of acetate of morphia.

Dose.—10 to 60 minims.

INJECTIO MORPHIÆ HYPODERMICA. — Hypodermic Injection of Morphia. A solution of acetate of morphia, containing one grain of the acetate in twelve minims of the injection. It is prepared by acting on the hydrochlorate with ammonia, which precipitates the morphia, and then dissolving the morphia in acetic acid. Gr. lxxxviij. of the hydrochlorate make f̄ij. of injection.

Dose.—By subcutaneous injection, 1 minim to 6 minims.

Incompatibles.—Astringent decoctions and infusions; alkalies and alkaline earths; earthy and metallic salts in general.

Actions and Uses of Morphia.—Narcotic, sedative,

anodyne, hypnotic. This preparation is a narcotic poison same as opium, gr. x. having proved fatal. It is used for the same purposes, such as subduing pain, allaying spasm, soothing irritability, and procuring sleep; and while, in general, in no way inferior, possesses certain advantages over that drug. For example, it does not, in general, constipate the bowels so much; nor occasion so often giddiness, headache, sickness, impaired appetite, weight about the stomach, indigestion, and feeling of wretchedness; nor is it so fruitful of excitement, apprehension, feverishness, and horrible dreams. Its taste also commends it, especially where we wish the patient not to know he is getting an opiate, being much less disagreeable. As a set off to these advantages, we have to note that the morphia is rather more liable to occasion an itchiness of the skin, with an eruption, and irritability of the bladder, but only in rare cases. The injection of a few drops of a strong solution into the areolar tissue, is now a common, and, at times, successful way of palliating various neuralgic pains, such as sciatica and tic-douloureux. This salt, like opium and some other drugs, when continued for any length of time, requires to be increased in dose, the system, by getting habituated to it, tolerating more. On account of the acetate of lead precipitating morphia from a solution of opium, either the hydrochlorate or acetate of morphia should be prescribed in lotions containing a lead salt. This forms a colourless solution, and is much to be preferred.

Sanguinaria canadensis, Linn. Blood Root.
Puccoon.

This plant is a herbaceous perennial, with a creeping

rhizome. The flower is white, and somewhat large. It is a native of the United States and Canada. It is not officinal in the British Pharmacopœia. The rhizome is extensively used in America, especially as an eclectic remedy, under the name *sanguinarin*.

The *Dose* is $\frac{1}{2}$ to 1 grain.

This substance was found by Professor Rutherford to be a powerful cholagogue. It is also slightly purgative.

CRUCIFERÆ.—THE CRUCIFEROUS FAMILY.

This order possesses no poisonous plants. It contains many of our ordinary vegetables, including cabbages, turnips, and cauliflower. The properties of the other are antiscorbutic and stimulant. It contains 3 officinal plants.

I.—SINAPIS ALBA, *Linn.* White Mustard.

II.—SINAPIS NIGRA, *Linn.* Black Mustard.

These plants are both indigenous. They are both annuals, and are easily distinguished from each other by the pods being spreading in the white mustard, but adpressed in black mustard. The seeds of the one are light coloured, of the other black. The officinal parts are the seeds.

Sinapis. Mustard.

The seeds of *Sinapis nigra* and *Sinapis alba*—Black Mustard and White Mustard—reduced to powder, mixed.

Characters of the Powder.—Greenish-yellow, of an acrid, bitterish, oily, pungent taste, scentless when dry,

exhales, when moist, a powerful, penetrating odour, irritating the nostrils and eyes. A decoction cooled is not made blue by tincture of iodine.

Adulterations.—Wheaten flour, detected by iodine : other impurities may be detected by the colour of the specimen, or under the microscope.

CATAPLASMA SINAPIS.—Mustard Poultice. Mustard, ℥iiss. ; linseed meal, ℥iiss. ; boiling water, f℥x. Mix gradually the meal with the water, and add the mustard, constantly stirring. A good form, producing redness in from twenty minutes to half-an-hour. If sinapisms are applied too long, vesication and ulceration may result.

CHARTA SINAPIS.—Mustard Paper. Black mustard seeds, in powder, ℥j. ; solution of gutta-percha, f℥ij., or a sufficiency. The mustard is mixed with the gutta-percha solution till it assumes a semi-fluid consistence ; cartridge paper is then passed over it, so that one side of the paper becomes covered with a thin coating of the mixture ; it is afterwards spread out to dry. Before being applied to the skin, the mustard paper is immersed for a few seconds in tepid water. This is an excellent form in which to apply mustard as a counter-irritant.

OLEUM SINAPIS.—Oil of Mustard. Oil distilled with water from the seeds of *Sinapis nigra* after the expression of the fixed oil.

Characters.—Colourless or pale yellow. Specific gravity, 1·015. Dissolves readily in alcohol and ether, and to a slight extent in water. Has an intensely penetrating odour and a very acrid, burning taste. Applied to the skin it produces almost instant vesication. It is used to prepare the next preparation.

LINIMENTUM SINAPIS COMPOSITUM.—Compound Lini-

ment of Mustard. Oil of mustard, f̄3j.; ether, ext. mezereon, gr. xl.; camph., gr. cxx.; castor oil, f̄3v.; rect. spt., f̄3iv. M. External stimulant, and a useful counter-irritant.

Analysis.—Both black and white mustard seeds contain a fixed oil, which they yield by expression. They both contain a peculiar nitrogenous principle called *myrosin*, resembling the emulsion of bitter almonds. In addition to these, white mustard seeds contain a crystalline principle called *sinalbin*, and black mustard seeds contain an analagous principle termed *sinigrin*. When sinigrin and myrosin are brought together in the presence of water, the oil of mustard is produced. It is to this oil that black mustard seeds owe their activity. In like manner, the activity of white mustard seeds is due to the action of sinalbin on myrosin.

Actions and Uses.—Emetic, epispastic, stimulant. It is a powerful stimulating topical emetic, operating speedily, and is suitable in cases of depression of the vital powers, such as narcotic poisoning, and in the suffocative catarrh of the old and feeble. As an epispastic or external irritant, it is in daily use, in the form of poultice (sinapism), to produce derivation, as, for instance, on the chest in pulmonary disease, on the abdomen in colic and abdominal diseases. It is also applied over the seat of neuralgic and rheumatic pains, and to the thighs and soles of the feet in the adynamic stage of continued fever; in coma, apoplexy, and narcotic poisoning. Nothing need be said of mustard as a condiment.

Dose.—As an emetic, ʒj. or so, in f̄3iv. to f̄3viiij. tepid water.

Incompatible.—Vinegar.

III.—*COCHLEARIA ARMORACIA*, *Linn.* The Horse-radish.

This plant is easily recognised by its large, dock-like leaves on long stalks, and crenate-senate on the margins. The flowers are white. The plant is 2 to 3 feet high. It is found naturalised in waste places in Britain. The root is the officinal part.

Armoraciæ Radix. Horse-radish Root.

The fresh root of *Cochlearia Armoracia*, *Linn.* Cultivated in Britain.

Characters.—A long, cylindrical, fleshy root, half-an-inch to one inch in diameter, expanding at the crown into several very short stems. It is internally white, and has a pungent taste and smell. It is only used to prepare the next preparation.

SPIRITUS ARMORACIÆ COMPOSITUS.—Compound Spirit of Horse-radish. Horse-radish, ʒxx.; bitter orange peel, ʒxx.; nutmeg, ʒss.; proof spt., cong. j.; water, Oij. Mix, and distil a gallon.

Dose.—fʒj. to fʒij.

Actions and Uses.—A warm stimulant, given chiefly along with other drugs to modify their nauseating effect; and in some cases of dyspepsia. At one time employed as an antiscorbutic. As a sialogogue in paralysis of the tongue it is next to worthless. A rubefacient; but we have better ones. Its chief use is to cover the nauseous taste of creasote.

CANELLACEÆ.—THE CANELLA FAMILY.

This order contains only five known species. Their properties are aromatic and tonic. Only one plant is officinal.

CANELLA ALBA, *Murray*. White Cinnamon.

This is a tree 30 or 40 feet in height, and is a native of the West Indies. The officinal part is the bark.

Canellæ Albæ Cortex. White Canella Bark.

The bark of *Canella alba*; from the West Indies.

Characters.—In hard quills of a yellowish-white or pale-orange colour, somewhat lighter on the internal surface. Has a clove-like odour and peppery taste.

Dose in powder.—10 to 30 grains.

Uses.—An aromatic tonic, and usually given along with other bitter tonics. An ingredient of the *Vinum Rhei*, 60 grains to one pint.

POLYGALACEÆ.—THE MILKWORT FAMILY.

The plants of this order are generally bitter, and their roots yield a milky juice. It contains two officinal plants.

I.—POLYGALA SENEGA, *Linn.* Snake-root.

This is a perennial plant, with numerous slender stems 6 to 12 inches high. The leaves are small, lanceolate, and entire. The flowers are small, and form a terminal spike. The plant is a native of North America, and is found growing on rocky places in woods. The part officinal is the root.

Senegæ Radix. Senega Root.

The dried root of *Polygala Senega*, *Linn.*; from North America.

Characters.—A contorted, knotty root-stock, with a branched tap-root, from the thickness of a quill to that

of the little finger, cortical part yellowish, sweetish, then acrid, causing salivation; woody part whitish, inert.

Analysis.—Polygalic acid, commonly called senegin, a white amorphous powder, on which the activity of the medicine depends, and which is found only in the bark of the root. It also contains a volatile oil, resin, sugar, etc.

TINCTURA SENEGÆ.—Tincture of Senega. Senega, ℥iiss.; proof spt., Oj. Proceed as usual.

Dose.—f℥ss. to f℥ij.

INFUSUM SENEGÆ.—Infusion of Senega. Senega, ℥ss.; boiling dist. water, ℥x. Infuse for an hour.

Dose.—f℥j. to f℥ij.

Actions and Uses.—An excellent stimulating expectorant, well adapted for chronic bronchitis in old people, and for the advanced stages of pneumonia. It is of service, too, in hooping-cough when it has run on for several weeks, and some have found it useful in the latter stages of croup. It increases most of the secretions of the body, but it is chiefly as a stimulating expectorant that it is used in medicines. It enters into the composition of most cough mixtures.

II.—KRAMERIA TRIANDRA, *Ruiz and Pavon.* Rhatany.

This is a low shrub with long decumbent branches, having showy red flowers. It is a native of Peru. It is found on dry, sandy mountain slopes at great elevations, from 3000 to 8000 feet above the level of the sea. The root is the officinal part.

Kramerizæ Radix. Rhatany Root.

The dried root of *Krameria triandra*, *Ruiz and Pavon*; from Peru.

Characters.—About an inch in diameter; numerous branches; long, brownish-red, and rough externally, reddish-yellow internally; powerfully astringent; tinges the saliva red.

Analysis.—About 20 per cent. of a peculiar kind of tannic acid, called Rhatania-tannic acid or Krameria-tannic acid. This is the active principle, and its most important constituent.

EXTRACTUM KRAMERIE.—Extract of Rhatany. Prepared by macerating the root in water, and evaporating to a proper consistence for forming pills.

Dose.—5 to 20 grains.

TINCTURA KRAMERIE.—Tincture of Rhatany. Rhatany, ℥iiss.; proof spt., Oj. Macerate 48 hours, then percolate, and make up to a pint.

Dose.—f℥ss. to f℥ij.

INFUSUM KRAMERIE.—Infusion of Rhatany. Rhatany, ℥ss.; boiling distilled water, ℥x. Infuse one hour, and strain.

Dose.—f℥j. to f℥ij.

Krameria also enters into the composition of compound powder of catechu; 1 part in 5.

Actions and Uses.—A powerful astringent. Useful in hæmatemesis, menorrhagia (passive), chronic diarrhœa, atonic mucous discharges, colliquative sweating, and incontinence of urine. A topical styptic, and an ingredient of many dentrifices. It is also useful as a gargle in sore throats.

MALVACEÆ.—THE MALLOW FAMILY.

The plants of this order contain much mucilage, and some are used as demulcents. Only one genus is officinal.

Gossypium, Linn. Cotton Plant.

Various species of *Gossypium* yield cotton. The plants have rather large flowers, which are generally yellow, though some are purple. They are natives of Asia, Africa, and America. The parts officinal are the hairs which surround the seeds.

Gossypium. Cotton Wool.

The hairs of the seed of various species of *Gossypium*, carded.

Preparation.—Pyroxylin.

Pyroxylin. Gun Cotton.

Cotton, ʒj. ; sulphuric acid and nitric acid, of each, fʒv. Mix the acids in a porcelain mortar, immerse the cotton in the mixture, and stir it for three minutes with a glass rod, until it is thoroughly wetted by the acids. Afterwards the cotton is thoroughly washed with water.

Tests.—Readily soluble in a mixture of ether and rectified spirit; leaves no residue when exploded by heat. Used to prepare the next two preparations.

Collodium. Collodion.

Pyroxylin dissolved in ether, mixed with $\frac{1}{3}$ of its volume of rectified spirit.

Characters.—A colourless, highly inflammable liquid, with ethereal odour, which dries rapidly on exposure to air, and leaves a thin, transparent film; insoluble in water or rectified spirit.

Uses.—Has been applied over recent wounds to facilitate union by the exclusion of dirt and air. It is of little use as an application to burns, skin diseases, and small-pox pustules.

Collodium Flexile. Flexible Collodion.

Collodion, fʒvj.; Canada balsam, gr. cxx.; castor oil, fʒj. Mix. Used as a protecting coat for wounds, etc.

There are no other officinal plants in this order. The following plant, however, is frequently used in medicine :—

ALTHÆA OFFICINALIS, Linn. Marsh Mallow.

This plant was at one time officinal. A decoction was used as a demulcent and emollient in cough mixtures, on account of the mucilage it contained.

BYTTNERIACEÆ.—THE CHOCOLATE FAMILY.

The plants of this order contain mucilage and oil. Only one plant is officinal.

THEOBROMA CACAO, Linn.

This is a small tree, with large leaves and fruit. It is a native of Brazil and other parts of America. The officinal parts are the seeds.

Oleum Theobromæ. Oil of Theobroma.

Synonym.—Cacao butter.

A concrete oil obtained by expression and heat from the ground seeds of Theobroma Cacao.

Characters.—In cakes of a yellowish colour; about the consistency of tallow, of a bland and agreeable taste; fracture clean, presenting no appearance of foreign matter. Does not become rancid from exposure to the air. Melts at a temperature of about 95°.

Use.—Its chief use is to prepare suppositories.

AURANTIACEÆ.—THE ORANGE FAMILY.

The plants of this order abound in a volatile oil, especially in the leaves and rind of the fruit. It contains five officinal plants.

I.—CITRUS AURANTIUM, *Risso*. The Sweet Orange.

II.—CITRUS BIGARADIA, *Risso*. The Bitter Orange.

The Sweet Orange is a tree about 20 feet in height, with shining evergreen leaves, and articulated to the winged petioles. The flowers are white. The Bitter Orange is less, the petioles more winged, the flowers of a sweeter fragrance, and the fruit more bitter. Of the Sweet Orange the flowers alone are officinal, but of the Bitter Orange both the flowers and fruit are officinal.

Aqua Aurantii Floris. Orange-flower water.

The distilled water of the flowers of *Citrus Bigaradia*, the Bitter Orange tree, and *Citrus Aurantium*, the Sweet Orange tree; prepared mostly in France.

Characters and Tests.—Nearly colourless, fragrant. Not coloured by sulphuretted hydrogen. It is used to prepare the next preparation.

SYRUPUS AURANTII FLORIS.—Syrup of Orange Flower. Orange-flower water, ℥viii. j.; refined sugar, ℔iiij.; dist. water, ℥xxvj. Dissolve the sugar, with heat, in the water; add when nearly cold the orange-flower water; and make up to ℔ivss. with dist. water. Specific gravity, 1.33.

Dose.—℥j.

Actions and Uses.—Used as an agreeable vehicle for other remedies. In France it is looked on as an anodyne, and it seems occasionally to induce sleep in hysteria.

Aurantii Cortex. Bitter Orange Peel.

The dried outer part of the rind of *Citrus Bigaradia*, *Risso*; from the ripe fruit, imported from the south of Europe.

Characters.—Thin, of a dark orange colour, nearly free from the white inner part of the rind, having an aromatic bitter taste, and fragrant odour.

TINCTURA AURANTII.—Tincture of Orange Peel. Bitter orange peel, ℥ij.; proof spirit, Oj. Macerate 7 days, and strain.

Dose.—fʒj. to fʒij.

SYRUPUS AURANTII.—Syrup of Orange Peel. Tinct. orange peel, fʒj.; syrup, fʒvij. M.

Dose.—fʒj.

It is used to prepare *confectio sulphuris*.

INFUSUM AURANTII.—Infusion of Orange Peel. Bitter orange peel, ℥ss.; boiling dist. water, fʒx. Infuse 15 minutes.

Dose.—fʒj. to fʒij.

INFUSUM AURANTII COMPOSITUM.—Compound Infusion of Orange Peel. Bitter orange peel, ℥¼; fresh lemon peel, gr. lx.; cloves, gr. xxx.; boiling dist. water, fʒx. Infuse 15 minutes; strain.

Dose.—fʒj. to fʒij.

Aurantii Fructus. Bitter Orange.

The ripe fruit of *Citrus Bigaradia*, *Risso*; imported from the south of Europe.

TINCTURA AURANTII RECENTIS.—Tincture of fresh Orange Peel. ℥vj. of the coloured part of the rind cut into thin slices, and macerated into Oj. of rectified spirit for a week, filtered, and spirit added to make Oj.

Dose.—fʒj. to fʒij.

Uses of the Bitter Orange.—Feeble tonic; used chiefly for its agreeable flavour.

III.—CITRUS LIMETTA, *Risso*. The Lime.

Is only officinal as a source of citric acid.

IV.—CITRUS LIMONUM, *D.C.* The Lemon.

The lemon is a small tree about 10 or 12 feet high, and is a native of the mountains of India, but is extensively cultivated in the south of Europe. It is easily distinguished from the oranges by its fruit, which is much more elongated, and has a nipple-shaped protuberance on its extremity. The officinal part is the fruit.

Limonis Cortex. Lemon Peel.

The fresher outer part of the rind of the ripe fruit of *Citrus Limonum, D.C.*; imported from Southern Europe.

TINCTURA LIMONIS.—Tincture of Lemon Peel. Fresh lemon peel, ℥ijss.; proof spirit, Oj.

Dose.—f℥ss. to f℥ij.

SYRUPUS LIMONIS.—Syrup of Lemons. This is made with fresh lemon peel, lemon juice, and sugar.

Dose.—f℥j.

Oleum Limonis. Oil of Lemon.

The oil expressed or distilled from fresh lemon peel, imported chiefly from Sicily.

Characters.—Pale-yellow, odour agreeable, taste bitter and warm.

Dose.—2 to 5 minims on sugar.

Limonis Succus. Lemon Juice.

The freshly expressed juice of the ripe fruit of *Citrus Limonum, D.C.*

Characters.—A slightly muddy, yellowish liquor, with acid taste and agreeable flavour. Each fluid ounce should contain 35·5 grains of citric acid.

Actions and Uses.—An aromatic stimulant, and antiscorbutic, but used chiefly for imparting an agreeable flavour to other drugs. German oculists drop the oil into the eye in strumous ophthalmia, where it is said to be a useful stimulant. The *succus* is a pleasant refrigerant in fevers, and useful occasionally in acute rheumatism. At one time held in high repute for scorbutus, but now that we know the value of variety in diet, and especially of a liberal supply of vegetables, we depend less upon it. It is generally taken as a drink alone, or in the form of a lemonade, with any of the alkaline bicarbonates.

V.—ÆGLE MARMELLOS, *D.C.* Indian Bael.

This is a tree 30 or 40 feet in height under cultivation, but in the wild state it is smaller and more spiny. It is a native of India, and is found as high up as 4000 feet on the Himalaya. The part officinal is the fruit.

Belæ Fructus. Bael Fruit.

The dried half-ripe fruit of *Ægle Marmelos*, *D.C.*; from Malabar and Coromandel.

Characters.—Fruit roundish, about the size of a large orange, with a hard woody rind; usually imported in dried slices. Rind about $1\frac{1}{2}$ inches thick, covered with a smooth greyish epidermis, and internally, as well as the dried pulp, of a brownish-orange or cherry-red colour.

EXTRACTUM BELÆ LIQUIDUM.—Liquid Extract of Bael. ℥j. to f℥j. Prepared by macerating bael fruit in water and spirit.

Dose.—f℥j. to f℥ij.

Actions and Uses.—Demulcent and astringent, and useful in diarrhoea and dysentery.

GUTTIFERÆ.—THE GAMBOGE FAMILY.

The plants of this order yield a yellow, resinous juice, which is acrid and purgative. Only one plant is officinal.

GARCINIA MORELLA, *Desrous, var. pedicellata.*

This is a large tree 40 or 50 feet high, with many spreading branches. It is a native of Cochin-China and Siam. The officinal part is a gum resin obtained from the stem and branches by incision.

Cambogia. Gamboge.

A gum resin obtained from *Garcinia Morella*; imported from Siam.

Characters and Tests.—In tawny-coloured cylinders, breaking easily, with a smooth conchoidal fracture; yellow when rubbed with moisture, taste acrid. Forms an emulsion with water, which is not coloured green by a solution of iodine.

Dose.—1 to 4 grains.

PILULA CAMBOGÆ COMPOSITA.—Compound Pill of Gamboge. Gamboge, ℥j.; barb. aloes, ℥j.; compound powder of cinnamon, ℥j.; hard soap, ℥ij.; syrup, a sufficiency. M. Make into five-grain pills.

Dose.—5 to 10 grains.

Analysis.—From 68 to 75 per cent. of resin (gambogic acid), soluble gum, and a trace of fibrous tissue.

Actions and Uses.—Irritant, drastic cathartic, and errhine. In doses of 60 grains it has killed, the effects being inflammation and ulceration of the alimentary tract. In small doses it is a drastic and hydragogue cathartic, producing copious watery stools. Given alone, and especially if not in very fine powder, it occasions very severe tormina; it is therefore better to combine with it other cathartics, such as scammony or jalap, when it will operate as a safe and effectual hydragogue, and may be given in anasarca and other dropsies. Along with an alkali, it is said to be diuretic; but we possess better remedies than it for acting on the kidneys. In poisoning with gamboge, give demulcent drinks, and enemata; small doses of opium, and warm bath. It lowers the secretion of bile, on account of its purgative action. The activity is due to the *resin*.

AMPELIDEÆ or VITACEÆ.—THE VINE FAMILY.

The plants of this order have generally acid leaves and saccharine fruit. It contains only one officinal plant.

VITIS VINIFERA, Linn. The Grape Vine.

From it we get *wine*, and

Uvæ. Raisins.

The ripe fruit of *Vitis vinifera, Linn.*; the Grape Vine. Dried in the sun, or with artificial heat; from Spain.

Uses.—Nutritive and demulcent. Used as agreeable adjuncts in tinctures, such as that of senna, and cardamoms.

LINACEÆ.—THE FLAX FAMILY.

The plants of this order are mucilaginous and fibrous. It contains only one officinal plant.

LINUM USITATISSIMUM, *Linn.* The Flax Plant.

This plant is an annual, with a smooth, erect stem, 1 to 2 feet high, with large blue flowers. It is indigenous. The parts officinal are the seeds.

Lini Semina. Linseed.

The seeds of *Linum usitatissimum*, *Linn.*; cultivated in Britain.

Characters.—Small, flat, oval, glistening, brownish seeds, of a mucilaginous oily taste.

INFUSUM LINI.—Infusion of Linseed. Linseed, gr. clx.; fresh liquorice root, gr. lx.; boiling dist. water, ℥x. Infuse one hour, and strain.

Dose.—fʒj. to fʒiv.

Uses.—A demulcent in dysentery and hæmorrhoids in the form of enema, and by the mouth in catarrh and urinary diseases.

Lini Farina. Linseed Meal.

The cake of linseed from which the oil has been pressed, reduced to powder. Useful in the form of poultice as an emollient.

CATAPLASMA LINI.—Linseed Poultice. Linseed meal, ℥iv.; olive oil, fʒss.; boiling water, fʒx. A poultice for inflamed parts.

Oleum Lini. Linseed Oil.

The oil expressed without heat from linseed.

Characters.—Yellow, with a faint odour, and oleaginous taste, and viscid.

Uses.—Emollient. Some prefer it to olive oil for mixing with lime-water as an application to recent burns.

ZYGOPHYLLACEÆ.—THE GUAIAICUM FAMILY.

The plants of this order have various properties. Some yield a stimulating resin, others are bitter and acrid, whilst some are diaphoretic. It contains only one officinal plant.

GUAIAICUM OFFICINALE, *Linn.* Lignum Vitæ.

This is an evergreen tree, 20 or 30 feet in height, with numerous spreading branches, and rather large pale-blue flowers. It is a native of the West Indies. The officinal parts are the wood and its contained resin.

Guaiaci Lignum. Guaiac Wood.

The wood of *Guaiacum officinale*, *Linn.*, sliced or coarsely turned; imported from St Domingo and Jamaica.

Characters and Tests.—Extremely hard; the young or outer wood is pale brown, the old or central wood is greenish-brown. Nitric acid applied to the bark produces a bluish-green colour. It enters into the composition of compound decoction of sarsaparilla.

Guaiaci Resina. Guaiac Resin.

The resin of *Guaiacum officinale*, *Linn.*, obtained from the stem by natural exudation, by incisions, or by heat.

Characters and Tests.—In large masses of a greenish-brown colour; fractured surface, resinous, translucent at the edges. A solution in rectified spirits strikes a clear blue colour when applied to the inner surface of the paring of raw potato.

Dose.—10 to 30 grains.

Analysis.—The wood contains its own proper resin, which is a compound of guaiaconic acid, 70·3 per cent., and guaiaretic acid, 10·5 per cent., besides other unimportant substances.

Adulterations.—The pine resins. They are soluble in hot oil of turpentine, while the true resin is not. The action of nitric acid, as above, will distinguish the guaiac from other woods. It is also liable to contain impurities from the careless way in which it is prepared.

TINCTURA GUAIACI AMMONIATA.—Ammoniated Tincture of Guaiacum. Guaiac resin, in fine powder, ℥iv.; aromatic spt. of ammonia, Oj. Macerate seven days, and filter. It is about the best preparation of guaiacum. It should be suspended in mixtures by means of mucilage or sugar, plain water decomposing it.

Dose.—℥ss. to ℥j.

MISTURA GUAIACI.—Guaiacum Mixture. Guaiac resin, ℥ss.; sugar, ℥ss.; gum acacia powder, ℥¼; cinnamon water, Oj. Triturate the guaiac with the sugar and the gum, adding gradually the cinnamon water.

Dose.—℥ss. to ℥ij., two or three times a-day.

Actions and Uses.—A stimulating diaphoretic, very useful in chronic rheumatism, chronic tonsillitis, and at

times in atonic gout. Benefit is occasionally obtained by it in chronic skin diseases, probably by its stimulating and reviving capillary action. It has long had a name in syphilitic affections, and though often rated much too high, secondary syphilis is sometimes benefited by it. If too long continued, it is apt to induce dyspepsia and torpidity of the bowels. The wood is not given alone, but is an ingredient of the compound decoction of sarsaparilla.

RUTACEÆ.—THE RUE FAMILY.

The plants of this order are remarkable for their peculiar odour, due to a volatile oil which they contain. It contains five officinal plants.

I.—RUTA GRAVEOLENS, *Linn.* The Common Rue.

This is a herbaceous, half-shrubby plant, about two feet in height, and greenish-yellow flowers. It is a native of the south of Europe. The whole plant has a peculiar odour. The whole plant is officinal.

Oleum Rutæ. English Oil of Rue.

The oil distilled from the fresh herb of *Ruta graveolens*, *Linn.*

Characters.—Pale yellow, odour disagreeable, taste acrid and bitter.

Dose.—1 to 3 minims on sugar.

Actions and Uses.—Stimulant and antispasmodic. Given in amenorrhœa, hysteria, colic, and infantile convulsions. Has been used for the purpose of pro-

curing abortion. Externally, it may be used as a rubefacient.

- | | | |
|---|---|--------|
| II. BAROSMA BETULINA, <i>Bartling.</i> | } | Buchu. |
| III. BAROSMA CRENULATA, <i>Hooker.</i> | | |
| IV. BAROSMA SERRATIFOLIA, <i>Willd.</i> | | |

These three plants all yield Buchu leaves. They are natives of the Cape of Good Hope. They are trees or shrubs whose leaves have a peculiar odour. The three species may be distinguished by their leaves.

The officinal parts are the leaves.

Buchu Folia. Buchu Leaves.

The dried leaves of—1. *Barosma betulina*; 2. *Barosma crenulata*; 3. *Barosma serratifolia*. Imported from the Cape of Good Hope.

Characters.—Smooth, marked with pellucid dots at the indentations and apex; having a powerful odour, and a camphoraceous taste, and leave a sense of coldness in the mouth.

1. About three quarters of an inch long, coriaceous, obovate, with a curved, truncated apex and short cartilaginous spreading teeth. 2. About an inch long, oval-lanceolate, obtuse, minutely crenated, five nerved. 3. From an inch to an inch and a-half long, linear, lanceolate, tapering at each end, sharply and finely serrated, three nerved.

Dose in powder.—20 to 40 grains.

Analysis.—A yellowish-brown volatile oil (the active part), gum, resin, etc.

TINCTURA BUCHU. — Tincture of Buchu. Buchu, ℥iiss.; proof spt., Oj. Macerate 48 hours; percolate; add proof spirit to make Oj.

Dose.—fʒj. to fʒij.

INFUSUM BUCHU.—Infusion of Buchu. Buchu, ʒss.; boiling dist. water, fʒx. Infuse an hour, and strain.

Dose.—fʒj. to fʒiv.

Actions and Uses.—A stimulating and very diffusive diuretic. While exciting the kidneys to increased action, it has also a tonic effect on the genito-urinary mucous membrane. It is of service in chronic mucous discharges from the bladder, in incontinence resulting from prostatic disease, and in irritability of the bladder. The natives of the Cape use it in the form of a spirit for chronic rheumatism, and the powdered leaves as a vulnerary in wounds and other injuries. In catarrh of the bladder, I think most good will be obtained by a combination of buchu and uva ursi.

V.—GALIPEA CUSPARIA, D.C.

This plant is a tree about 15 feet in height, with large bright green leaves, and large showy white flowers forming beautiful panicles. It is a native of Venezuela and New Granada. The officinal part is the bark.

Cusparia Cortex. Cusparia Bark or Angostura Bark.

The bark of Galipea Cusparia; from tropical South America.

Characters and Tests.—In straight pieces, more or less incurved at the sides, from half-a-line thick, pared away at the edges; epidermis mottled, brown or yellowish-grey; inner surface yellowish-brown, flaky; breaks with a short fracture; bitter, and slightly aromatic. The cut surface, examined with a lens, usually exhibits numerous white points or minute lines. The inner surface, touched with nitric acid, does not become blood-red.

Dose.—10 to 30 grains.

Adulteration.—The bark of *Strychnos Nux-vomica*, which is highly poisonous, has sometimes been substituted for it. This false bark is in thicker, heavier, and more perfectly quilled pieces, with its epidermis thickly mottled with greyish spots, and its taste is intensely and persistently bitter. But it is best detected by the test given above, viz., nitric acid. This, when applied to the transverse fracture of the false bark, gives a bright-red colour, on account of the brucia it contains.

Analysis.—About 13 per cent. of a bitter crystalline principle named *cusparin* or *angusturin*, a volatile oil, and other unimportant substances. It owes its activity to cusparin and the volatile oil.

INFUSUM CUSPARIÆ.—Infusion of Cusparia. Cusparia, ʒss.; distilled water at 120°, f̄3x. Infuse 2 hours, and strain.

Dose.—f̄3i. to f̄3ij.

Actions and Uses.—An excellent tonic, but not much employed, owing to its occasional adulteration with the poisonous bark. It is held in high repute in South America as a febrifuge in the malignant bilious fevers of marshy districts, in which cases cinchona would seem to be almost powerless. It is serviceable in atonic dyspepsia, improving the appetite, and obviating constipation slightly; and in the advanced stages of diarrhoea and dysentery, especially in warm climates, its use is attended with great benefit.

JABORANDI.

Jaborandi (non-officinal) is probably obtained from *Pilocarpus*, or an allied genus. It is an evergreen shrub, with compound imparipinnate leaves. The leaflet

somewhat resembles the leaf of the cherry-laurel. An infusion, or tincture, may be prepared from the leaves and small branches when bruised. The infusion is acid, has a peculiar but characteristic odour, and a mawkish taste. The plant is a native of Brazil, and was introduced into medical practice by Dr Coutinho, of Rio Janeiro.

Actions and Uses.—Jaborandi is an active diaphoretic, and is the most powerful sialogogue known. Boiling water extracts all the active properties of the drug. When the infusion obtained from one drachm of the leaves is swallowed, in twenty minutes there is profuse perspiration over the whole body, and so great is the salivation, that, in the course of a few hours, from ten to sixteen ounces of water may easily be collected. The perspiration and salivation continue for four or five hours. These effects are produced whether the infusion be swallowed or injected up the rectum. It is useful in fevers, in pleurisy with effusion, and in the early stage of bronchitis, dropsies, diabetes, and the albuminuria of pregnancy. It contains an alkaloid called Pilocarpin, which is of semi-fluid consistence, of a yellowish colour, and is destitute of the characteristic odour of Jaborandi.

In doses of gr. i. to ij. it is as active as $\bar{5}$ i. of the leaves.

Further experience is necessary to determine accurately the therapeutic virtues of this drug, but sufficient is known to show that it is destined to a permanent place in our pharmacopœias.

Dose. — Corresponds to 5 or 10 grains of the powdered leaves, whether used as an infusion or tincture.

SIMARUBACEÆ. THE QUASSIA FAMILY.

The plants of this order are bitter tonics. Only one plant is officinal.

PICRÆNA EXCELSA, *Lindl.* Jamaica Quassia.

This is a large forest tree, 60 to 100 feet in height. The leaves are imparipinnate, and the leaflets are entire. The flowers are small and arranged in cymes. The tree is a native of Jamaica and other West Indian Islands. The officinal part is the wood.

Quassiæ Lignum. Quassia Wood.

The wood of *Picræna excelsa*, from Jamaica.

Characters. — In yellowish-white chips; intensely bitter, or in billets varying in size, seldom thicker than the thigh. Wood dense and tough.

Analysis. — A neutral bitter principle, quassin; lignin, gum, a trace of volatile oil, salts of lime, etc.

Adulterations. — Other woods resembling it are at times substituted. They are not so bitter, and their infusions are rendered black by the persalts of iron, while that of quassia is unaffected, inasmuch as quassia contains no astringent matter.

EXTRACTUM QUASSIÆ.—Extract of Quassia. This is prepared by macerating in water, and evaporating to a proper consistence for making pills.

Dose.—3 to 5 grains.

TINCTURA QUASSIÆ.—Tincture of Quassia. Quass. $3\frac{3}{4}$; proof spirit, Oj.

Dose.—f̄ss. to f̄ij.

INFUSUM QUASSIÆ.—Infusion of Quassia. Quassia chips, gr. lx.; cold dist. water, f̄x. Infuse for half-an-

hour, and strain. As it is not altered in colour by iron, it forms a suitable vehicle for the chalybeates.

Dose.—fʒj. to fʒij.

Actions.—A powerful and pure bitter tonic. It is chiefly employed in dyspepsia from want of tone of the digestive organs. In the form of infusion it is a suitable vehicle for alkaline remedies in heartburn, and for saline cathartics in the constipation of indigestion from defective tone. It possesses somewhat feeble narcotic properties. An infusion in the way of clyster is a useful anthelmintic in thread-worm. It is not given in powder.

Incompatibles.—With the infusion, nitrate of silver, and acetate of lead.

CALYCIFLORÆ.

CELASTRACEÆ.—THE SPINDLE-TREE FAMILY.

The plants of this order have sub-acrid properties, and the seeds of some yield a useful oil. It contains no officinal plant. The following plant, however, is possessed of important medicinal properties.

Euonymus atropurpureus, or *americanus*.

This plant is common in America. From it is obtained a resinoid substance, *Eunonymin*.

Dose.—1 to 2 grains.

It is a favourite American eclectic remedy. It is an excellent cholagogue. It is a safe medicine. Professor Rutherford recommends it to be given with henbane at night, followed by a seidlitz powder in the morning.

RHAMNACEÆ.—THE BUCKTHORN FAMILY.

The plants of this order have cathartic properties. It contains only one officinal plant.

RHAMNUS CATHARTICUS, *Linn.* Buckthorn.

This is a small tree, 10 or 12 feet high, with spreading branches. It is a native of Britain. The officinal part is the ripe fruit.

Rhamni Succus. Buckthorn Juice.

The recently expressed juice of the ripe berries of *Rhamnus catharticus*, Common Buckthorn. Berries are black, shining, four-sided, with an acrid taste. It is only used to prepare the next preparation.

SYRUPUS RHAMNI.—Syrup of Buckthorn. This consists of buckthorn juice, ginger, pimento, sugar, and spirit. It has an agreeable taste, and is a good form for children.

Dose.—fʒj.

Actions and Uses.—Powerful cathartic; producing copious watery stools, and occasionally nausea and tormina. Formerly given in dropsy, but now little used.

ANACARDIACEÆ.—THE CASHEW-NUT FAMILY.

The plants of this order generally contain an acrid-resinous juice. It contains only one officinal plant.

PISTACIA LENTISCUS, *Linn.* The Lentisk.

This is a small tree, 10 or 12 feet in height. It is a native of the coasts and islands of the Mediterranean. The officinal part is the stem.

Mastiche. Mastich.

A resinous exudation from the stem of *Pistacia Lentiscus*, obtained by incision. Produced in the island of Scio.

Characters.—Small yellowish brittle tears; soft and ductile when chewed, having a faint agreeable odour.

Actions and Uses.—A drug of trifling value. Once thought useful in leucorrhœa, and ulceration of the os uteri. An ingredient of “dinner pills,” and useful for filling the cavities of carious teeth.

BURSERACEÆ.—THE MYRRH AND FRANKINCENSE FAMILY.

The plants of this order contain a fragrant balsamic and resinous juice. It contains two officinal plants.

I.—**BALSAMODENDRON MYRRHA**, *Ehrenb.* The Myrrh Tree.

This is a shrubby tree, 10 or 12 feet high, bearing spines. It is a native of Arabia Felix and Abyssinia. The officinal part is the stem.

Myrrha. Myrrh.

A gum-resinous exudation from the stem of *Balsamodendron Myrrha*, collected in Arabia Felix and Abyssinia.

Characters.—In reddish-yellow tears, somewhat translucent, varying much in size, of a reddish-brown colour, fractured surface irregular and somewhat oily, odour agreeable and aromatic, taste acrid and bitter.

Analysis.—Volatile oil, resin, gum, etc.

TINCTURA MYRRHÆ.—Tincture of Myrrh. Myrrh, in course powder, ℥iiss.; rectified spirit, Oj. Macerate

48 hours, then percolate; add enough spirit to make a pint.

Dose.—fʒss to fʒj.

It also enters into the composition of decoct. aloes co., mist. ferri co., pil. aloes et myrrhæ, pil. aloes et assafœtid., and pil. rhei. co.

Actions and Uses.—A warm stimulant and tonic. In small doses, it stimulates the stomach, promotes digestion, and gives tone to muscular tissue. It has been used as an expectorant in chronic bronchitis, though not with anything like marked success; and it has occasionally done good in phthisis, probably by its combined tonic and expectorant action. It was at one time used as an emmenagogue, and as a remedy in genito-urinary mucous discharges, but it has failed to maintain a reputation in these diseases. In consequence of its stimulant and heating nature, it should not be given where there is a tendency to inflammatory action. Employed also in the form of wash for tender mouth and gums.

II.—CONARIUM COMMUNE, *Linn.*

This is a small tree, a native of India, Ceylon, and the Eastern Archipelago. It is supposed to be the source of Elemi.

Elemi. Elemi.

Botanical source undetermined, probably from *Canarium commune*, *Linn.* A concrete resinous exudation; chiefly imported from Manilla.

Characters.—A yellowish-white, soft, unctuous, adhesive mass, becoming harder by age, almost entirely

soluble in rectified spirit. Has an odour like fennel. It is only used to prepare the Ointment.

UNGUENTUM ELEMI.—Ointment of Elemi. Elemi, $\bar{3}\frac{1}{4}$; simple oint., $\bar{3}j$. Melt; strain through flannel.

Uses.—Stimulant in the form of ointment to old and indolent ulcers and issues.

LEGUMINOSÆ.—THE PEA-FAMILY.

The plants of this order have very different properties. Some yield important articles of diet, as beans and peas; others gum, others astringent matters; others are diuretic, whilst some are very poisonous. It contains 15 officinal plants, besides others whose species has not yet been determined.

ACACIA, *Linn.*

Various species of Acacia yield the officinal Gum Arabic. They are spiny trees about 20 feet high, with leaves very minutely pinnate. They are natives of Arabia and North Eastern Africa. The stems are the officinal parts.

Acaciæ Gummi. Gum Arabic.

A gummy exudation from the stem of one or more undetermined species of Acacia, *Linn.*; collected chiefly in Cordofan, in Eastern Africa, and imported from Alexandria.

Characters and Tests.—In whitish spheroidal tears, from the size of a pea to that of a nutmeg; transparent, brittle, with a bland taste; soluble in water, insoluble in alcohol. The aqueous solution, with subacetate of lead, forms a white jelly.

Analysis.—Arabin, a soluble gum, and water. The inferior sorts contain bassorin, an insoluble gum.

MUCILAGO ACACIÆ.—Mucilage of Gum Acacia. Take of gum arabic, ℥iv.; dist. water, f̄vj. M. It enters also into the composition of all the Troschisci, mistura cretæ, mistura guaiaci, pulvis amygdalæ compositus, and pulvis tragacanthæ compositus.

Actions and Uses.—Nutritive, emollient, demulcent. As a demulcent it is much employed in the form of mucilage, to allay the acrimony of inflamed mucous membranes, as in sore throat, catarrh of the bladder, gonorrhœa, and that produced by irritant poisons. It is used for suspending rather insoluble substances, such as bismuth, in mixtures, and for giving tenacity and plasticity to pill-masses, but is inferior to the confection of roses where the pills are to be kept for any length of time.

I.—ASTRAGALUS VERUS, *Olivier*. The Tragacanth Plant.

This plant is a small shrub, very spiny. It is a native of Asia Minor, Armenia, and Persia. The part officinal is the stem.

Tragacantha. Tragacanth.

A gummy exudation from the stem of *Astragalus verus*, *Olivier*, and other species, gathered in Asia Minor.

Characters.—In yellowish-white, broad, thin, somewhat shell-like curved plates, tough and elastic, inodorous and tasteless; sparingly soluble in water, and tinged violet by tincture of iodine.

Dose.—℥ss. to ℥ij.

Analysis.—Soluble gum, 51 per cent., the remainder bassorin.

PULVIS TRAGACANTHÆ COMPOSITUS. — Compound Powder of Tragacanth. Tragacanth, ℥j.; gum arabic, ℥j.; starch, ℥j.; refined sugar, ℥iij. Mix well. Used as a vehicle for powders containing calomel, etc.

Dose.—20 to 60 grains.

MUCILAGO TRAGACANTHÆ.—Mucilage of Tragacanth. Tragacanth, gr. lx.; dist. water, f℥x. Macerate 24 hours, and express through calico.

Actions and Uses.—Demulcent, and used for same purposes as gum arabic, but not so widely employed.

II.—**GLYCYRRHIZA GLABRA**, *Linn.* Common Liquorice.

The liquorice plant has an underground stem or rhizome, running to a great distance. The branches, however, are herbaceous, and 4 to 5 in height. It is a native of the South of Europe. The part officinal is the root.

Glycyrrhizæ Radix. Liquorice Root.

The root, or underground stem, fresh and dried, of *Glycyrrhiza glabra*, cultivated in England.

Characters and Tests.—In long, cylindrical branched pieces, an inch, or less, in diameter; tough and pliable; greyish-brown externally, yellow internally, odourless, with a sweet mucilaginous and slightly acrid taste. Digested with water, it yields a solution which gives a precipitate with dilute sulphuric acid.

PULVIS GLYCYRRHIZÆ COMPOSITUS. — Compound Powder of Liquorice. Senna, ℥ij.; liquorice, ℥ij., and sugar, ℥vj. Mix.

Dose.—30 to 60 grains.

EXTRACTUM GLYCYRRHIZÆ.—Extract of Liquorice. In the form of dark flattened sticks. A bit is usually put

into the mouth, and allowed to dissolve gradually, in simple coughs.

Also in a form suitable for making pills.

EXTRACTUM GLYCYRRHIZÆ LIQUIDUM.—Liquid Extract of Liquorice. This is a liquid preparation, containing spirit.

Dose.—fʒj.

Actions and Uses.—Demulcent. Used in the form of decoction or extract in catarrhal affections. The powder is employed as a covering for pills. The root may be chewed at pleasure. The compound powder is an excellent mild aperient.

III.—TAMARINDUS INDICA, *Linn.* Tamarind.

This is a large tree, 60 to 80 feet in height. It is a native of Africa and other tropical countries. The officinal part is the fruit.

Tamarindus. Tamarind.

The preserved pulp of the fruit of *Tamarindus indica*, imported from the West Indies.

Characters.—A reddish-yellow pulp, preserved in sugar, with seeds and vegetable fibres, and of a pleasant acid taste.

Adulterations.—Copper, detected by plunging a clean iron knife into the pulp, when the metal will adhere.

Dose.—ʒss. to ʒjss.

Actions and Uses.—Laxative and refrigerant, and given occasionally in fevers. It is an ingredient of the confect. sennæ. A pleasant cooling whey is made by boiling them with milk.

IV.—CASSIA FISTULA, *Linn.* Purging Cassia.

This is a tree, 30 or 40 feet in height, with large

showy yellow flowers. The pods are one to two feet long, black, cylindrical. The tree is a native of tropical Asia and Africa, and is extensively cultivated in the West Indies. The part officinal is the fruit.

Cassiæ Pulpa. Cassia Pulp.

The pulp of the pods of Cassia Fistula, Purging Cassia, imported from the East Indies, or recently extracted from pods imported from the East or West Indies.

Characters.—Blackish-brown, viscid, sweet in taste, and somewhat sickly in odour; usually contain the seeds and dissepiments.

Dose.—ʒss. to ʒj.

Uses.—A laxative, and an ingredient of the conf. sennæ.

V.—CASSIA LANCEOLATA, <i>Lamarck</i> ; and	} Alexandrian } Senna.
VI.—CASSIA OBOVATA, <i>Colladon</i> .	

These two plants are small shrubs, 2 to 3 feet high. They are distinguished by their leaves, the leaflets in the one being lanceolate, in the other obovate. They are natives of tropical Africa and Egypt, Nubia and Abyssinia. The officinal parts are the leaflets.

Senna Alexandriana. Alexandrian Senna.

The leaflets of Cassia lanceolata and Cassia obovata (from Alexandria), freed from the flowers, leaf-stalks, and pods; and from the leaves, fruit, and flowers of *Solenostemma Argel*, *Hayne*.

Characters.—Lanceolate leaflets, about one inch long; base unequally oblique, of a greyish-green colour.

Adulterations.—Argel leaves, and a few of the leaves of *Tephrosia apollinea*, and *Coriaria myrtifolia*, a poisonous article. The spurious are known by being equal at the base, and the Argel leaves are paler, thicker, and more wrinkled. The *Tephrosia* leaves have their veins proceeding parallel, and without bifurcation, to the very edge. Those of the *Coriaria myrtifolia* have three prominent longitudinal nerves, and their infusion gives a black precipitate, with a solution of sulphate of iron.

VII.—CASSIA ELONGATA, *Lemaire*. Tinnivelly Senna.

This plant resembles the other two species, but differs in the length of the leaflets. It is a native of Arabia. The parts officinal are the leaflets.

Senna Indica. Tinnivelly Senna.

The leaflets of *Cassia elongata*, from plants grown in Southern India.

Characters.—Green, thin, flexible, lanceolate, acute; leaves about 2 inches long, and unequal at the base.

Analysis.—A deliquescent, uncrystallisable, bitter substance, named cathartin, or cathartic acid, in union with calcium and magnesium. When so combined, it is insoluble in alcohol, but freely soluble in water. It also contains other unimportant substances.

CONFECTIO SENNÆ.—Confection of Senna. This contains a host of substances, such as tamarinds, figs, prunes, coriander, cassia pulp, etc. It is commonly called lenitive electuary.

Dose.—ʒj. to ʒij.

SYRUPUS SENNÆ.—Syrup of Senna. A pleasant cathartic for children.

Dose.—fʒj. to fʒiv.

TINCTURA SENNÆ.—Tincture of Senna.—Senna, ʒiiss.; raisins, freed of seeds, ʒij.; caraway, ʒss.; coriander, ʒss.; proof spirit, Oj. Make, as usual, by maceration and percolation. Seldom given alone, but as an addition to the infusion, and other cathartics.

Dose.—fʒj. to fʒiv.

INFUSUM SENNÆ.—Infusion of Senna. Senna, ʒj.; ginger, gr. xxx.; boiling dist. water, fʒx. Infuse an hour.

Dose.—fʒj. to fʒij.

MISTURA SENNÆ COMPOSITA.—Compound Mixture of Senna. Magnes. sulph., ʒiv.; ext. glycyrrh., ʒss.; tinct. sennæ, fʒiiss.; tinct. cardam. co., fʒx.; infus. sennæ ad Oj.

Dose.—fʒj. to fʒjss.

Actions and Uses.—An admirable cathartic, stimulating the peristaltic action, and affecting chiefly the small intestines. Its action is frequently attended with nausea and griping, but less so if combined with a saline purgative. It seems to enter the circulation before catharsis is induced, hence breast milk acquires from it a laxative property, and its cathartic effect is developed when an infusion is introduced by the veins. A little ginger, coriander, or anise corrects its griping property. It also stimulates the liver, but is not a powerful cholagogue, owing to its purgative action.

VIII.—SAROTHAMNUS SCOPARIUS, *Wimmer*. Common Broom.

This plant is indigenous, and is easily recognised by its bright yellow flowers and its angular twigs. The

whole plant has a characteristic odour. The parts officinal are the "tops."

Scoparii Cacumina. Broom Tops.

The fresh and dried tops of *Sarothamnus Scoparius* (*Spartium Scoparium*), from native plants.

Characters.—Long, straight, angular, green twigs, of a bitter taste, and a peculiar odour when bruised.

Analysis.—A yellow crystalline substance, scoparin, spartia, a volatile oil, mucilage, albumen, etc.

Scoparin, though not officinal, is an active diuretic.

Dose.—5 grains.

SUCCUS SCOPARII.—Juice of Broom. Fresh Broom tops, ℥viij.; spirit, a sufficiency. Bruise the tops in a mortar; press out the juice, and to every 3 measures of juice add 1 of spirit; set aside seven days, and filter. This is an excellent preparation.

Dose.—fʒj. to fʒij.

DECOCTUM SCOPARII.—Decoction of Broom. Broom tops, ʒss.; dist. water, Oss. Boil ten minutes in a covered vessel, and strain.

Dose.—fʒij. to fʒiv. three or four times a-day.

Actions and Uses.—An excellent diuretic in dropsies, inducing, sooner or later, a profuse flow of urine. There is reason to believe that heat impairs its active properties. A cold infusion in water and a little spirit is a good form. It is not given in substance.

Formula for Diuretic Purposes.—℞ Spiritus ætheris nitrosi, fʒss.; spiritus juniperi, fʒiij.; succi scoparii, fʒvj.; tincturæ digitalis, fʒij.; aquam ad fʒvj. Misc. Sumat cochleare magnum ter die. A powerful diuretic mixture.

IX.—PTEROCARPUS MARSUPIUM, *D.C.* Indian Kino Tree.

This is a large tree with a stem several feet in circumference. It is a native of the forests of Ceylon and Madras. The officinal part is the trunk.

Kino. Kino.

The inspissated juice obtained from incisions made in the trunk of Pterocarpus Marsupium; from Malabar.

Characters.—In small angular tears, reddish-black, ruby-red on the edges; very astringent, inodorous; tinges the saliva blood-red.

Dose in powder.—10 to 30 grains.

Analysis.—Catechin, kino-tannic acid, and colouring matter.

PULVIS KINO COMPOSITUS.—Compound Powder of Kino. Take of kino, $\bar{\text{v}}\text{iii}\frac{3}{4}$; opium, $\bar{\text{v}}\frac{1}{4}$; cinnamon, $\bar{\text{v}}\text{j}$. Mix, and pass through a sieve.

Dose.—5 to 20 grains. It contains 1 of opium in 20.

TINCTURA KINO.—Tincture of Kino. Take of kino, $\bar{\text{v}}\text{ij}$; rectified spt., Oj. Macerate 7 days, filter, and add spirit to make a pint.

Dose.— $\bar{\text{f}}\bar{\text{v}}\text{ss}$. to $\bar{\text{f}}\bar{\text{v}}\text{ij}$.

It is also contained in pulv. catechu co., 1 part in 5.

Actions and Uses.—Astringent, and used in the same diseases as catechu.

X.—PTEROCARPUS SANTALINUS, *Linn.* Red Sandal Wood.

This is a tree upwards of 20 feet high, and easily distinguished from the preceding species by its trifoliate and broader leaflets. It is a native of Madras. The officinal part is the wood.

Pterocarpi Lignum. Red Sandal Wood.

The wood of *Pterocarpus santalinus*; from Ceylon.

Use.—Used only as a colouring ingredient in the compound tincture of lavender.

XI.—**HÆMATOXYLUM CAMPECHIANUM**, *Linn.* Logwood.

This is a tree 40 to 50 feet high, and is a native of tropical America. The officinal part is the wood.

Hæmatoxyli Lignum. Logwood.

The sliced heart-wood of *Hæmatoxylum campechianum*; imported from Campeachy in Central America, from Honduras, and Jamaica.

Characters.—The logs are externally of a dark colour, internally reddish-brown; the chips have a feeble, agreeable odour, and a sweetish taste. A small portion chewed imparts a dark pink colour to the saliva.

Analysis.—A red, crystalline, bitter principle, named hæmatin, or hæmatoxylin, resin, volatile oil, tannin, acetic acid, salts, etc.

EXTRACTUM HÆMATOXYLI.—Extract of Logwood. Logwood, ℥j. ; boiling dist. water, cong. j. Macerate the logwood in the water 24 hours; boil down to one-half, strain, and evaporate by a water bath to a proper consistence, stirring with a wooden spatula. Iron vessels should not be used.

Dose.—10 to 30 grains.

DECOCTUM HÆMATOXYLI.—Decoction of Logwood. Logwood chips, ʒj. ; cinnamon powder, gr. lx. ; dist. water, Oj. Boil the logwood in the water ten minutes, adding the cinnamon towards the end, and strain. The product should measure ʒxx. A good preparation.

Dose.—f̄3j. to f̄3ij.

Actions and Uses.—An astringent. Given with benefit in chronic diarrhoea and dysentery, where it seems to arrest the discharges without occasioning constipation. It will be found useful also in the perspirations of hectic, and in diabetes.

XII.—PHYSOSTIGMA VENENOSUM, *Balfour*. Calabar Bean.

This plant is a large climber, sometimes 50 feet in length, and is a native of the forests of Old Calabar, in West tropical Africa. The part officinal is the seed.

Physostigmatis Faba. Calabar Bean.

The seed of *Physostigma venenosum*; from West Africa.

Characters.—About the size of a large horse-bean, with a hard, brittle, shining integument of a brownish-red colour. Irregularly kidney-shaped, without bitterness, acrimony, or aromatic flavour. It yields its virtues to alcohol, and imperfectly to water.

Dose in powder.—1 to 4 grains.

EXTRACTUM PHYSOSTIGMATIS.—Extract of Calabar Bean. This is a spirituous extract. Its active principle is physostigmin, a yellow amorphous body.

Dose.— $\frac{1}{16}$ to $\frac{1}{4}$ grain.

Actions and Uses.—The physiological actions of this drug have been fully investigated by Professor Fraser. It has been found to be a powerful sedative, causing paralysis of the spinal cord, and great depression of the heart's action. It also powerfully contracts the pupil. It has been used in tetanus, chorea, and affections of the eye.

XIII.—COPAIFERA MULTIJUGA, *Hayne*.

This is a large forest tree found in the valley of the Amazon and other parts of tropical South America. The officinal part is the trunk.

Copaiba. Copaiva.

The oleo-resin, obtained by incision from the trunk of *Copaifera multijuga* and other species of *Copaifera*, chiefly from the valley of the Amazon.

Characters and Tests.—About the consistence of olive oil, clear, light yellow, with a peculiar odour, and an acrid aromatic taste. Perfectly soluble in an equal volume of benzol. Does not become gelatinous after having been heated to 270°. Is not fluorescent.

Dose.—20 to 40 minims.

Oleum Copaibæ. Oil of Copaiva.

The oil distilled from Copaiva.

Characters.—Pale yellow colour, odour and taste of copaiva.

Dose.—5 to 20 minims.

Analysis.—41 per cent. of volatile oil, 51 per cent. of hard yellow resin (copaivic acid), 2 of brown soft resin, and about 5 of water.

Adulterations.—Oil of turpentine, distilled oil of the gurjun balsam, castor-oil, rape oil, poppy-seed oil. The pure is perfectly soluble in rectified spirit. Dissolves $\frac{1}{4}$ of its weight of carb. magnesia by the aid of heat, and remains transparent. Heating on a spatula will detect the odour of turpentine. The presence of fixed oil is detected by “a greasy areola surrounding the spot of resin, left on gently evaporating, over the flame of a

lamp, a drop or two of the doubtful balsam on unsized paper."

Actions and Uses.—Diuretic, cathartic, and a special stimulant or tonic to the mucous membranes, and especially the genito-urinary membrane. It is never given as a cathartic, because it possesses a disagreeable taste and odour. It stands pre-eminent, however, as a remedy in urethral inflammation, with muco-purulent discharge, gonorrhœa being almost infallibly cured by it. Some believe it to be contra-indicated in the acute stage, but this is not altogether correct; it is only when the inflammation is unusually intense that it ought to be withheld. Leucorrhœa is not much benefited by copaiva, and chronic bronchitis less. In chronic catarrh of the bladder, however, it has done good, and also in chronic dysentery. In not a few cases it occasions considerable vomiting and purging, and a cutaneous eruption, resembling urticaria. During its use, the urine of the patient, when heated, presents a milky aspect, resembling albuminous urine; but the copaiva does not subside to the bottom, as does the albumen. In dropsy, especially connected with cirrhosis of the liver, copaiva, in doses of 20 minims three times a-day, acts as a most powerful diuretic.

Formula for Gonorrhœa.—Copaibæ, f̄ij. ; pulveris, cubebæ, ʒj. ; acidi gallici, gr. lx. ; pulveris aromatici, gr. cxx. Misc. Fiat electuarium. Capiat cochleare parvum ter quaterve die.

XIV.—MYROXYLON PEREIRÆ, *Klotzsch.*

This is a large tree, 50 feet in height. It is a native of Salvador in Central America. The officinal part is the trunk.

Balsamum Peruvianum. Balsam of Peru.

A balsam obtained from *Myroxylon Pereira*. It exudes from the trunk after the bark has been scorched and removed; from Salvador, in Central America.

Characters.—A reddish-brown treacle-like fluid, with a balsamic odour, and an acrid, slightly bitter taste; soluble in 5 parts of rectified spirit. Undergoes no diminution in volume when mixed with water.

Dose.—10 to 15 minims.

Analysis.—It consists of a resin, 38 per cent., and of cinnamein or benzylic cinnamate, 60 per cent.

Actions and Uses.—A stimulating expectorant, but of little power. Given in chronic catarrh, bronchitis, humid asthma, etc. Used by some in gleet, but less reliable here than iron, buchu, and hygienic measures. Externally to sore nipples.

XV.—*MYROXYLON TOLUIFERA, H.B.K.*

This is a larger tree than the last, often 80 feet high, with small leaves and longer fruit. It is a native of Venezuela and New Granada. The officinal part is the trunk.

Balsamum Tolutanum. Balsam of Tolu.

A balsam obtained from *Myroxylon Toluifera*. It exudes from the trunk of the tree, after incisions have been made into the bark; from New Granada.

Characters.—A soft, tenacious solid, with a balsamic odour. Soluble in rectified spirit.

Dose.—10 to 20 grains.

Analysis.—A resin supposed to be identical with that found in balsam of Peru—a volatile oil, called tolene, and cinnamic acid.

SYRUPUS TOLUTANUS.—Syrup of Tolu. Bals. tolu, $\text{ʒj}\frac{1}{4}$; refined sugar, ʒij .; distilled water, Oj. Boil the balsam in the water for half-an-hour; filter the solution when cold, add the sugar, and dissolve with the aid of a steam or water bath. The product should weigh ʒiiij . Specific gravity, 1.330.

Dose.— ʒj .

TINCTURA TOLUTANA.—Tincture of Tolu. Bals. tolu, ʒijss .; rect. spt., Oj. Macerate until the balsam is dissolved, and filter; add spirit to make Oj.

Dose.—20 to 40 minims.

It also enters into the composition of tinct. benz. co., and many lozenges.

Actions and Uses.—A stimulating expectorant, of more efficacy than the preceding balsam. Given in catarrh, bronchitis, and all chronic chest affections where expectoration is desiderated. Its agreeable flavour renders it also a useful adjunct to pectoral mixtures. It is sometimes apt, however, to derange the digestive system.

Baptisia Tinctoria. Wild Indigo.

This plant is not officinal. It is a common weed in the United States of America. Its root yields *baptisin*, a famous "eclectic" remedy.

Dose.—1 to 5 grains.

Professor Rutherford found it a feeble cholagogue. It is a stimulant to the glandular system.

ROSACEÆ.—THE ROSE FAMILY.

The plants of this order have various properties. Many yield edible fruits, others are astringent, whilst some yield hydrocyanic acid. It contains 8 officinal plants.

I.—*AMYGDALUS COMMUNIS VAR. DULCIS, D.C.* Sweet Almond Tree.

II.—*AMYGDALUS COMMUNIS VAR. AMARA, D.C.* Bitter Almond Tree.

The almond is a small tree. The flowers appear before the leaves. The two varieties are distinguished by the styles being shorter in the bitter almond, the flowers larger and the fruit bitter. They are natives of Persia and Syria. The part officinal is the seed.

Amygdala Dulcis. Sweet Almond.

The seed of the Sweet Almond Tree; from about Malaga.

Characters.—Above an inch in length, lanceolate, acute, with a clear cinnamon-brown seed coat, and a bland, sweetish, nutty-flavoured kernel. Bruised with water, does not evolve the odour of bitter almonds.

PULVIS AMYGDALÆ COMPOSITUS.—Compound Powder of Almond. Sweet almonds, ℥viiij.; refined sugar, ℥iv.; gum arabic, ℥j. Steep, and blanch the almonds, dry them with a soft cloth, rub lightly in a mortar to a smooth consistence. Mix the gum and sugar, and add them to the pulp gradually.

MISTURA AMYGDALÆ.—Almond Mixture. Comp. powder of almonds, ℥iiss; dist. water, Oj. M. Strain through muslin. A vehicle for other medicines.

Dose.—f℥j. to f℥ij.

Uses.—As a nutritive and emollient.

Amygdala Amara. Bitter Almond.

Seed of Bitter Almond Tree; from Mogadore.

Characters.—Resembles the sweet almond in appearance, but is rather broader and shorter; has a bitter

taste, and when rubbed with a little water, emits a characteristic odour.

Use.—Used only for obtaining the oleum amygdalæ.

Oleum Amygdalæ. Almond Oil.

The oil expressed in England from the almonds, bitter and sweet.

Characters.—Pale-yellow, almost odourless, with a bland oleaginous taste.

Uses.—Laxative, but chiefly employed externally, and for preparing ointments.

III.—PRUNUS LAUROCERASUS, *Linn.* The Cherry-Laurel.

This is an evergreen shrub, extensively cultivated on account of the beauty of its foliage. It sometimes attains the height of 20 feet. It is a native of Asia Minor. The parts officinal are the leaves.

Laurocerasi Folia. Cherry-Laurel Leaves.

The fresh leaves of the common cherry-laurel; a native of the shores of the Black Sea, but now cultivated in Britain.

Characters.—Ovate-lanceolate, distantly toothed, glands at base, smooth and shining, deep-green, on strong short foot-stalks, emitting a ratafia odour when crushed.

Analysis.—A volatile oil, resembling the volatile oil of bitter almonds, and containing free prussic acid. The properties of the leaf depend on this.

AQUA LAUROCERASI.—Laurel Water. One pound of the leaves produces one pint of laurel water.

Dose.—5 to 30 minims.

Actions and Uses.—Narcotic and sedative. Poisonous in large doses, owing to the prussic acid they contain. Used in spasmodic cough, and in phthisis; but it is better to employ the prussic acid itself. This is a needless preparation, inasmuch as its use depends on the prussic acid it contains, which is never much, and at all times very uncertain.

IV.—PRUNUS DOMESTICA, *Linn.* The Plum Tree.

This is a small tree, well known for its fruit. It is extensively cultivated in Britain. It is a native of Europe and Asia. The part officinal is the fruit.

Prunum. Prune.

The dried drupe of *Prunus domestica*, the plum; from plants cultivated in Southern Europe.

Uses.—A mild laxative, and occasionally added to infusions of senna, into the confection of which they enter.

V.—ROSA CENTIFOLIA, *Linn.* The Cabbage Rose.

This plant is a native of Asia. The parts officinal are the petals.

Rosæ Centifoliæ Petala. Cabbage Rose Petals.

The fresh petals of *Rosa centifolia*, fully expanded; from plants cultivated in Britain.

Characters. — Taste sweetish, bitter, and mildly astringent; roseate odour; both readily imparted to water.

AQUA ROSÆ. — Rose Water. Fresh petals of the hundred-leaved roses, lbx.; water, cong. ij. Distil one gallon.

Uses.—An agreeable perfume, and useful for lotions.

VI.—ROSA GALLICA, *Linn.* The Red Rose.

This plant is a native of the South of Europe. In this species the flowers are erect, whereas they are drooping in the former species. The parts officinal are the petals.

Rosæ Gallicæ Petala. Red Rose Petals.

The fresh and dried unexpanded petals of *Rosa gallica*; from plants cultivated in Britain.

Characters. — Colour purplish-red, retained after drying; taste bitterish, acid, and astringent; odour roseate, developed by drying.

CONFECTIO ROSÆ GALLICÆ.—Confection of Roses. Fresh petals, ℥j.; refined sugar, ℥iij. Beat and rub well together.

Actions and Uses.—Feebly astringent. Used for the most part as a basis for pills, but should not be employed with the persalts of iron, owing to the tannin it contains. Also as a linctus in sore mouth.

SYRUPUS ROSÆ GALLICÆ.—Syrup of Red Roses. Dried petals, ℥ij.; refined sugar, ℥xxx.; boiling dist. water, Oj. Filter, then dissolve the sugar by means of heat. Used for flavouring and colouring purposes.

Dose.—fʒj.

INFUSUM ROSÆ ACIDUM.—Acid Infusion of Roses. Red rose petals, ℥¼; dilute sulphuric acid, fʒj.; boiling dist. water, f℥x. Infuse half-an-hour, and strain. A pleasant refrigerant, and feebly astringent. A good vehicle also for the neutral laxative salts.

Dose.—fʒj. to fʒij.

Incompatibles.—Same as under Tannin.

Actions and Uses.—Mildly astringent, but chiefly used for their colour and odour, and as adjuncts to more active remedies.

VII.—*ROSA CANINA*, *Linn.* The Dog Rose
and allied Species

The Dog Rose is a common wild plant in Britain. All the other indigenous species of the rose may be used. The part officinal is the fruit.

Rosæ Caninæ Fructus. Fruit of the Dog Rose. Hips.

The ripe fruit of *Rosa canina*, the Dog Rose; and other allied species of indigenous plants, deprived of the hairy seeds (achenes).

Characters.—One inch or more long, ovate, scarlet, shining; taste sweet, subacid, agreeable.

CONFECTIO ROSÆ CANINÆ.—Confection of Hips. Hips, ℥j.; refined sugar, ℥ij. Beat well together. Used as a basis for pills and electuaries, and compatible with the persalts of iron.

Uses.—Refrigerant, but only used for making pills. It enters into pilula quiniæ 1 in 4.

VIII.—*BRAYERA ANTHELMINTICA*, *D.C.* The Koussou Tree.

This is a tree 20 or 30 feet in height, and is found only in the mountainous districts of Abyssinia. The parts officinal are the flowers and tops.

Cusso. Koussou.

The flowers and tops of *Brayera anthelmintica*; collected in Abyssinia.

Characters.—Flowers small, reddish-brown, on hairy stalks; outer limb of calyx five-parted, the segments ovate reticulated.

Dose.—ʒij. to ʒss. For children, 20 to 60 grains.

Analysis.—A bitter acrid resin, tannin, and a volatile oil.

INFUSUM CUSO.—Infusion of Kouso. Kouso, in coarse powder, $\bar{3}\frac{1}{4}$; boiling dist. water, $\bar{f}\bar{3}\text{iv}$. Infuse 15 minutes without straining.

Dose.— $\bar{f}\bar{3}\text{iv}$. to $\bar{f}\bar{3}\text{vii}$. This is the usual form for administration, the infusion and powder along with it being swallowed. Two such draughts as the above may be given, and it is best in the morning before the early meal. A purgative may follow, in an hour or two, as well as precede it.

Actions and Uses.—Anthelmintic. Useful in tape-worm, which is occasionally expelled by it, probably by being poisoned. It has a high reputation among the Abyssinians, but it is hardly equal to the male shield fern. It occasions nausea and vomiting in some few cases, but its action on the bowels is slight; it is therefore better to give a purgative a short time before, and after if necessary. From experiments made, it appears that tape-worms, immersed in an infusion mixed with milk, are killed in about half-an-hour. Though cusso leads to the expulsion of the worm, it seems not to improve the morbid condition which favours its production. A course of cinchona, and iron afterwards, is beneficial.

MYRTACEÆ.—THE MYRTLE FAMILY.

Several plants of this order are used in medicine on account of an aromatic volatile oil which they contain. Four plants are officinal.

I.—CARYOPHYLLUS AROMATICUS, *Linn.* The Clove-Tree.

This is a tree 20 to 30 feet high, with evergreen leaves. It is a native of the Molucca Islands, but is

extensively cultivated in the East and West Indies. The officinal parts are the unexpanded flower-buds.

Caryophyllum. Cloves.

The dried unexpanded flower-buds of *Caryophyllus aromaticus*, cultivated in Penang, Bencoolen, and Amboyna.

Characters and Test.—About six lines long, dark reddish-brown, plump and heavy, consisting of a nearly cylindrical body, surmounted by four teeth, and a globular head, with a strong fragrant odour, and a bitter spicy pungent taste. It emits oil when indented with the nail.

INFUSUM CARYOPHYLLI.—Infusion of Cloves. Cloves, bruised, $\bar{5}\frac{1}{4}$; boiling dist. water, $\bar{f}3x$. Infuse half-an-hour, and strain.

Dose.— $\bar{f}3j$. to $\bar{f}3iv$.

PULVIS AROMATICUS.—See Cinnamon.

Uses.—Stimulant, and in large doses irritant. Used in medicine chiefly as a corrective of other drugs, as in the griping of some of the gum resins.

Oleum Caryophylli. Oil of Cloves.

The oil distilled in Britain from cloves.

Characters.—Colourless at first, but gradually becoming red-brown, having the odour of cloves, and a spicy hot taste. Sinks in water.

Dose.—1 to 2 minims on sugar.

Uses.—Aromatic stimulant, chiefly used to flavour and correct the griping qualities of other drugs. A drop or two into the cavity of a carious tooth often palliates toothache.

II.—EUGENIA PIMENTA, *D.C.* The Allspice Tree.

This is a tree 30 feet high, with beautiful evergreen leaves, and sweet-scented flowers. It is a native of the West Indies. The officinal part is the fruit.

Pimenta. Pimento.

The dried unripe berries of the Allspice tree ; from the West Indies.

Characters.—Of the size of a small pea, brown, rough, crowned with the teeth of the calyx, yellowish within, and containing two dark-brown seeds, odour and taste aromatic, hot, and peculiar.

AQUA PIMENTÆ.—Water of Pimento. Pimento, ℥xiv. ; water, cong. ij. Distil one gallon. Carminative for children, but inferior to dill and anise.

Dose.—fʒj. to fʒij.

Oleum Pimentæ. Oil of Pimento.

The oil distilled in Britain from pimento.

Characters.—Colourless, but becoming brown when long kept ; odour and taste of pimento. Sinks in water.

Dose.—2 to 3 minims on sugar.

Actions and Uses.—An aromatic stimulant and carminative, but little employed in medicine. Communicates warmth and flavour to other drugs.

III.—MELALEUCA MINOR, *D.C.* Cajuput.

This is a small tree, with its leaves so twisted on the petiole that their edges are vertical. It is a native of the East Indies. The officinal parts are the leaves.

Oleum Cajuputi. Oil of Cajuput.

The oil distilled from the leaves of *Melaleuca minor*, in the Molucca Islands ; from Batavia and Singapore.

Characters.—Mobile, transparent, of a pale bluish-green colour; strong agreeable odour, and aromatic hot taste, leaving a sensation of coldness in the mouth.

Dose.—1 to 2 minims on sugar.

SPIRITUS CAJUPUTI.—Spirit of Cajuput. Oil of cajuput, f̄j.; rect. spt., f̄xlix. Dissolve. It enters into liniment. crotonis, 3½ volumes in 8.

Dose.—f̄ss. to f̄j.

Actions and Uses.—Stimulant and rubefacient. A good deal used in the East for chronic rheumatism, hysteria, gout, and nervous disorders. It was tried in Asiatic cholera, but did not prove of service. Topically, it is employed in cases of rheumatism. Internally, it has been useful in colic and flatulency.

IV.—PUNICA GRANATUM, *Linn.* The Pomegranate Tree.

This plant is a small tree, with large, beautiful crimson flowers. It is a native of Palestine and the East. The officinal part is the bark of the root.

Granati Radicis Cortex. Pomegranate Root Bark.

The dried bark of the root of *Punica Granatum*; chiefly imported dried from the South of Europe.

Characters.—In quills or fragments of a greyish-yellow colour externally, yellow internally, having a short fracture, little odour, and an astringent, slightly bitter taste.

Analysis.—An acrid oleo-resinous principle, punicin, on which its anthelmintic properties depend; tannin, gallic acid, and a sweetish substance resembling mannite.

Adulterations.—The root bark of the common barberry (*Berberis vulgaris*), and of *Buxus sempervirens*,

the box-tree, are at times substituted. They are known by being devoid of astringency.

It is only used to prepare the next preparation.

DECOCTUM GRANATI RADICIS.—Decoction of Pomegranate Root. Pomegranate root, fresh or dry, sliced, ℥ij.; dist. water, Oij. Boil down to a pint, and strain.

Dose.—f℥j. to f℥ij.

Actions and Uses.—A good vermifuge in tape-worm, acting by killing the parasite. It is believed to act most effectively when joints of the worm are coming away naturally. It sometimes causes sickness and vomiting, probably owing to the movements of the worm excited by the drug. It is also used in diarrhœa and dysentery.

CUCURBITACEÆ.—THE CUCUMBER FAMILY.

Many of the plants of this order are acrid and purgative. Only two plants are officinal.

I.—CITRULLUS COLOCYNTHIS, *Sachrad.* Colocyth.

This plant is succulent, hairy, and procumbent, like the cucumber family generally. It has small yellow flowers and globular smooth fruit about the size of an orange. It is a native of South Eastern Europe, Asia, and Africa. The part officinal is the fruit.

Colocynthis Pulpa. Colocynth Pulp.

The dried decorticated fruit, freed from seeds, of *Citrullus Colocynthis*. Imported chiefly from Smyrna, France, Spain, and Trieste.

Characters.—Light, spongy, yellowish-white, intensely bitter.

Dose in powder.—2 to 8 grains.

Analysis.—A bitter principle, colocynthin, to which it owes its purgative property; resin, gum, salts, etc.

EXTRACTUM COLOCYNTHIDIS COMPOSITUM.—Compound Extract of Colocynth. This is a spiritous extract, and contains aloes, scammony, hard soap, and cardomom seeds.

Dose.—3 to 10 grains.

PILULA COLOCYNTHIDIS COMPOSITA.—Compound Pill of Colocynth. Colocynth, $\bar{3}j$.; barb. aloes, $\bar{3}ij$.; scammony, $\bar{3}ij$.; sulph. potash, $\bar{3}\frac{1}{4}$.; oil of cloves, $f\bar{3}ij$.; dist. water, a sufficiency. M. Divide into 5-gr. pills. This pill is often called “Gregory’s Pill.”

Dose.—5 to 10 grains.

PILULA COLOCYNTHIDIS ET HYOSCYAMI.—Pill of Colocynth and Hyoscyamus. Compound pill of colocynth, $\bar{3}ij$.; ext. hyoscyami, $\bar{3}j$. Mix. Divide into 5-gr. pills. The hyoscyamus is added to prevent griping.

Dose.—5 to 10 grains.

Actions and Uses.—Irritant and cathartic. The effect of a poisonous dose of “bitter apple” is inflammation of the mucous membrane of the intestines. It is a powerful hydragogue cathartic, but, owing to its severity, it is invariably combined with other medicines, as in the compound pill, the form most commonly prescribed. The extract of hyoscyamus is an excellent corrective of its griping tendency, preventing it also from irritating the rectum. It may be usefully given in habitual constipation, passive dropsies, and as a revulsant in cerebral congestion. The powder sprinkled on a raw surface will induce catharsis.

II.—*ECBALIUM OFFICINARUM*, *Richard*. The Squirting
Cucumber.

This plant, like the preceding, has all the characteristics of its family. Its fruit, however, is much elongated, and when ripe, bursts with great violence, and expels the seeds and pulp. It is a native of the South of Europe. The officinal part is the fruit.

Ecbalii Fructus. Squirting Cucumber Fruit.

The fruit, very nearly ripe, of *Ecbalium officinarum*.

Elaterium. Elaterium.

A sediment from the juice of the squirting cucumber fruit.

Characters and Tests.—In light, friable, slightly incurved cakes, about one line thick, greenish-grey, acrid and bitter; fracture finely granular. Does not effervesce with acids; yields half its weight to boiling rectified spirit. This solution concentrated and added to warm solution of potash, yields on cooling not less than 20 per cent. of elaterine in colourless crystals.

Dose.— $\frac{1}{16}$ to $\frac{1}{2}$ grain in pill.

Analysis.—A crystalline substance, elaterin, the active principle of the drug; green resin, starch, etc.

PULVIS ELATERII COMPOSITUS.—Compound Powder of Elaterium. Elaterium, gr. x.; sugar of milk, gr. xc. Mix. It contains one grain of elaterium in every 10 grains. This is a good preparation.

Dose.— $\frac{1}{2}$ grain to 5 grains.

Actions and Uses.—An intensely irritant and acrid poison, and a drastic cathartic. A few grains of good elaterium will occasion inflammation of the alimentary canal, with severe griping pain, vomiting, and purging.

As a cathartic, it produces profuse watery stools, attended with depression of the circulation and nervous systems. It is employed in dropsies, such as ascites and hydrothorax, and the fluid is sometimes lessened in these cases after the free evacuations which this drug occasions. It should be given with care in cases of debility.

Formula.—℞ Elaterii granum; pulveris aromatici, gr. xij.; extracti taraxaci, gr. xxiv.; extracti gentianæ, gr. xxiv. Misce. bene. Divide in pilulas xij. Sumat unam bis die. Watch their effects carefully.

Owing to the varying purity of the drug, *elaterin* has been proposed instead. The *dose* is $\frac{1}{12}$ to $\frac{1}{8}$ grain.

In poisoning with elaterium, give demulcent drinks, and enemata; small doses of opium, the warm bath, and morphia suppositories.

HAMAMELIDACEÆ.—THE WITCH-HAZEL FAMILY.

The plants of this order have astringent and expectorant properties. It contains only one officinal plant.

LIQUIDAMBAR ORIENTALIS, *Miller's Dict.*

This is a large tree, 40 feet high. It is a native of Asia Minor. The officinal part is the bark.

Styrax Præparatus. Prepared Storax.

A balsam got from the bark of *Liquidambar orientalis* in Asia Minor; purified by rectified spirit and straining.

Characters.—A dirty-brown, or yellowish, half-fluid resin, with a pleasant aromatic odour.

Dose.—10 to 20 grains.

Actions and Uses.—It enters into the composition of the compound tincture of benzoin, 33 grains to 1 fluid ounce. It is a stimulating expectorant, but not of much consequence. Externally, mixed with olive oil, it has been used in scabies.

UMBELLIFERÆ.—THE UMBELLIFEROUS FAMILY.

This is a very precise natural order. The plants have various properties; some yield useful articles of diet, as the carrot; others yield gum resin, whilst a third class is very poisonous. It contains 10 officinal plants, besides others not yet determined.

I.—**CORIANDRUM SATIVUM**, *Linn.* The Coriander.

This plant is an annual, 1 to 2 feet high. The fruit is globular, and the whole plant has a characteristic odour. It is a native of the South of Europe, but is cultivated in Britain. The part officinal is the fruit.

Coriandri Fructus. Coriander Fruit.

The dried ripe fruit of *Coriandrum sativum*. Cultivated in Britain.

Characters.—Globular, yellowish-brown, nearly as large as white pepper, beaked, finely-ribbed; agreeable odour and flavour.

Oleum Coriandri. Oil of Coriander.

The oil distilled in Britain from coriander fruit.

Characters.—Yellowish, having the odour of coriander.

Dose.—1 to 5 minims on sugar.

Uses.—Aromatic and carminative. A pleasant corrective of other drugs, such as senna and rhubarb.

II.—FŒNICULUM DULCE, *D.C.* Sweet Fennel.

This plant has oblong fruit. It is a native of Spain and Portugal. The officinal part is the fruit.

Fœniculi Fructus. Fennel Fruit.

The fruit of *Fœniculum dulce*; imported from Malta.

Characters.—About three lines long and one broad, elliptical, beaked, having eight pale-brown longitudinal ribs, the two lateral being double; taste and odour aromatic.

AQUA FŒNICULI.—Fennel Water. Sweet fennel fruit, ℥j.; water, cong. ij. Distil one gallon. A vehicle for other medicines.

Dose.—ʒj. to ʒij.

Actions and Uses.—An aromatic stimulant and carminative like anise, but little employed. It owes its virtues to its volatile oil.

III.—ANETHUM GRAVEOLENS, *Linn.* Common Dill.

This is an annual, 1 to 2 feet high. Its fruit is compressed and surrounded by a flattened border. It is a native of the South of Europe. The officinal part is the fruit.

Anethi Fructus. Dill Fruit.

The fruit of *Anethum graveolens*; cultivated in England, or imported from Middle and Southern Europe.

Characters.—Oval, flat, about a line and a-half in length, with a pale membranous margin. Odour aromatic, taste warm and slightly bitter.

AQUA ANETHI.—Dill Water. Dill, ℥j. ; water, cong. ij. Distil one gallon.

Oleum Anethi. Oil of Dill.

The oil distilled in Britain from dill fruit.

Characters.—Pale-yellow, taste acrid, sweetish, pungent smell.

Dose.—1 to 5 minims on sugar.

Actions and Uses.—An aromatic, carminative, and slightly stimulant. Given in the flatulence of infants.

Formula, found useful in the griping flatulence of children. ℞ Magnesiæ levis, ℥ss. ; sacchari albi, ℥j. ; olei anisi, min., ij. ; liquoris calcis, ℥ij. ; aquæ anethi, ℥ij. Misce. Capiat cochleare parvum, pro re nata.

IV.—CARUM CARUI, *Linn.* Common Caraway.

This plant is easily recognised by its fruit and its characteristic odour. It is found naturalised in many parts of Britain. The officinal part is the fruit.

Carui Fructus. Caraway Fruit.

The dried fruit of *Carum Carui* ; cultivated in England and Germany.

Characters.—Fruit usually separating into two parts, which are about two lines long, curved, tapering at each end, brown, with five paler longitudinal ridges, having an agreeable aromatic odour and spicy taste.

AQUA CARUI.—Caraway Water. Caraway, bruised, ℥j. ; water, cong. ij. ; one gallon. Given in the flatulent colic of children.

Oleum Carui. Oil of Caraway.

The oil distilled in Britain from caraway fruit.

Characters. — Colourless, or pale-yellow colour, aromatic odour, and spicy taste.

Uses.—An aromatic carminative, and a corrective of other drugs, such as aloes in the pil. aloes barb.

V.—PIMPINELLA ANISUM, *Linn.*

This is a small annual. It is a native of Scio, Egypt, and Asia. The officinal part is the fruit. This plant, with *Illicium anisatum*, *Linn.*, (*Star-anise*), see Magnoliaceæ, yields—

Oleum Anisi. Oil of Anise.

The oil distilled in Europe from the fruit of *Pimpinella Anisum*, and the oil distilled from the fruit of *Illicium anisatum*, *Star-anise*, in China.

Characters.—Pale-yellow colour, and a warm sweetish taste. Concretes at 50°, with the odour of anise.

Dose.—1 to 5 minims on sugar.

ESSENTIA ANISI.—Essence of Anise. Oil of anise, f̄j. ; rect. spt., f̄iv. Mix.

Dose.—10 to 20 minims.

Actions and Uses.—An aromatic stimulant and carminative, and useful in flatulent colic and griping of children, along with a little magnesia. It is alleged to favour the secretion of milk in nurses. It enters into the composition of Compound Tincture of Camphor and Ammoniated Tincture of Opium.

Formula for Children.—℞ Sacchari purificati, gr. cxx. ; magnesiæ levis, gr. lx. ; olei anisi, min. xii. M. A few grains in milk.

VI.—*CONIUM MACULATUM*, *Linn.* Spotted Hemlock.

This is a tall annual, and is a native of Britain. It is very abundant in several places around Edinburgh. It is easily recognised by its smooth, spotted stem and its peculiar odour. The officinal parts are the leaves and fruit.

Conii Folia. Hemlock Leaves.

The fresh leaves and young branches of wild British plants of *Conium maculatum*, gathered when the fruit begins to form; and the leaves dried in the sun, or at a temperature not exceeding 120°; also the leaves separated from the branches and carefully dried.

Characters.—Fresh leaves tripinnate, smooth, arising from a smooth stem with dark purple spots; dried leaves of a full green colour and characteristic odour. The leaf rubbed with caustic potash gives out strongly the odour of conia.

Dose in powder.—2 to 8 grains.

EXTRACTUM CONII.—Extract of Hemlock. This is made from the fresh leaves and young branches. The juice is pressed out and then evaporated to a proper consistence for forming pills.

Dose.—2 to 6 grains.

PILULA CONII COMPOSITA.—Compound Pill of Hemlock. Ext. hemlock, ℥iiss.; ipecac. powder, ℥ss.; treacle, a sufficiency. Mix. A useful pill in bronchitis.

Dose.—5 to 10 grains.

VAPOR CONIÆ.—Inhalation of Conia. Extract of hemlock, ℥j.; solution of potash, f℥j.; water, f℥x. Mix. Put 20 minims of the mixture on a sponge in a suitable apparatus, so that the vapour of hot water passing over it may be inhaled.

SUCCUS CONII.—Juice of Hemlock. Bruise hemlock leaves in a stone mortar; press out the juice, and to every three measures of juice add one of rectified spirit. Set aside for seven days; filter, and keep in a cool place. One of the best preparations of hemlock.

Dose.—f̄ss. to f̄j.

CATAPLASMA CONII.—Hemlock Poultice. Hemlock leaf, powder, ʒj.; linseed meal, ʒiiij.; boiling water, f̄xx. Mix the hemlock and meal, add them to the water gradually, constantly stirring.

Conii Fructus. Hemlock Fruit.

The dried ripe fruit of *Conium maculatum*. Spotted Hemlock.

Characters and Tests.—Broadly ovate, compressed laterally; half-fruit, with five waved or crenated ridges. Reduced to powder, and rubbed with solution of potash, they give out strongly the odour of conia.

TINCTURA CONII.—Tincture of Hemlock. Hemlock fruit, ʒiiss.; proof spirit, Oj. Macerate 48 hours, then percolate, and add spirit to make Oj.

Dose.—20 to 60 minims.

Analysis.—The leaves and fruit contain an alkaloid, conia, which is the active principle. It is a colourless, oily liquid, specific gravity, 0·89, and possessing a penetrating, disagreeable odour, and very acrid taste. It is a very energetic poison. It may be obtained by distilling the leaves with caustic potash. There are also present albumen, resin, a volatile odorous principle, salts, etc.

Conia is not in the *Brit. Phar.* It is a very powerful sedative, $\frac{1}{50}$ to $\frac{1}{30}$ of a grain being the dose. If

one grain be dissolved in f̄ij. of water, the dose would be 3 minims.

Actions and Uses.—Sedative and hypnotic. It is a poison in large doses, exhausting the nervous force of the spinal cord and voluntary muscles, and giving rise to general paralysis of the muscles, and arrestment of respiration. Slight twitches and tremors of the muscles have been observed, but no convulsions or coma. The treatment in cases of poisoning is the administration of emetics, stimulants internally and externally, and tannin. Hemlock is not very much used in practice now. As a sedative and anodyne in neuralgia, gangrene, schirrous uterus, asthma, chronic catarrh, and hooping-cough, it seems hardly equal to opium, belladonna, etc.; and as a deobstruent and alterative, for which it was recommended in enlarged glands, enlarged liver and spleen, malignant ulcers, secondary syphilis, and chronic skin diseases, it has proved very much a failure. Externally, in the form of poultice, however, it alleviates the pain of cancerous and other ulcerations.

Formula in Spasmodic Cough.—℞ Succi conii, f̄ij. ; liquoris morphiæ hydrochloratis, f̄ij. ; spiritus chloroformi, f̄ss. ; syrupi, f̄vj. Misc. Fiat mistura, cujus capiat cochleare parvum ter in die.

VII.—NARTEX ASSAFŒTIDA, *Falconer*. Assafoetida.

This is a large plant, with very large leaves, and a flowering stem, 8 or 9 feet high. The whole plant has a characteristic odour. The plant is a native of Thibet. The officinal part is the root.

Assafœtida. Assafœtida.

A gum resin, obtained by incision from the living root of *Narthex Assafœtida*, in Afghanistan and the Punjab.

Characters.—In irregular masses and tears. Colour, when fresh cut, opaque white, but gradually becoming purplish-pink, and then pinkish-brown. Taste bitter, acrid; odour fetid, alliaceous, and persistent. Dissolves almost entirely in rectified spirit.

Dose.—5 to 20 grains.

PILULA ASSAFŒTIDÆ COMPOSITA.—Compound Pill of Assafœtida. Assaf., ʒij. ; galbanum, ʒij. ; myrrh, ʒij. ; treacle, ʒj. M. Divide in 5-grain pills.

Dose.—5 to 10 grains.

PILULA ALOES ET ASSAFŒTIDÆ.—See Aloes.

TINCTURA ASSAFŒTIDÆ.—Tincture of Assafœtida. Assaf., ʒijss. ; rectified spt., Oj. Macerate seven days, filter, strain, and add spirit to make Oj.

Dose.—fʒss. to fʒj.

SPIRITUS AMMONIÆ FŒTIDUS.—Fetid Spirit of Ammonia. Assafœtida, ʒiss. ; strong solut. of ammon., fʒij. ; rect. spt., ad. Oj. M.

Dose.—fʒss. to fʒj.

ENEMA ASSAFŒTIDÆ.—Enema of Assafœtida. Assaf., gr. xxx. ; dist. water, fʒiv. M. Highly useful in tympanites, and in the thread-worm.

Analysis.—Resin and volatile oil (on which its properties depend), gum, etc.

Actions and Uses.—A powerful stimulant and antispasmodic. It is a diffusible stimulant, exciting the nervous and vascular systems and pervading quickly the entire secretions. It is given chiefly in hysteria, where it is of great service, and in chorea, amenor-

rhœa, and dysmenorrhœa, but with more variable success. It should be given in pretty full doses in hysterical cases, both during the paroxysm and interval. As a carminative, whether by the mouth or rectum, it gets rid of flatulence very effectually. As a diuretic it is not much to be depended on; as an anthelmintic it is entitled to more confidence. A great bar to its wider employment is its abominable odour and taste; but this has been taken advantage of in the treatment of malingerers, and those more afflicted with whim than disease, mixtures well impregnated with it serving to stave them off for a time.

VIII.—*DOREMA AMMONIACUM, Don.* Ammoniacum Plant.

This is a large perennial plant, 8 or 9 feet high. It is a native of Persia. The whole plant is officinal.

Ammoniacum. Ammoniacum.

A gum-resinous exudation from *Dorema Ammoniacum*; collected in Persia and the Punjaub.

Characters. — In pale cinnamon-brown tears, or masses; the tears from two to eight lines in diameter, breaking with a smooth, shining, opaque-white surface; hard when cold; softening with heat; a bitter, acrid, nauseous taste. Rubbed with water, it forms a nearly white emulsion.

Dose.—10 to 20 grains.

EMPLASTRUM AMMONIACI CUM HYDRARGYRO.—See Hydrargyrum.

EMP. GALBANI.—See Galbanum.

MISTURA AMMONIACI.—Ammoniacum Mixture. Ammoniac, $\bar{5}\frac{1}{4}$; dist. water, $\bar{f}\bar{v}\bar{i}\bar{i}\bar{j}$. Mix well by trituration, and strain through muslin.

Dose.— $\bar{3}$ ss. to $\bar{3}$ j.

PILULA SCILLÆ Co.—See Scilla.

Analysis.—Resin, gum, and a volatile oil.

Actions and Uses.—A stimulating expectorant, and useful along with squill or tolu in chronic bronchitis. Externally, in the form of plaster, it is applied to chronic enlarged glands, proving useful at times by its stimulating property; but it is inferior to iodine and others. It owes its properties to its volatile oil.

IX.—FERULA GALBANIFLUA, *Buhsæ*. The Galbanum Plant.

This plant is 4 or 5 feet high. It is a native of the mountains of Persia. This plant has recently been determined to be the source at least of some of the officinal *Galbanum*. The part officinal is the stem.

Galbanum. Galbanum.

A gum resin, derived from an unascertained umbelliferous plant; imported from India and the Levant.

Characters.—In irregular tears, about the size of a pea, usually agglutinated into masses, of a greenish yellow colour, translucent, with a strong, disagreeable odour, and an acrid bitter taste.

Dose.—10 to 20 grains.

EMPLASTRUM GALBANI.—Galbanum Plaster. Galbanum, $\bar{3}$ j. ; ammoniac, $\bar{3}$ j. ; yellow wax, $\bar{3}$ j. : litharge plaster, $\bar{3}$ viiij. Melt the galb. and ammon. together, and strain. Add the litharge plaster and wax, previously melted together, and mix thoroughly. A stimulating plaster.

Analysis.—Resin, gum, a volatile oil, and malate of lime.

Actions and Uses—Antispasmodic, but inferior to assafoetida, an ingredient of the compound assafoetida pill.

EURYANGIUM SUMBUL, *Kauffman*; or,

X.—FERULA SUMBUL, *Hook.* The Sumbul Plant.

This plant is a herbaceous perennial, 8 feet high. It is a native of the mountains of Bucharica. This plant has recently been proved to be the source of the Russian *Sumbul*. The officinal part is the root.

Sumbul Radix. Sumbul Root.

Transverse sections of the dried root of a plant; imported from Russia and India; and most probably the plant above described furnishes the Russian sumbul.

Characters.—Circular pieces, light, from 1 to 2 in. diam., and from 2 to 3 in. in depth. Internally, dirty greyish-yellow; externally, light-brown. Odour, musk-like; taste, aromatic and bitter. That brought from India differs from the Russian, being closer in texture, more dense and firm, and of a reddish tint.

Analysis.—Balsamic resin, volatile oil, sumbulic acid, etc.

TINCTURA SUMBUL.—Tincture of Sumbul. Sumbul root, ʒijss. ; proof spt., Oj.

Dose.—10 to 30 minims.

Actions and Uses.—Not a very important drug. Said to be useful in nervous diseases, such as epilepsy, hysteria, and delirium tremens. Employed also in cholera as a stimulant.



CAPRIFOLIACEÆ.—THE HONEYSUCKLE FAMILY.

The flowers of many plants of this order contain an odoriferous volatile oil. It contains only one officinal plant.

SAMBUCUS NIGRA, *Linn.* The Elder Tree.

This is a small tree, with sweet-scented cream-coloured flowers, and fruit like small berries. It is common in Britain. The officinal parts are the flowers.

Sambuci Flores. Elder Flowers.

The fresh flowers of *Sambucus nigra*, from indigenous plants.

Characters.—Flowers small, white, odorous, crowded in large cymes.

AQUA SAMBUCL.—Elder-flower Water. Fresh elder flowers, separated from the stalks, ℔x. ; water, cong. ij, Distil one gallon.

Uses.—Mildly emollient, used for preparing the aqua, which is used generally as a vehicle for alkalies in cutaneous diseases, in collyria, and as a perfume.

RUBIACEÆ.—THE MADDER AND PERUVIAN BARK FAMILY.

The properties of this order are tonic, astringent, and antiperiodic. It contains six officinal plants, but these are among the most important used in medicines.

I.—CINCHONA SUCCIRUBRA, *Pavon.* The Red Cinchona.

This is a tree which sometimes reaches 40 feet in height. The trunk contains a red juice. It is a native

of the western slopes of Chimborazo, but is now cultivated in India. The officinal part is the bark.

Cinchonæ Rubræ Cortex. Red Cinchona Bark.

The bark of *Cinchona succirubra*; collected on the western slopes of Chimborazo.

Characters and Tests.—In flat or in curved pieces, less frequently in quills, coated with the periderm, from a few inches to 2 feet long, 1 to 3 inches wide, 2 to 6 lines thick; outer surface reddish-brown, rarely whitened by lichens, wrinkled longitudinally, often warty, and crossed by deep transverse cracks; inner surface redder. Powder, red brown; taste, bitter and astringent. 100 grains yield not less than 1·5 grain of alkaloids.

Dose in powder.—10 to 60 grains.

Analysis.—Four alkaloids, viz., quinia, cinchonia, quinidia, and cinchonidia, in union with three acids, kinic, or cinchonic, kinovic, and tannic; with two colouring matters, cinchonic yellow and red; fatty matter, kinate of lime, a trace of volatile oil, starch, gum, etc. The medicinal virtues of the bark are owing to the alkaloids, and especially the quinia.

II.—*CINCHONA CONDAMINEA, D.C.* Condamine's Cinchona.

This is a large tree, and is a native of Loxa, in Ecuador. The officinal part is the bark.

Cinchonæ Pallidæ Cortex. Pale Cinchona Bark.

The bark of *Cinchona Condaminea*; collected about Loxa, in Ecuador.

Characters and Tests.—From half-a-line to a line thick, in single or double quills, from 6 to 16 inches

long, 2 to 8 lines diam.; outer surface brown and wrinkled, or grey and speckled with adherent lichens, with or without numerous transverse cracks; inner surface bright-orange or cinnamon-brown. Powder, pale brown, slightly bitter, very astringent. 200 grains yield not less than one grain of alkaloids.

Dose in powder.—10 to 60 grains.

III.—CINCHONA CALISAYA, *Weddell.*

This is a very tall tree, its head generally elevated above the other trees of the forest. It is a native of Bolivia and Southern Peru. The part officinal is the bark. Along with the other species, it is now cultivated in India.

Cinchonæ Flavæ Cortex. Yellow Cinchona Bark.

The bark of *Cinchona Calisaya*; collected in Bolivia and Southern Peru.

Characters and Tests.—In flat pieces, deprived of the periderm, rarely in coated quills, from 6 to 18 in. long; 1 to 3 inches wide; 2 to 4 lines thick; compact and heavy; outer surface brown, marked by broad shallow irregular longitudinal depressions; inner surface tawny-yellow, fibrous. Powder, cinnamon-brown, somewhat aromatic, and persistently bitter. 100 grains yield about 2 grains of quinia, or more than the other two.

Dose in powder.—10 to 60 grains.

EXTRACTUM CINCHONÆ FLAVÆ LIQUIDUM. — Liquid Extract of Yellow Cinchona. This is prepared by means of water and spirit.

Dose.—10 to 30 minims.

TINCTURA CINCHONÆ FLAVÆ.—Tincture of Yellow Cinchona. Yellow bark, ℥iv.; proof spt., Oj. Macerate 48 hours; percolate, and add spirit to make, Oj.

Dose.—fʒss. to fʒij.

TINCTURA CINCHONÆ COMPOSITA.—Compound Tincture of Cinchona. Pale bark, ℥ij.; bitter orange peel, ℥j.; serpentary, ℥ss.; saffron, gr. lx.; cochineal, gr. xxx.; proof spt., Oj. Proceed as before. Formerly called Huxham's Tincture.

Dose.—fʒss. to fʒij.

INFUSUM CINCHONÆ FLAVÆ.—Infusion of Yellow Cinchona. Yellow bark, ℥ss.; boiling dist. water, fʒx. Infuse two hours, and filter through paper.

Dose.—fʒj. to fʒij.

DECOCTUM CINCHONÆ FLAVÆ.—Decoction of Yellow Cinchona. Yellow cinchona bark, ℥i¼; dist. water, Oj. Boil ten minutes in a covered vessel. Strain, when cold, through calico; add dist. water to make up to fʒxx.

Dose.—fʒj. to fʒij.

Adulterations.—Bark is mixed with inferior, yet true kinds, and with various false barks. Three are named—Piton bark, Caribbean, and Pitaya; the last only being encountered in British commerce. They have all a mawkish, bitter taste, non-aromatic. The Pitaya bark is in thin quills, greyish-yellow externally, blackish-brown internally. Red sandal wood is sometimes mixed with the powdered barks; it may be discovered by agitating the doubtful sample with ether; if adulterated, the ether will acquire a saffron colour, but not if the bark be pure. Various tests are employed to discover the most efficacious and valuable barks.

According to Berzelius, the most efficient happen to contain most tannin ; therefore, those which in infusion give the largest precipitate with solution of gelatine, and with antim. tart., ought to be preferred.

Actions and Uses.—Astringent, antiseptic, and a powerful tonic and antiperiodic. As an astringent and antiseptic, it is employed topically to correct the discharge and fetid odour of foul ulcers and gangrenous sores, but is inferior to charcoal or the preparations of chlorine. As a tonic it is very widely used for imparting tone and aiding digestion in functional disorders of the stomach, and to restore nervous tone and muscular strength where these have been undermined by protracted disease or exhausting discharges. There are some cases of dyspepsia attended with pain, feeling of weight at the stomach, and irritability, yet not based on organic disease, which, so far from improving under it, seem rather to be aggravated. They are soon found out ; for almost the first dose, as well as successive ones, intensify these symptoms. Cinchona cannot be called a febrifuge, having no power in arresting continued or eruptive fevers ; it possesses, however, an unfailing influence in periodic fevers, and therefore antiperiodic is the more correct title. It will destroy the condition, or chain of conditions, on which ague and the remittent fever depend, almost as certainly as opium will induce sleep, or croton oil catharsis. It is given in full doses during the stage of intermission or remission. In periodic neuralgia, headache, and rheumatism, it is also of great service ; but here the sulphate of beberia, or iron, will answer equally well. As a constitutional remedy in gangrene or erysipelas it is not now much trusted in. The therapeutic virtues of the bark exist

unimpaired in the alkaloid quinia; but where a tonic effect merely is desiderated, it is better to abide by the former.

Dose of the powder.—Tonic, 10 to 60 grains; anti-periodic, ℥j. to ℥ij., every two or three hours.

IV.—CINCHONA LANCIFOLIA, *Mutis.* Lance-leaved Cinchona.

This species is recognised by its lanceolate leaves, which are acute at both ends. It is a native of New Grenada, Ecuador, and Peru. The part officinal is the bark. It is only officinal as a source of quinia.

Quiniæ Sulphas. Sulphate of Quinia.

The sulphate of an alkaloid $(C_{20}H_{24}N_2O_2)_2H_2SO_4 \cdot 7H_2O$, prepared from Yellow Cinchona bark, and from the bark of Cinchona lancifolia.

Characters and Tests.—Filiform, silky, snow-white crystals, of an intensely bitter taste, sparingly soluble in water, yet imparting to it a peculiar bluish tint. A few drops of a dilute acid added renders it freely soluble in water. The solution gives, with chloride of barium, a white precipitate, insoluble in nitric acid; and when treated first with solution of chlorine, and afterwards with ammonia, a fine emerald-green colour is developed. Gr. xxv. lose 3·6 grains water by drying at 212°.

Dose.—1 to 10 grains.

Adulterations.—Sulphate of lime, gum, mannite, starch, fatty matters, and sulphate of cinchona. If salicin be present, it becomes bright red on the addition of a few drops of sulphuric acid.

FERRI ET QUINIÆ CITRAS contains 16 parts of quinia in 100.

PILULA QUINIÆ.—Pill of Quinia. Sulphate of quinia, gr. lx. ; confection of hips, gr. xx. Mix.

Dose.—2 to 10 grains.

TINCTURA QUINIÆ.—Tincture of Quinia. Sulphate of quinia, gr. clx. ; tinct. orange peel, Oj.

Dose.—fʒss. to fʒij.

TINCTURA QUINIÆ AMMONIATA.—Ammoniated Tincture of Quinia. Sulph. of quinia, gr. clx. ; solution of ammonia, fʒiiss. ; proof spirit, fʒxviiss. Mix.

Dose.—fʒss. to fʒij.

VINUM QUINIÆ.—Wine of Quinia. Sulphate of quinia, gr. xx. ; citric acid, gr. xxx. ; orange wine, Oj.

Dose.—fʒss. to fʒj.

Incompatibles.—The alkalies and their carb., lime water, tartaric acid, and infusions and tinctures containing tannin.

Actions and Uses.—Tonic and antiperiodic. In small doses it strengthens the pulse, and invigorates the nervous and muscular systems. Its most conspicuous and singular property is that whereby it arrests periodic diseases, especially intermittent fevers—a power not possessed in an equal degree by any other drug. How it operates in these cases is not known ; it may be in virtue of its tonic property (yet other more bitter tonics do not succeed so well), or by breaking in some occult way more or fewer of the links of that chain of elements which may constitute the fevers in question. Not being able to account for or explain its operation, it is said to be a specific. In these diseases, large doses are necessary, and it is given during the stage of intermission. In some cases, large doses, and even smaller ones, occasion headache, giddiness, nausea, pain in the stomach, flushed countenance, ringing in the ears ; and

more rarely, numbness of the feet, blindness, deafness, and delirium. (Cinchonism.) It is contra-indicated in acute local inflammations, and where there is much tendency to vomiting or dysentery. Quinia, in small doses, is also an excellent tonic, not in cases of dyspepsia so much as in general debility, induced by protracted diseases and long confinement. It has, moreover, been employed for tetanus, acute rheumatism, erysipelas, cholera, diphtheria, continued fever, delirium tremens, etc., but its success in these cases is small and variable. In the minor periodic diseases, such as neuralgia, headache, and other regularly-recurring pains, it is of great service; and in some strumous diseases, such as ophthalmia, it is also highly beneficial. In debility connected with anemia it is not equal to iron.

Dose.—Tonic, gr. ss. to ij.; antiperiodic, gr. v. to xx.; and for smaller periodic diseases, gr. j. to v. It may be given in water with a few drops of dilute sulphuric acid, but milk is the best vehicle for quinine. It should not be prescribed in the *infusum rosæ acidum*, as it is precipitated by the tannin in that preparation.

V.—*CEPHAËLIS IPECACUANHA, D.C.* The Ipecacuanha Plant.

This plant has an under-ground stem, or rhizome, which is annulated in a peculiar manner. The stem is 2 to 4 feet high, with opposite entire leaves, white flowers and dark succulent fruit. It is a native of Rio Janeiro, Bahia, Pernambuco, etc. The part officinal is the rhizome.

Ipecacuanha. Ipecacuanha.

The root dried of *Cephaëlis Ipecacuanha*; imported from Brazil.

Characters. — In pieces three or four inches long, about the size of a small quill, contorted and annulated. Colour, various shades of brown. Consists of two parts, the cortical or active portion, which is brittle, and a slender, white, woody centre. Powder, pale brown, with a nauseous odour, and a somewhat acrid and bitter taste.

Dose. — As an expectorant, $\frac{1}{2}$ grain to 2 grains ; as an emetic, 15 to 30 grains.

Analysis. — The cortical part contains an alkaloid named emetin, to which it owes its active properties, a fat, oily matter, a reddish-brown acid, named ipecacuanhic acid, a trace of volatile oil, etc.

Adulterations. — Spurious ipecacuan roots are occasionally, but not often, substituted ; but attention to the above characters will conduce to their detection.

PULVIS IPECACUANHÆ COMPOSITUS. — Compound Powder of Ipecacuanha. Ipecacuan, powder, $\bar{\text{ss}}$. ; opium, in powder, $\bar{\text{ss}}$. ; sulphate of potash, $\bar{\text{iv}}$. Mix well, and pass through a fine sieve. This, commonly called Dovers's Powder, is an excellent diaphoretic ; it should not be given where there is much irritability of the stomach, or in cerebral disorder. The surface of the body should be kept warm ; and that it may be retained on the stomach, little drink should be taken with or after it.

Dose. — 5 to 15 grains.

PILULA IPECACUANHÆ CUM SCILLA. — Pill of Ipecacuanha with Squill. Compound powder of ipecac., $\bar{\text{ij}}$. ; squill in powder, ammoniac in powder, of each, $\bar{\text{j}}$. ; treacle, a sufficiency. A useful expectorant pill.

Dose. — 5 to 10 grains.

TROCHISCI IPECACUANHÆ. — Ipecacuanha Lozenges. Each lozenge contains a quarter of a grain of ipecacuanha, besides sugar and gum acacia.

Dose.—1 to 3 lozenges.

TROCHISCI MORPHIÆ ET IPECACUANHÆ. — Morphia and Ipecacuanha Lozenges. Each lozenge contains $\frac{1}{12}$ grain of ipecacuanha, $\frac{1}{38}$ grain of hydrochlorate of morphia, besides tolu, sugar, and gum acacia.

Dose.—1 to 6 lozenges.

VINUM IPECACUANHÆ. — Wine of Ipecacuanha. Ipecacuan, bruised, ℥j.; sherry, Oj. Macerate seven days, with frequent agitation; filter.

Dose.—5 to 40 minims as an expectorant; fʒiij. to fʒvi. as an emetic.

Incompatibles.—Salts of lead and mercury, vegetable acids, and astringent infusions.

Actions and Uses. — Irritant, emetic, diaphoretic, expectorant, and a powerful cholagogue, and if retained in the stomach (instead of, in general, being rejected), narcotico-acrid. We know this from the experiments of Magendie, who excited vomiting, coma, and death in a dog by the introduction of emetin into the system through wounds, as well as by the stomach. As an emetic, it operates very much like tart. antim., some twenty minutes or so elapsing ere emesis results, and the act of vomiting being frequently repeated; but it does not depress quite so much, nor is it so apt to induce catharsis. It is well suited for old people, feeble women, and children, not, as before said, depressing so much as antimony. It is used in infantile fevers, where we wish to empty the stomach and abate the force of the circulation (for it is sedative in virtue of its emetic power), in hooping-cough, and in

the fits of ague, asthma, and hysteria, which are sometimes checked by it. As a diaphoretic, it is of service in pulmonary catarrh, coryza, and acute rheumatism, and more so if combined with a little opium. As an expectorant, in small doses, by diminishing the discharge, and in large doses by expelling it during vomiting, it is beneficial in chronic bronchitis. Some believe it to be tonic in doses of gr. $\frac{1}{4}$. It is employed with success in nauseating doses in the dysentery, acute and chronic, of warm climates, where it is supposed by some to act as a specific sedative, by others as an astringent; and by some, again, its good results are thought to be due to its action on the skin. Some people are extremely and peculiarly susceptible to its action, the invisible dust of the powder floating in the air of their apartment exciting an attack of spasmodic asthma. Professor Rutherford found ipecacuanha a very powerful cholagogue, and it is very probable that this action on the liver may account for its action in the diarrhoea and dysentery of warm climates.

EMETIA, OR EMETIN, is a powerful emetic in doses of $\frac{1}{16}$ grain. When pure it is a white powder, inodorous, and of bitter taste. It is not officinal.

Formula for Chronic Bronchitis.—℞ Vini ipecacuanhæ, fʒiij.; syrupi scillæ, fʒj.; tincturæ lobeliæ æthereæ, fʒiiss.; liquoris morphiæ hydrochloratis, fʒiiss.; infusum senegæ ad ʒvj. M. Sumat cochleare magnum ter die.

VI.—UNCARIA GAMBIR, *Roxburgh.* The Gambir Plant.

This is a shrubby climber, with remarkable peduncles, by means of which the plant climbs. It is a native of

the East Indian Islands. The parts officinal are the leaves and young shoots.

Catechu Pallidum. Pale Catechu.

An extract of the leaves and young shoots of *Uncaria Gambir*; prepared at Singapore, and in other places in the Eastern Archipelago.

Characters.—In cubes, or masses, formed of coherent cubes; the former about an inch in diameter, externally brown, internally pale brick-red; breaking easily with a dull, earthy fracture. Taste bitter, very stringent, entirely soluble in boiling water. The decoction when cool is not rendered blue by iodine.

Dose.—10 to 30 grains.

PULVIS CATECHU COMPOSITUS.—Compound Powder of Catechu. Catechu, ℥iv.; kino, ℥ij.; rhatany, ℥ij.; cinnamon, ℥j.; nutmeg, ℥j. Mix well, and pass through a fine sieve.

Dose.—20 to 40 grains.

TROCHISCI CATECHU.—Catechu Lozenges. Catechu, sugar, gum, and water. A useful astringent for clearing the voice of public speakers and singers. Each lozenge contains one grain of catechu.

Dose.—1 to 6 lozenges.

TINCTURA CATECHU.—Tincture of Catechu. Catechu, ℥iiss.; cinnamon, ℥j.; proof spt., Oj. Proceed as usual.

Dose.—℥ʒss. to ℥ʒij.

INFUSUM CATECHU.—Infusion of Catechu. Catechu, gr. clx.; cinnamon, gr. xxx.; boiling dist. water, ℥ʒx. Infuse half-an-hour.

Dose.—℥ʒj. to ℥ʒij.

Actions and Uses.—An excellent astringent. Employed with benefit to check increased mucous dis-

charges, such as chronic diarrhœa, dysentery, chronic catarrh, cystirrhœa, leucorrhœa, and gleet. It is perhaps fully more beneficial in the first two than in the last four affections; and in the two first named it is often usefully combined with a little opium. Relaxed mucous membranes get firmer under its use, and passive hæmorrhage from the intestines is checked. For most, if not all, of the foregoing complaints, however, we will obtain better results from either tannic or gallic acid. As a topical application it is useful in chapped nipples, aphthous ulcerations of the mouth, chronic cynanche tonsillaris, elongated uvula, congestion, and sponginess of the gums. For these purposes it may be applied in the form of lotion, gargle, or powder.

Coffea arabica.—The coffee plant belongs to this order. It is a native of Arabia and Abyssinia, and is an important article of diet. It is not officinal.

VALERIANACEÆ.—THE VALERIAN FAMILY.

The plants of this order have a strong odour, and some are used as antispasmodics. It contains only one officinal plant.

VALERIANA OFFICINALIS, *Linn.* Common Valerian.

This plant is very common in ditches and meadows in Britain. All its leaves are pinnate. Its stem is 2 to 4 feet high. The officinal part is the root.

Valerianæ Radix. Valerian Root.

The dried root of *Valeriana officinalis*, from cultivated and indigenous plants, collected in autumn, and dried; that from wild plants being preferred.

Characters.—A short, tuberous, yellowish-brown rhizome, with numerous root-fibres, from two to three inches long, of a penetrating odour, and a bitter, acrid, somewhat aromatic taste. Yielding volatile oil and valerianic acid when distilled with water.

Dose in powder.—10 to 30 grains.

TINCTURA VALERIANÆ.—Tincture of Valerian. Valerian, ℥iiss.; proof spirit, Oj. Proceed as usual.

Dose.—℥ʒj. to ℥ʒij.

TINCTURA VALERIANÆ AMMONIATA.—Ammoniated Tincture of Valerian. Valerian, ℥iiss.; aromatic spirit of ammonia, Oj. Macerate 7 days. This is the best preparation of this drug.

Dose.—℥ʒss. to ℥ʒj.

INFUSUM VALERIANÆ.—Infusion of Valerian. Valerian, gr. cxx.; boiling dist. water, ℥ʒx. Infuse one hour.

Dose.—℥ʒj. to ℥ʒij.

Analysis.—Valerianic acid, volatile oil, etc. Its properties depend chiefly on the volatile oil.

Actions and Uses.—A powerful stimulant and antispasmodic. When given in large doses it affects the cerebral organs, occasioning headache and vertigo. It is now chiefly employed in hysteria, where it is of undoubted service, few remedies being equal to it in the way of subduing the paroxysms of that disease. Some cases of epilepsy in young people have been benefited by it, and in the nervousness of the adynamic stage of continued fever good has resulted, but it is not very much to be relied on.

Formula.—℞ Tinct. valerian. ammon., ℥ʒvj.; tinct. assafœtidæ, ℥ʒij.; infusum cuspariæ ad ℥ʒvj. Misc. Sumat ℥ʒss. pro re nata. Useful in hysteria.

Incompatibles.—Salts of iron, alkalies; the earthy and metallic oxides.

The following preparations, containing valerianic acid, although not prepared from the valerian plant, yet owe their virtues chiefly to valerianic acid, and may be described under this order.

Sodæ Valerianas. Valerianate of Soda. $\text{NaC}_5\text{H}_9\text{O}_2$.

Characters.—White fragments, soluble in water and spirit, with a strong odour of valerian on the addition of sulphuric acid.

Dose.—1 to 5 grains.

Actions and Uses.—Antispasmodic, but used chiefly for preparing the valerianate of zinc.

Zinci Valerianas. Valerianate of Zinc. $\text{Zn}(\text{C}_5\text{H}_9\text{O}_2)_2$.

Prepared by the action of valerianate of soda on sulphate of zinc. See *Brit. Phar.*

Dose.—1 to 3 grains.

Characters.—In brilliant, snow-white, pearly, tabular crystals, with a bitter, metallic, slightly astringent taste, and a slight odour of valerian; soluble in water and alcohol, but requires to be rubbed in a mortar. Its solution is not precipitated by chloride of barium.

Actions and Uses.—A powerful antispasmodic and tonic. It has been found of great service in hysteria and neuralgic affections, especially of the face and head; of benefit also, at times, in chorea and epilepsy. In the convulsive disorders of children, when these depend on worms, its use is also attended with benefit.

Incompatibles.—The soluble carbonates, most metallic salts, the acids, and astringent infusions.

COMPOSITÆ.—THE COMPOSITE FAMILY.

The plants of this order are bitter, tonic, astringent, and narcotic. It contains five officinal plants, besides other species not yet determined.

I.—**ANTHEMIS NOBILIS**, *Linn.* Chamomile.

This is a much-branched plant, about a foot high. The flower-heads are solitary and terminal. It is a native of Britain. The parts officinal are the flower-heads.

Anthemidis Flores. Chamomile Flowers.

The dried single and double flower-heads of *Anthemis nobilis*, Common Chamomile; wild and cultivated.

Characters.—The single variety consists of both yellow tabular and white strap-shaped florets; the double, of white strap-shaped florets only; all arising from a conical, scaly receptacle. Both varieties, but especially the single, are bitter and very aromatic.

Oleum Anthemidis. Oil of Chamomile.

The oil distilled in Britain from chamomile flowers.

Characters.—Greenish-blue, gradually becoming yellow, with the odour and aromatic taste of the flowers.

Dose.—2 to 3 minims on sugar.

EXTRACTUM ANTHEMIDIS.—Extract of Chamomile. This is prepared from chamomile flowers, and contains oil of chamomile.

INFUSUM ANTHEMIDIS.—Infusion of Chamomile. Cham. flowers, $\bar{\text{ss}}$.; dist. water, $\text{f}\bar{\text{3}}\text{x}$. Infuse 15 minutes, and strain.

Actions and Uses.—Tonic, stimulant, carminative. Useful in simple dyspepsia and irritability of the stomach, with flatulence. The fresh infusion is best. A strong infusion at times proves emetic; yet in the vomiting of pregnancy it has done good when sedatives have failed. The oil dropped on a bit of sugar is a good carminative. Useful also as a poultice to painful and inflamed parts.

II.—*TARAXACUM DENS LEONIS, D.C.* The Dandelion.

This plant is a very common weed in Britain. It is easily recognised by its toothed runcinate leaves, its smooth hollow peduncle, and its yellow flowers. The officinal part is the root.

Taraxaci Radix. Dandelion Root.

The fresh and dried roots of *Taraxacum Dens Leonis*; gathered between September and February, in Britain.

Characters and Tests.—Dark-brown tap-shaped roots, white within, brittle, and yielding a bitter milky juice, which on exposure turns pale-brown; not wrinkled or pale-brown externally; juice not watery. Any adherent leaves runcinate and quite smooth.

Analysis.—A bitter extractive, named taraxacin, mannite, resin, sugar, gum, etc.

Adulterations.—To prevent the substitution of other roots, the genuine should be ordered with some of the leaves attached: these are runcinate and smooth, and easily known.

EXTRACTUM TARAXACI.—Extract of Dandelion. This is prepared by pressing out the juice, and evaporating to a proper consistence for making pills.

Dose.—5 to 30 grains.

SUCCUS TARAXACI.—Juice of Dandelion. This consists of the expressed juice, and one of rectified spirit added to every three measures of juice.

Dose.—fʒj. to fʒij.

DECOCTUM TARAXACI.—Decoction of Dandelion. Dandelion root, sliced, ʒj. ; dist. water, Oj. Boil ten minutes, and strain.

Dose.—fʒij. to fʒiv.

Actions and Uses.—Tonic, feeble cholagogue, and a weak aperient. It is a good deal used by some in functional disorders of the liver ; and after using it for some time, the biliary secretion is promoted, the intestinal motions become more natural, and the appetite improves. Large doses are required, and in a good many cases very little influence seems to be exerted by it. It is not given in substance.

III.—ARNICA MONTANA, *Linn.* Leopard's-bane.

This is a perennial plant, with yellow flowers. The flowering stem is generally 8 or 10 inches high, bearing a solitary flower-head on its summit. The plant is found in meadows in many parts of Europe, Asia, and America. The parts officinal are the rhizome and rootlets.

Arnicae Radix. Arnica Root.

The dried rhizome and rootlets of *Arnica montana* ; collected in Middle and Southern Europe.

Characters.—A contorted, cylindrical root-stock, one to three inches long, and two to three lines thick, rough from the scars of the coriaceous leaves, and furnished with many long slender fibres ; has a peppery taste, and a peculiar odour.

Dose in powder.—10 grains.

TINCTURA ARNICÆ.—Tincture of Arnica. Arnica root, powder, ʒj. ; rect. spt., Oj. Macerate 48 hours, then percolate, and add spirit to make Oj.

Dose.—fʒj. to fʒij.

Actions and Uses.—Arnica root owes its virtues to an acrid, yellow, amorphous substance called arnicin. When swallowed, it is absorbed, and acts as an irritant in large doses, and as a stimulant in small doses. It has been given as a stimulant in low fevers, in chronic rheumatism, paralysis, amaurosis, amenorrhœa, and nervous headache ; and it sometimes does good in the last. Externally, it has been used in ecchymosis and sprains. It is used chiefly by homœopathists.

IV.—**ANACYCLUS PYRETHRUM, D.C.** Pellitory.

This is a perennial, with many procumbent branched stems. The flower-heads are large and terminal, and have the flowers of the *ray* white on the upper side, and purplish beneath. It is a native of Algeria. The part officinal is the root.

Pyrethri Radix. Pellitory Root.

The root of *Anacyclus Pyrethrum* ; imported from the Levant.

Characters.—Short, tapering pieces, three to four inches long, about the diameter of the little finger. Externally dark-brown, covered with dark shining points ; internally dirty-yellow. Odourless, but when chewed causes a pricking sensation in the mouth.

Analysis.—Pyrethrin (on which its acrimony depends), including gum, tannin, etc.

TINCTURA PYRETHRÆ.—Tincture of Pellitory. Pellitory root, ʒiv. ; rect. spt., Oj. M. Used alone, or with spt. camph. and chloroform, for toothache.

Actions and Uses.—A powerful special stimulant, acting on the glands about the mouth, and producing a copious flow of saliva. Used for toothache with much benefit; in facial neuralgia with less success; in paralysis of the tongue with good results. In relaxed uvula it has also done good as a gargle. For these purposes a bit may be placed in the mouth and gently chewed.

V.—LACTUCA VIROSA, *Linn.* Wild Lettuce.

This is an indigenous plant. The whole plant contains a milky juice, on which its activity depends. The plant is from 3 to 4 feet in height, and is a biennial. The whole plant is officinal.

Lactuca. Lettuce.

The flowering herb of *Lactuca virosa*.

EXTRACTUM LACTUCE.—Extract of Lettuce. This is prepared by bruising out the juice, separating the colouring matter, and afterwards evaporating to a consistence for forming pills.

Dose.—5 to 15 grains.

Actions and Uses.—Narcotic, sedative, and diuretic, but not of much consequence; may be given when opium disagrees.

LACTUCARIUM, not now officinal, is the inspissated juice, and is the best preparation of this plant.

VI.—ARTEMISIA, *Linn.* Wormwood.

It is probable that various species of *Artemisia* furnish the officinal preparations. It is probable that they all contain *Santonin*. Several species are indigenous.

Santonica. Santonica.

The unexpanded flower-heads of an undetermined species of *Artemisia*. Imported from Russia.

Dose.—10 to 60 grains in milk or honey.

Characters.—Flower-heads rather over a line long, and nearly half-a-line broad, fusiform, blunt at each end, greenish-brown, smooth, resembling seeds in appearance, but consisting of imbricated involucral scales with a green midrib, enclosing 4 or 5 tubular flowers; odour strong, taste camphoraceous. Flower-heads not round or hairy.

Actions and Uses.—Anthelmintic, and adapted for ascarides and lumbrici; but it has not been much used for a long time, and has now been displaced by its active principle, santonin. A purgative should be given the following day.

Santoninum. Santonin. $C_{15}H_{18}O_3$.

A crystalline neutral principle, obtained from santonica.

Characters.—White, flat, rhombic prisms, almost tasteless, fusible and sublimable by a moderate heat; scarcely soluble in cold water, sparingly in boiling water, but freely in chloroform and in boiling rectified spirit. Becomes yellow by exposure, not dissolved by dilute mineral acids, entirely destructible by a red heat, with free access of air.

Preparations.—See *Brit. Phar.*

Dose.—2 to 6 grains.

Actions and Uses.—An excellent anthelmintic in ascarides and lumbrici. Formerly, I was in the habit of combining the santonin with scammony, calomel, and a little ginger; and though a powder of this kind

was successful in expelling the worms, I am now of opinion that it should be given alone. The powder of scammony, etc., should follow after the last dose. It should be given every morning for four mornings.

LOBELIACEÆ.—THE LOBELIA FAMILY.

The plants of this order contain a milky juice, and many of them have acrid properties, whilst others are antispasmodic; only one plant is officinal.

LOBELIA INFLATA, *Linn.* Indian Tobacco.

This plant is erect, 1 to 2 feet high, with alternate leaves, and a bilabiate corolla. It is a native of the United States. The whole plant is officinal.

Lobelia. Lobelia.

The dried flowering herb of *Lobelia inflata*; imported from North America.

Characters.—Stem angular; leaves alternate, ovate, toothed, hairy beneath; capsule ovoid inflated, ten-ribbed. Usually in compressed rectangular parcels.

Analysis.—Lobelic acid, gum, resin, fixed oil, etc.; and an oily, transparent, volatile fluid, called Lobelin (an alkaloid, possessing in minute doses the poisonous action of the plant).

TINCTURA LOBELIÆ.—Tincture of Lobelia. Lobelia, ℥iiss.; proof spt., Oj. Macerate 48 hours, and percolate.

Dose.—10 to 30 minims.

TINCTURA LOBELIÆ ÆTHEREA.—Ethereal Tincture of Lobelia. Lobelia, ℥iiss.; spirit of ether, Oj. As an antispasmodic, this is the best form.

Dose.—10 to 30 minims.

Actions and Uses.—Emetic, expectorant, diaphoretic, antispasmodic. It is a powerful narcotic poison. A teaspoonful of the powder, if not rejected by the stomach, may prove fatal. It is not much used in this country as an emetic, being thought somewhat dangerous. As an antispasmodic it has been used with success in the paroxysm of asthma and whooping-cough; in dyspnoea attending pulmonary emphysema, and organic diseases of the heart; and as an expectorant in bronchitis. In large doses, it causes violent vomiting—a burning sensation in the throat, followed by prostration, stupor, and convulsions. In poisoning, give internal and external stimulants.

COROLLIFLORÆ.

ERICACEÆ.—THE HEATH FAMILY.

The plants of this order have astringent and diuretic properties; only one plant is officinal.

ARCTOSTAPHYLOS UVA URSI, *Spreng.* Bearberry.

This is a trailing shrub, with evergreen leaves, somewhat resembling those of the common box. It is indigenous, and is abundant on many of the mountains in the North of Scotland. The officinal parts are the leaves.

Uvæ Ursi Folia. Bearberry Leaves.

The dried leaves of *Arctostaphylos Uva Ursi*; from indigenous plants.

Characters.—Dark-green, entire, obovate, shining, coriaceous leaves, convex above, concave and reticulated on the under surface, with an astringent bitter taste, and odour of hay, when powdered; the infusion giving a bluish-black precipitate, with perchloride of iron. Leaves not dotted beneath nor toothed on the margin.

Analysis.—A bitter principle, in long thin colourless prisms, named arbutin, tannin, gallic acid, resin, gum, etc.

Adulterations.—Leaves of the red whortle-berry (*Vaccinium Vitis-idaea*), and of the common box (*Buxus sempervirens*), are often mixed with the true. The former have their under surface dotted, not reticulated; and the latter are not astringent.

INFUSUM UVÆ URSI.—Infusion of Bearberry. Bearberry leaves, ℥ss.; boiling dist. water, f℥x. Infuse 2 hours.

Dose.—f℥j. to f℥ij.

Actions and Uses.—An astringent to the genito-urinary mucous membrane. Employed in chronic mucous discharges, such as gleet, leucorrhœa, and catarrh of the bladder. In chronic nephritis, and diabetes, it sometimes does a little good, and may be tried when other remedies fail.

Incompatibles.—Same as Tannin.

STYRACACEÆ.—THE STORAX FAMILY.

The plants of this order have aromatic and stimulant properties. It contains only one officinal plant.

STYRAX BENZOIN, *D.C.* The Benzoin Tree.

This is a large tree, and is a native of Sumatra, Java, Siam, etc. The stem is the part officinal.

Benzoinum. Benzoin.

A balsamic resinous exudation from *Styrax Benzoin*; imported from Siam and Sumatra. It is obtained by making incisions into the bark of the tree, and allowing the liquid that exudes to concrete by exposure to the air.

Dose.—10 to 20 grains; but powder seldom given.

Characters.—In lumps consisting of agglutinated tears, or of a brownish mottled mass, with or without white tears imbedded in it; gives off, when heated, fumes of benzoic acid; has little taste, but a pleasant odour, and is soluble in rectified spirit.

Analysis.—Benzoic acid, 15 to 20 per cent., and two resins.

TINCTURA BENZOINI COMPOSITA.—Compound Tincture of Benzoin. Benzoin, ℥ij.; prep. storax, ℥iiss.; balsam tolu, ℥ss.; soc. aloes, gr. clx.; rect. spit., Oj. Macerate 7 days.

Dose.—℥ʒss. to ℥ʒj.

ADEPS BENZOATUS.—Benzoated Lard. Contains gr. x. of benzoin in each ℥j. It is used for suppositories and ointments.

Actions and Uses.—Stimulant and expectorant. Has an old and extensive popular reputation in chronic coughs. The compound tincture named "Friars Balsam" is what is usually employed; and it has been used as an application to wounds and bruises.

Acidum Benzoicum. Benzoic Acid.

A crystalline acid, $\text{HC}_7\text{H}_5\text{O}_2$, obtained from benzoin, and prepared by sublimation.

Characters and Tests.—In light, feathery, crystalline plates, nearly white, with a strong odour of benzoin; sparingly soluble in water, but freely in rectified spirit. Soluble also in solutions of the caustic alkalies and of lime, and it is precipitated from these on the addition of HCl , unless the solution be very dilute. It melts at 248° , and boils at 462° . When heated to the last named temperature, it passes off in vapour, leaving only a slight residue.

Dose.—10 to 15 grains.

Actions and Uses.—Expectorant, but of little efficacy. Formerly given as an antilithic. It is used for making ammoniæ benzoas, and is an ingredient of tinc. camph. co. gr. ij. in f̄ʒj., and tinct. opii ammon. gr. ix. in f̄ʒj.

Benzoic acid increases the flow of bile, and its salts of sodium and ammonium are powerful cholagogues.

SAPOTACEÆ.—THE SAPODILLA FAMILY.

The plants of this order yield a milky juice. It contains only one officinal plant.

ISONANDRA GUTTA, Hooker. The Gutta Percha Tree.

This is a tree 60 or 70 feet high, with a trunk two or three feet in diameter. Its leaves are leathery, pale-green on the upper surface, and reddish-brown on the under surface. It is a native of Borneo, Sumatra, etc. The part officinal is the trunk.

Gutta Percha. Gutta Percha.

The concrete juice of *Isonandra gutta*.

Characters and Tests.—In tough, flexible pieces of a light-brown or chocolate colour. Soluble, or nearly soluble, in chloroform, yielding a more or less turbid solution.

LIQUOR GUTTA PERCHA.—Solution of Gutta Percha. Gutta percha, ʒj. ; chloroform, fʒviij. ; carbonate of lead, ʒj. See *Brit. Phar.* Used to prepare charta sinapis. It is also used as a dressing to wounds. It excludes the air. It has been recommended as a local application in small-pox.

OLEACEÆ.—THE OLIVE FAMILY.

The plants of this order have bitter, tonic, and astringent properties. Some yield oil, as the olive. It contains three officinal plants.

I.—OLEA EUROPEA, *Linn.* The Olive Tree.

This is a small tree, with evergreen leaves. The leaves resemble those of the common privet (*Ligustrum vulgare*). It is a native of Palestine, Asia Minor, and Syria. The part officinal is the fruit.

Oleum Olivæ. Olive Oil.

The oil expressed in the South of Europe from the ripe fruit of *Olea europæa*.

Characters.—Pale-yellow, with little odour, and a bland oleaginous taste ; congeals partially at about 36°.

Dose.—fʒss. to fʒj., by the mouth, but seldom given ; in clyster, fʒij.

Adulterations.—Poppy oil, cocoa-nut oil, rape-seed oil. “Mixed with a twelfth of its volume of sol. nit. hydr., prepared by dissolving with a gentle heat ʒiv.

hydr., in $\bar{\text{xi}}\text{ss}$. nitric acid; if pure, it becomes in three or four hours like a firm fat, without any separation of liquid oil."

Uses.—Emollient and laxative. Used for the most part as an emollient in the form of liniment and ointment, and as an addition to clysters in enteric inflammation and spasm. Used largely in the preparation of ointments and liniments.

Sapo Durus. Hard Soap.

Soap made with olive oil and soda. Used in various liniments, pills, and plasters. Slightly laxative.

Characters.—Greyish-white, dry, inodorous; horny and pulverisable when kept in dry, warm air; easily moulded when heated. Soluble in rectified spirit; not imparting an oily stain to paper. Incinerated, it yields an ash which does not deliquesce. It enters into the three following preparations:—

PILULA SAPONIS COMPOSITA.—See under Opium.

EMPLASTRUM SAPONIS.—Soap Plaster. Hard soap, $\bar{\text{v}}\text{j}$.; lead plaster, $\text{lbii}\frac{1}{4}$; resin, $\bar{\text{v}}\text{j}$. M. For affording protection and support to tender parts.

EMPLASTRUM CERATI SAPONIS.—Soap Cerate Plaster. Hard soap, $\bar{\text{v}}\text{x}$.; yellow wax, $\bar{\text{v}}\text{xi}\text{ss}$.; olive oil, Oj .; oxide of lead, $\bar{\text{v}}\text{xv}$.; vinegar, cong. j . Mix.

Uses.—For giving mechanical support, for strapping enlarged joints, etc.

LINIMENTUM SAPONIS.—Liniment of Soap. Hard soap, $\bar{\text{v}}\text{i}\text{ss}$.; camphor, $\bar{\text{v}}\text{i}\frac{1}{4}$; oil of rosemary, $\text{f}\bar{\text{v}}\text{ij}$.; rect. spt., $\text{f}\bar{\text{v}}\text{xvii}\text{j}$.; dist. water, $\text{f}\bar{\text{v}}\text{ij}$. M. Soap liniment. (Opodeldoc.) An external stimulant in chronic swellings, rheumatism, and sprains.

Sapo Mollis. Soft Soap.

Soap made with olive oil and potash.

Characters.—Yellowish-green, inodorous, of gelatinous consistence; soluble in rectified spirit; not imparting an oily stain to paper. Incinerated, it yields an ash which is very deliquescent. It enters into the composition of linimentum terebinthinæ—2 parts in 17½ nearly.

II.—FRAXINUS ORNUS, *Linn.*; and }
 III.—FRAXINUS ROTUNDIFOLIA, *D.C.* } The Manna Ash.

These are trees 20 or 25 feet in height; belong to the same genus as our common Ash. They are distinguished from each other by the shape and number of the leaflets. They are fewer, smaller, and more rounded in the latter species. They are natives of Calabria and Sicily. The parts officinal are the stems.

Manna. Manna.

A concrete saccharine exudation from the stem of *Fraxinus Ornus* and *Fraxinus rotundifolia*. Obtained by making incisions in the stems of the trees, which are cultivated for the purpose chiefly in Sicily and Calabria.

Characters.—In yellowish-white stalactiform pieces, from one to six inches long, and one to two inches wide, porous, friable, and with a sweetish taste.

Analysis.—A saccharine principle, mannite, $C_3H_7O_3$, obtained by boiling in alcohol. It contains 60 to 80 per cent. of mannite, sugar, resin, and extractive matter. The purgative property is due to the extractive matter.

Dose.—For children, ʒj. to ʒss.; adults, ʒj. to ʒj. Mannite, children, ʒss. to ʒij.; adults, ʒss.

Actions and Uses.—Mild laxative, and chiefly given to children, or along with other cathartics, as senna.

ASCLEPIADACEÆ.—THE ASCLEPIAS FAMILY.

Many of the plants of this order possess a milky juice, which is acrid and purgative; others possess emetic and diaphoretic properties. It contains only one officinal plant. The *Solenostemma Argel*, the leaves of which are used to adulterate Alexandrian Senna, belongs to this order.

HEMIDESMUS INDICUS, *D.C.* Indian Sarsaparilla.

This is a twining shrub, with numerous very slender stems. The seeds have attached to them a tuft of white hairs. It is a native of India. The part officinal is the root.

Hemidesmi Radix. Hemidesmus Root.

The dried root of *Hemidesmus indicus*; imported from India.

Characters.—Yellowish-brown, cylindrical, tortuous, furrowed, and with annular cracks, with a fragrant odour and agreeable flavour.

SYRUPUS HEMIDESMI.—Syrup of Hemidesmus. Hemidesmus, bruised, ℥iv.; refined sugar, ℥xxviiij.; boiling dist. water, Oj. Infuse the hemid. in the water, in a covered vessel, four hours, and strain. Set it by till the sediment subsides; then decant the clear liquor, add the sugar, and dissolve by a gentle heat. The product should weigh ℔ij. ℥x., and have the specific gravity 1.335.

Dose.—fʒj.

Actions and Uses.—In repute in India as a tonic and diaphoretic, in the cachetic conditions for which

sarsaparilla has been employed. It possesses no great efficacy, and is used in this country chiefly in the form of syrup, as an agreeable vehicle for other medicines.

LOGANIACEÆ.—THE NUX VOMICA FAMILY.

The plants of this order possess poisonous properties. They produce tetanic spasms. It contains only one officinal plant.

STRYCHNOS NUX VOMICA, *Linn.* Nux Vomica.

This is a tree of middle size. Its fruit is the size of a large apple, smooth externally, and filled with a soft white pulp, in which the seeds are imbedded. It is a native of Coromandel, India, Ceylon, etc. The parts officinal are the seeds.

Nux Vomica. Nux Vomica.

The seeds of *Strychnos Nux Vomica*; imported from the East Indies.

Characters.—Nearly circular and flat, about an inch in diameter, umbilicated on one side; ash-grey colour externally, thickly covered with short, satiny hairs; internally, translucent, tough, and horny; taste intensely bitter, without odour.

Dose.—1 to 3 grains, gradually increased.

Analysis.—*Strychnia*, *brucia*, and *igasuria*, combined with *igasuric acid*, concrete oil, wax, etc.

EXTRACTUM NUCIS VOMICÆ.—Extract of *Nux Vomica*. See *Brit. Phar.* This is a spirituous extract.

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

TINCTURA NUCIS VOMICÆ.—Tincture of Nux Vomica. Nux vomica, ℥ij. ; rect. spt., Oj. Apply steam to the nux vomica till it is softened, then dry rapidly, and reduce to powder. Macerate 48 hours, and percolate as usual, adding spirit to make a pint.

Dose.—10 to 20 minims.

Actions and Uses.—A special stimulant, acting on the medulla oblongata and medulla spinalis; and a nerve-tonic. In poisonous doses it occasions violent tetanic spasms, without sensibly affecting the sensorium. Two drachms of the powder have killed in two hours, and even gr. xv. have caused death. Death may result from irritation in the alimentary canal, after recovery from the primary effects on the nervous system. Nux vomica is mostly employed for its stimulant and tonic action on the nervous system, and affects chiefly the motor nerves, as is seen by the twitchings of the voluntary muscles which it occasions when largely or protractedly used. Benefit is obtained by it in chronic paralysis, general and more limited; and it seems to have done most good in the former, and been more successful in paraplegia than in hemiplegia. In paralysis of the muscles of the bladder, and in constipation (along with a purgative), arising from an atonic state of the muscular coat of the large bowel, it has been of signal service. A few rare cases of epilepsy have improved under it; and some have trusted it in prolapsus ani, nervous diarrhoea, and amenorrhœa. In over-doses, the best antidote is chloral hydrate. Chloroform, physostigma, and conium have also been found useful as antidotes.

Formula.—℞ Extracti nucis vomicæ, gr. xij. ; extracti rhei, gr. xxiv. ; extracti colocynthidis compositi,

gr. xxiv. Misce. Divide in pilulas xij. Capiat unam bis die. Useful for restoring tone in constipation from atony of the muscular coat.

Strychnia. Strychnia.

An alkaloid, $C_{21}H_{22}N_2O_2$. Obtained from Nux Vomica.

Characters and Tests.—In colourless, minute octahedrons, inodorous, sparingly soluble in water, yet imparting to it its own intensely bitter taste; soluble in chloroform and boiling rectified spirit, but not in absolute alcohol or ether. Pure sulphuric acid forms with it a colourless solution, which, on the addition of the bichromate of potash, acquires an intensely violet hue, speedily passing through red to yellow. Not coloured by nitric acid; leaves no ash when burned with free access of air. A very active poison.

Dose.— $\frac{1}{30}$ to $\frac{1}{12}$ grain.

Adulterations.—Brucia and colouring matter; nitric acid develops a red colour if brucia be present.

LIQUOR STRYCHNINE.—Solution of Strychnia. Strychnia, in crystals, gr. iv.; dilute hydrochloric acid, min. vj.; rectified spt., fʒij.; dist. water, fʒvj. Mix the hydrochloric acid with ʒiv. of the water, and dissolve the strychnia in the mixture by the aid of heat; then add the spirit and the remainder of the water. As will be seen, there is gr. j. in fʒij.

Dose.—5 to 10 minims.

Actions and Uses.—A special stimulant and nerve tonic, acting on the medulla oblongata, and medulla spinalis, but not affecting the sensorium. It is also an active poison, occasioning violent tetanic spasms and death; and so little as gr. $\frac{2}{3}$ by the mouth has excited

violent spasms and locked-jaw. One grain, if introduced into a wound, would probably prove fatal; and gr. $\frac{1}{8}$ has killed dogs and other animals in less than a minute. Of late, chloroform, belladonna, and aconite have been recommended as antidotes, but the best antidote is the hydrate of chloral, which, within certain limits, completely antagonises the action of strychnia. It is not a cumulative poison, nor does its power diminish after using it for a while, although a slight increase of the dose may be borne. It has been used chiefly in chronic paralysis, such as hemiplegia, paraplegia, partial palsy, amaurosis, and in paralysis of the muscles of the bladder. It is of more service in paraplegia than hemiplegia; and, as a general rule, not very successful in local palsies, such as of the optic nerve, or the bladder. While using it, the paralysed muscles are first affected, and thrown into spasms; there is starting of the limbs; and if improvement is to follow, it is not in general very long delayed. It should not be given where there is a determination of blood to the head, or congestion of the nervous centres, as it is likely to prove injurious. It is applied endermically, either in the form of the liquor, or gr. ss of the alkaloid may be sprinkled over the raw surface. This method is adopted in amaurosis, and different limited palsies. It has also been injected, subcutaneously, in paralysis of certain muscles.

GENTIANACEÆ.—THE GENTIAN FAMILY.

The plants of this order are bitter and tonic. It contains only two officinal plants.

I.—GENTIANA LUTEA, *Linn.* Yellow Gentian.

This plant has a stem several feet in height. The flowers are yellow, and arranged in whorls on the stem. It is a native of the Alps of Central Europe. The part officinal is the root.

Gentianæ Radix. Gentian Root.

The dried root of *Gentiana lutea*; collected in the Alps, Apennines, and other mountains of Europe.

Characters.—From half-an-inch to one inch thick, several inches long, often twisted, much wrinkled, or marked with close transverse rings, brown externally, yellow within, tough and spongy; taste at first slightly sweetish, and afterwards very bitter.

Dose.—10 to 30 grains.

Analysis.—An odorous volatile oil, a yellow, crystalline, bitter, neutral principle, gentianin, said to be a compound of a colouring matter, a fatty matter, and a bitter principle; a green fixed oil, a free organic acid, sugar, gum, etc.

Adulterations.—Roots of other species of gentian; and, what is of more gravity, the roots of white hellebore, monkshood, and belladonna, occasionally. These are detected by their wanting the intense bitter taste, and the internal bright yellow colour.

EXTRACTUM GENTIANÆ.—Extract of Gentian. Gentian, ℥j.; boiling dist. water, cong. j. Macerate the gentian in the water for two hours; boil for 15 minutes, pour off, press, and strain; then evaporate by a water-bath to a proper consistence.

Dose.—2 to 10 grains.

TINCTURA GENTIANÆ COMPOSITA.—Compound Tincture of Gentian. Gentian, ℥iiss.; bitter orange peel,

$\bar{3}\frac{3}{4}$; cardamoms, bruised, $\bar{3}\frac{1}{4}$; proof spt., Oj. Macerate 48 hours, and percolate, as before. Generally given along with the infusion.

Dose.— $\bar{f}\bar{3}$ ss. to $\bar{f}\bar{3}$ ij.

INFUSUM GENTIANÆ COMPOSITUM.—Compound Infusion of Gentian. Gentian, $\bar{3}\frac{1}{4}$; bitter orange peel, $\bar{3}\frac{1}{4}$; fresh lemon peel, $\bar{3}$ ss.; boiling dist. water, Oj. Infuse in a covered vessel one hour, and strain. Most commonly employed, and a good vehicle, for the alkaline bicarbonates.

Dose.— $\bar{f}\bar{3}$ j. to $\bar{f}\bar{3}$ ij.

MISTURA GENTIANÆ.—Gentian Mixture. Gentian root, $\bar{3}\frac{1}{4}$; bitter orange peel, coriander fruit, of each, gr. xxx.; proof spt., $\bar{f}\bar{3}$ ij.; dist. water, $\bar{f}\bar{3}$ viiij. Macerate the gentian, orange peel, and coriander in the spirit for two hours. Add the water; macerate again for two hours; strain.

Dose.— $\bar{f}\bar{3}$ ss. to $\bar{f}\bar{3}$ j.

Actions and Uses.—An excellent bitter tonic. Useful in dyspepsia, with feeble digestion, and heartburn, but without irritability of the stomach. It possesses some little anthelmintic power; is somewhat of a febrifuge; but of little service in gout. Large doses are apt to prove emetic.

II.—OPHELIA CHIRATA, *Griseb.* Chiretta.

This plant is several feet in height. Its stem is erect, and varies in thickness from that of a goose-quill to that of the little finger. The plant is a native of the mountainous parts of India. The whole plant is officinal.

Chirata. Chiretta.

The entire plant of *Ophelia Chirata*; collected in Northern India when the fruit begins to form.

Characters.—Stems about three feet long, of the thickness of a goose-quill, round, smooth, pale-brown, branched; branches opposite; flowers small, numerous paniced; the whole plant intensely bitter.

TINCTURA CHIRATÆ.—Tincture of Chiretta. Chiretta, ℥iiss.; proof spt., Oj. Make in the usual way.

Dose.—fʒss. to fʒij.

INFUSUM CHIRATÆ.—Infusion of Chiretta. Chiretta, ʒ¼; dist. water at 120°, fʒx. Infuse half-an-hour.

Dose.—fʒj. to fʒij.

Actions and Uses.—An extremely bitter tonic. Useful in dyspepsia with constipation, owing to its possessing also slightly laxative properties, and an influence on the biliary secretion. As a febrifuge it may be employed where quinia cannot be had.

CONVOLVULACEÆ.—THE CONVOLVULUS FAMILY.

The plants of this order possess an acrid juice in their roots, which renders them powerful purgatives. It is a very precise natural order. It contains only two officinal plants.

I.—EXOGONIUM PURGA, *Bentham.* Jalap.

This is a herbaceous twining plant. Its leaves are deeply cordate at the base, with pointed lobes. The flower is large, trumpet-shaped, of a red colour. The plant is a native of the damp, shady woods of the mountains of Mexico. The parts officinal are the tubercles.

Jalapa. Jalap.

The dried tubercles of *Exogonium purga*; imported from Mexico.

Characters.—From the size of a nut to that of an orange, ovoid, the larger tubers often incised, covered with a brown wrinkled cuticle; when cut, of a yellowish-grey hue, with dark-brown concentric circles.

Dose.—10 to 30 grains.

Analysis—A hard and soft resin, the active principle; gum, sugar, starch, etc. The one resin is soluble in ether, the other insoluble.

PULVIS JALAPÆ COMPOSITUS.—Compound Powder of Jalap. Jalap, ℥v.; acid tart. potash, ℥ix.; ginger, powder, ℥j. Mix well, and pass through a sieve. An excellent hydragogue cathartic.

Dose.—20 to 60 grains.

EXTRACTUM JALAPÆ.—Extract of Jalap. This is made from spirit and water.

Dose.—5 to 15 grains.

TINCTURA JALAPÆ.—Tincture of Jalap. Jalap, ℥iiss.; proof spt., Oj. M. By maceration and percolation, as usual.

Dose—℥ss. to ℥ij.

Jalapæ Resina. Resin of Jalap.

A resin obtained from jalap by means of rectified spirit.

Characters.—In dark-brown, opaque, brittle fragments, translucent at the edges, easily reduced to a pale-brown powder, acrid in the throat; soluble in rectified spirit, partially so in ether, and insoluble in oil of turpentine.

Dose.—2 to 5 grains.

Actions and Uses.—Cathartic. In large doses, irritant, occasioning violent hypercatharsis, which may even prove

fatal. Its action in medicinal doses is energetic, griping occasionally, and producing frequent stools; and it affects chiefly the small bowel. It is given in constipation, and along with potass. bitart. in dropsies, where it occasions copious watery evacuations; and, combined with a little calomel, it forms a useful vermifuge. It purges when applied to a wound. Professor Rutherford found that jalap was a cholagogue, but not a powerful one. Some suppose that the *resin*, which is the active principle of jalap, owes its purgative properties to its combining with the sodium salts of the bile.

II.—CONVOLVULUS SCAMMONIA, *Linn.* Scammony.

This plant resembles in many respects the preceding one. The flower, however, is pale-yellow. It is a native of Asia Minor, Greece, Syria, etc. The officinal part is the root.

Scammoniaë Radix. Scammony Root.

The dried root of *Convolvulus Scammonia*; from Syria and Asia Minor.

Characters.—Tap-shaped roots, sometimes 3 in. diam. at the top; brown without, white within, tasteless. Ether agitated with the powder, and evaporated, leaves a residue, having the properties of scammony resin.

Use.—For making the resin of scammony.

Scammoniaë Resina. Resin of Scammony.

A resin obtained by means of rectified spirit from Scammony root or Scammony.

Characters and Tests.—In brownish, translucent pieces, brittle, resinous in fracture, of a fragrant odour, if prepared from the root. It cannot form singly an emulsion with water. Its tincture does not render the

fresh cut surface of a potato blue. Dissolved entirely by ether.

Dose.—3 to 8 grains.

PILULA SCAMMONII COMPOSITA.—Compound Pill of Scammony. Resin of scammony, resin of jalap, and curd soap, of each, ʒj. ; strong tincture of ginger, fʒj. ; rectified spirit, fʒij.

Dose.—5 to 15 grains.

It is contained in the compound extract of colocynth, and is used for making the next preparation.

MISTURA SCAMMONII.—Scammony Mixture. Resin of scammony, gr. iv. ; milk, fʒij. Triturate, and mix gradually and well. An excellent cathartic, the milk covering the taste of the resin.

Dose.—fʒij. to fʒiv. ; and for children, fʒss. to fʒij.

Actions and Uses.—This preparation, which must be distinguished from the gum-resin scammony (from which it may also be prepared), is a drastic cathartic, and much prized for its purity, scammony having been much adulterated. It produces copious watery discharges, and is useful in dropsies, and, along with other cathartics, in habitual constipation. Being easily disguised in milk, etc., it is well adapted for children.

Dose for Children.— $\frac{1}{2}$ grain to 2 grains.

Scammonium. Scammony.

A gum resin, obtained by incision from the living root of *Convolvulus Scammonia*, chiefly in Asia Minor.

Characters and Tests.—Ash-grey, and rough externally ; fresh fracture resinous, shining, black when dry, odour and flavour cheesy ; causes, when chewed, a prickly sensation in the back of the throat ; easily triturated into a dirty-grey powder, and converted with

water into a smooth emulsion. Does not effervesce with hydrochloric acid. Boiling water agitated with the powder, cooled and filtered, does not strike a blue colour with tincture of iodine. Ether removes from 80 to 90 per cent. of resin; and what remains is chiefly soluble gum, with a little moisture.

Analysis.—About 80 or 90 per cent. of resin, 10 per cent. gum, moisture, etc. The resin is the active part.

Adulterations.—This drug has been very much adulterated. The substances are chalk, gum, tragacanth, flour, guaiacum resin.

Dose.—5 to 10 grains.

PULVIS SCAMMONII COMPOSITUS.—Compound Powder of Scammony. Scammony, ℥iv.; jalap, ℥iij.; ginger, ℥j. Mix well, and pass through a fine sieve. A hydragogue cathartic.

Dose.—10 to 20 grains; for children, 3 to 5 grains.

CONFECTIO SCAMMONII.—Confection of Scammony. Scammony powder, ℥iij.; ginger, ℥iiss.; oil of caraway, fʒj.; oil of cloves, fʒss.; syrup, fʒiij.; clarified honey, ℥iiss.

Dose.—10 to 30 grains.

Incompatibles.—Acids.

Actions and Uses.—A drastic cathartic, producing copious watery evacuations, and griping a good deal. It is generally combined with other purgatives, as in the compound colocynth pill, and thus forms an excellent cathartic in torpidity of the intestines, head affections, and dropsies. Along with a little calomel, it is often given to children, in worms and other disorders. Professor Rutherford found scammony a very feeble cholagogue. Its activity is due to the resin, and some suppose that, like jalap, it becomes purgative by mixing with bile, especially the sodium salts of that fluid.

SOLANACEÆ.—THE NIGHTSHADE FAMILY.

This natural order is divided into two suborders, Solaneæ and Atropeæ. The properties of these two suborders are very different.

I.—SUBORDER, SOLANEÆ.

The plants of this suborder are non-poisonous. Some are edible, as the common potato ; others are aromatic, tonic, and diaphoretic. It contains two officinal plants.

I.—CAPSICUM FASTIGIATUM, *Blume*. The Capsicum Plant.

This is a small shrub. The capsule of the ripe fruit is deep red. It is a native of Southern India and Sierra Leone. The part officinal is the fruit.

Capsici Fructus. Capsicum Fruit.

The dried ripe fruit of *Capsicum fastigiatum*, imported from Zanzibar, and distinguished as Guinea pepper and Pod pepper.

Characters.—Pod membranous, 5 to 8 lines long, 2 lines broad, conical, orange red, corrugated, intensely hot in taste.

Dose.— $\frac{1}{2}$ to 1 grain.

TINCTURA CAPSICI.—Tincture of Capsicum. Capsicum, bruised, $\mathfrak{z}\frac{3}{4}$; rect. spt., Oj. Macerate 48 hours; percolate, filter; add spirit to make Oj.

Dose.—10 to 20 minims.

Actions and Uses.—This aromatic and hot condiment is stimulant, tonic, and an epispastic. Given occasionally in dyspepsia with want of appetite, and defective secretion. Seldom used as a counter-irritant, but at times in coma. Most commonly employed in gargles for

relaxed sore throat, and cynanche maligna. Capsicum contains a resin and a volatile oil called Capsicin. The volatile oil is its active principle. It does very well to combine capsicum with other tonics, as quinine and nux vomica.

II.—*SOLANUM DULCAMARA*, *Linn.* Woody Nightshade.

This plant is a climbing shrub, with the upper leaves auricled at the base. It is a native of Britain, and is often found in waste places and hedges. The berries are scarlet. The officinal parts are the young branches.

Dulcamara. Dulcamara.

The dried young branches of *Solanum Dulcamara*, Bitter-sweet; from indigenous plants which have shed their leaves.

Characters.—Light, hollow, cylindrical, about the thickness of a goose-quill, bitter, and subsequently sweetish to the taste.

Analysis.—An alkaline principle, *solania* (found also in the young shoots of the potato), salts of lime and potash. It also contains an alkaloid called Dulcamarin. It owes its virtues to *solania*.

INFUSUM DULCAMARÆ.—Infusion of Dulcamara. Dulcamara, bruised, ʒj.; boiling distilled water, f̄x. Infuse an hour, and strain.

Dose.—f̄ʒj. to f̄ʒij.

Actions and Uses.—A feeble narcotic, and a diaphoretic. Formerly had a name as a remedy in cutaneous and other diseases, such as lepra, psoriasis, secondary syphilis, strumous and rheumatic swellings, ill-conditioned ulcers, etc., but not now much trusted. Some

employ it as a vehicle for the preparations of iodine and arsenic, but it does not seem to promote their action much, if any.

II.—SUBORDER, ATROPEÆ.

The plants of this suborder are poisonous, and powerfully dilate the pupil. They possess sedative and narcotic properties. It contains four officinal plants.

ATROPA BELLADONNA, *Linn.* The Deadly Nightshade.

This is a herbaceous plant, with a perennial root. It is 3 or 4 feet high, and is easily recognised by its dark shining pulpy fruit, about the size of small gooseberries. It is a native of Britain. The parts officinal are the leaves, branches, and root.

Belladonnæ Folia. Belladonna Leaves.

The fresh leaves, with the branches to which they are attached, of Deadly Nightshade, *Atropa Belladonna*; also the leaves separated from the branches and carefully dried, gathered from wild or cultivated British plants, when the fruit has begun to form.

Characters.—Leaves alternate, 3 to 6 inches long, ovate, acute, entire, smooth, the uppermost in pairs and unequal. The expressed juice, dropped into the eye, dilates the pupil.

EXTRACTUM BELLADONNÆ.—Extract of Belladonna. See *Brit. Phar.* This is more used than the powder. It is prepared from the *fresh* leaves and young branches.

Dose.— $\frac{1}{4}$ to 1 grain.

TINCTURA BELLADONNÆ.—Tincture of Belladonna. Bellad. leaves, $\bar{3}j.$; proof spt., Oj. Macerate 48 hours. Percolate, and add spirit to make Oj.

Dose.—5 to 20 minims.

SUCCUS BELLADONNÆ.—Juice of Belladonna. The fresh leaves and young branches of belladonna bruised in a stone mortar, and to every three measures of juice so pressed out, one of rectified spirit is added.

Dose.—5 to 15 minims.

UNGUENTUM BELLADONNÆ.—Ointment of Belladonna. Extract. bellad., gr. lxxx.; prep. lard, ʒj. M. Used over the perinæum in irritation of the bladder, and on the penis in chordee.

EMPLASTRUM BELLADONNÆ.—Belladonna Plaster. Extract. bellad., ʒiij.; resin plaster, ʒiij.; rect. spt., fʒvj. For neuralgic and rheumatic pains; over the lumbar and sacral region in reflex uterine pains.

Belladonnæ Radix. Belladonna Root.

The dried root of *Atropa Belladonna*; imported from Germany, or cultivated in Britain.

Characters.—One to two feet long, and from one-half inch to two inches thick; brownish white, branched and wrinkled. An infusion dropped into the eye dilates the pupil. It is used to prepare the liniment and atropia.

LINIMENTUM BELLADONNÆ.—Liniment of Belladonna. Bellad. root, powder, ʒxx.; camphor, ʒj.; rect. spt., ʒxxx. Macerate with a portion of the spirit seven days, then percolate. The product should be a pint. Useful in neuralgic and rheumatic pains. A formula for this purpose is—R Linimenti belladonnæ, fʒiij.; chloroformi, fʒij.; linimentum opii, ad fʒij. Misc.

Analysis.—Atropia, malic acid, etc.

Actions and Uses.—Narcotic, anodyne, calmative, antispasmodic. In large doses it is an active poison, the effects being dryness and constriction of the throat,

difficult deglutition, attempts at vomiting, and then delirium, with dilatation of the pupil, and blunting or suspension of common sensibility, coma, and death. The treatment is emetics, cold to the head, active cathartics, ammonia internally and externally, stimulants. In small doses it has been employed as an anodyne in convulsive, spasmodic, and neuralgic diseases. It has done good in tic-douloureux, in nervous irritability, muscular rheumatism, dysmenorrhœa, painful glandular swellings, spasm of the sphincter ani, and spasmodic stricture of the urethra; but in epilepsy and whooping-cough it has not been very successful. It is best to carry on the internal and external use of the drug (as in neuralgia, rheumatism, spasm of the sphincter ani, stricture of the urethra) simultaneously. Not very long ago it was deemed a prophylactic of scarlatina. This opinion is now completely exploded. Applied in the neighbourhood of the eye, belladonna produces dilatation of the pupil; hence it is useful in the operation for cataract, in iritis, to avert or break down adhesions between the iris and lens, and to facilitate the examination of the posterior chamber of the eye. Externally, in the form of ointment or plaster, it is an admirable application in external neuralgia, though not uniformly successful; and for chordee, orchitis, and hæmorrhoids. It is a valuable remedy for correcting the griping of purgative medicines. It is also valuable for incontinence of urine in children. It is an excellent remedy for the salivation of pregnancy, and for the sweating of phthisis and other wasting diseases. For this affection, either belladonna or its alkaloid, atropia, may be used. It should be used internally and externally. Equal parts of the tincture or liniment and

spirit rubbed over the body at night help much to prevent nocturnal sweatings. It is also useful in nephritis, albuminuria, and uræmia.

Atropia. Atropia.

An alkaloid, $C_{17}H_{23}NO_3$, obtained from belladonna.

Characters and Tests.—In colourless, acicular crystals, sparingly soluble in water, more readily in alcohol and ether. Its solution in water gives a citron-yellow precipitate with terchloride of gold, has a bitter taste, and powerfully dilates the pupil. It leaves no ash when burned.

Preparation.—See *Brit. Phar.*

LIQUOR ATROPIÆ.—Solution of Atropia. Atropia, gr. iv.; rect. spt., f̄j.; dist. water, f̄vij. Mix the spirit and water, and dissolve the atropia in the mixture. This is used for dilating the pupil.

Dose.—1 minim.

UNGUENTUM ATROPIÆ.—Ointment of Atropia. Atropia, gr. viij.; rect. spt., f̄ss.; prep. lard, ʒj. M. Gr. xx. to xxx. of ointment may be used at a time. It is cleaner than the belladonna.

Atropiæ Sulphas. Sulphate of Atropia.

Characters and Tests.—A colourless powder, soluble in water, forming a solution which is neutral to test paper, and, when applied to the eye, dilates the pupil.

Preparation.—See *Brit. Phar.*

LIQUOR ATROPIÆ SULPHATIS.—Solution of Sulphate of Atropia. Sulph. atrop., gr. iv.; dist. water, f̄j. Dissolve. Min. j. contains gr. $\frac{1}{120}$.

Dose.—Min. j. to ij. As it is free from spirit, it is better adapted for the eye.

ATROPINE PAPER AND GELATINE, invented by Mr Ernest Hart and others, are much used by oculists. A small disc is placed between the eye and the lower lid. It is a neat, clean, and effectual method.

Actions and Uses.—An active poison, and, in consequence, not well adapted for internal use. It has been pretty extensively employed in diseases of the eye; a drop on the lower lid, of a solution, dilating the pupil extensively in from ten to twenty minutes, and the enlargement abiding for two or three days. It possesses several advantages over the extract, such as greater efficacy, cleanliness, freedom from irritation and pain, and the absence of redness or eruption on the eyebrow. It should be cautiously used, for if the proper quantity be much exceeded, symptoms of poisoning might be set up.

Antidotes.—Same as for belladonna.

II.—HYOSCYAMUS NIGER, *Linn.* Henbane.

This plant is a biennial. It is 2 to 3 feet high. The whole plant is clammy, and has a disagreeable odour. Its flowers are yellow, with dark purple veins. It is an indigenous plant. The parts officinal are the leaves and branches.

Hyoscyami Folia. Hyoscyamus Leaves.

The fresh leaves and branches of *Hyoscyamus niger*; also the leaves and branches of the plant dried; collected when about two-thirds of the flowers are expanded, from indigenous or cultivated British biennial plants.

Characters.—Leaves sinuated and hairy. The fresh herb has a powerful unpleasant odour, and a slightly acrid taste, which nearly disappear on drying. The fresh juice, dropped into the eye, dilates the pupil.

EXTRACTUM HYOSCYAMI.—Extract of Hyoscyamus. This is prepared from the fresh leaves and young branches.

Dose.—5 to 10 grains.

It enters into *Pilula colocynthidis et hyoscyami*.

SUCCUS HYOSCYAMI.—Juice of Hyoscyamus. This is prepared from the fresh leaves and young branches by pressing out the juice, and adding to every three measures of juice one of spirit.

Dose.—fʒss. to fʒj.

TINCTURA HYOSCYAMI.—Tincture of Hyoscyamus. Hyoscyamus leaves, ʒiiss.; proof spt., Oj. Make as usual.

Dose.—fʒss. to fʒj.

Incompatibles.—Potash and soda, nitrate of silver, the vegetable acids, and acetate of lead.

Analysis.—An alkaloid hyoscyamia, bitter extractive, fixed oil, gum, sugar, albumen, etc.

Actions and Uses.—Narcotic and slightly irritant. In large doses it occasions delirium, with dilatation of the pupil; loss of vision, and profound stupor, the prelude of death. These effects are to be met by stimulating emetics, the stomach pump, external and internal stimulants. In smaller doses it is a useful anodyne and hypnotic, and is more suitable for some in the way of procuring sleep, allaying spasm, or soothing pain, than opium. As a general rule, however, it is much inferior to opiates for these purposes, but it possesses the advantage of not constipating the bowels. Many, however, who get on well with opiates, experience anxiety, headache, excitement, troublesome dreams, spectral illusions, and delirium, from its use; and these effects are the more likely to

arise in the presence of cerebral affections. Hyoscyamus is given chiefly in irritable coughs, in urinary diseases, in neuralgia, in spasmodic affections with nervous excitability; and, above all, it is in extensive use for correcting the tormina produced by different cathartics. Topically, it is applied as an anodyne in painful glandular swellings, ulcerations, and piles. In large doses it lowers the secretion of bile, but in doses of 2 or 3 grains it produces no notable effect. The activity of the drug is due to *hyoscyamia*, which is now extensively used as a sedative in the treatment of the insane.

III.—*Datura stramonium*, *Linn.* The Thorn Apple.

This plant is an annual, about 2 feet high, with large sinuate leaves, and large, white, funnel-shaped flowers. It is found in waste places in England. The parts officinal are the leaves and seeds.

Stramonii Folia. Stramonium Leaves.

The dried leaves of *Datura stramonium*, Thorn Apple; collected from native plants when in flower.

Characters.—Large, ovate, angulato-sinuate, glabrous, with a heavy odour, and slightly bitter mawkish taste.

Stramonii Semina. Stramonium Seeds.

The ripe seeds of *Datura stramonium*.

Characters.—Small, brownish-black, kidney-shaped, rough, flat, of a nauseous and bitter taste, inodorous, unless bruised, when they emit a peculiar heavy smell.

EXTRACTUM STRAMONII.—Extract of Stramonium. Prepared from the seeds with ether and proof spirit.

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

TINCTURA STRAMONII.—Tincture of Stramonium. Stramonium seeds, ʒiiss. ; proof spirit, Oj. Proceed as usual; the product should be Oj.

Dose.—10 to 30 minims.

Analysis.—In the seeds and leaves is found an alkaloid named daturia, in colourless prismatic crystals, somewhat volatile, on which the properties of the drug depend. The seeds also contain fixed oil, resin, wax, etc.

Actions and Uses.—The seeds and leaves are strongly narcotic, occasioning dryness and burning sensation of the throat and tongue, nausea, delirium, coma, interrupted by convulsions, and death. One hundred seeds have killed a child of two years of age in 24 hours. It is used chiefly, but not extensively (and perhaps not so widely as it ought), for anodyne and anti-spasmodic purposes, such as in sciatica, tic, lumbago, in chronic rheumatism, and other painful diseases. It is very commonly applied in the form of smoke, by means of a tobacco-pipe, in asthma, and in the attacks of dyspnœa, which result from pulmonary emphysema and cardiac disease, and in this way the paroxysms of shortness of breathing are often relieved. It should not be pushed too far, as danger may be incurred; and it is inadmissible in the old and feeble, or those with a tendency to palsy or apoplexy.

Dose.—Powder of the leaves, ʒ to 4 gr.; of the seeds, $\frac{1}{4}$ to 1 gr., gradually increased.

IV.—NICOTIANA TABACUM, *Linn.* The Tobacco Plant.

This is a viscid plant, 4 or 5 feet in height, with large dock-like leaves. The plant has a very characteristic odour. The flowers are rose-coloured, and in

terminal panicles. It is a native of the United States of America. The parts officinal are the leaves.

Tabaci Folia. Leaf Tobacco.

The dried leaves of *Nicotiana Tabacum*, Virginian Tobacco; grown in America.

Characters.—Dark brown, with yellowish spots, lanceolate acuminate, with an unctuous feel, a heavy odour, and a bitter, nauseous taste, bearing numerous short glandular hairs; yielding, when distilled with solution of potash, an alkaline fluid, which has the peculiar odour of nicotia, and precipitates with perchloride of platinum and tincture of galls.

ENEMA TABACI.—Enema of Tobacco. Leaf tobacco, gr. xx.; boiling distilled water, f̄viiij. Infuse half-an-hour, and strain. This is the usual strength for injection.

Analysis.—A liquid, colourless, volatile alkaloid, named nicotina, and which is the active part, a concrete volatile oil, nicotianin, gum, albumen, starch, mallic acid, etc.

Actions and Uses.—A potent narcotico-acrid poison, the symptoms being sickness, exhaustion, relaxation of muscles, voluntary and involuntary; intense depression of the circulation, as indicated by the pulse, which is weak and fluttering; pallid countenance, coldness of the surface of the body, convulsions, and death. In small doses, tobacco is a laxative and diuretic, but very rarely employed as such, its use being attended with danger. It was formerly used as a relaxant of the muscular system in strangulated hernia and dislocations, but chloroform has entirely superseded it. Some few employ it yet to subdue spasm, as in tetanus, or

to overcome obstruction, as in ileus; but it is better to seek these influences or results from drugs of less hurtful tendency. As an anthelmintic, in the form of enema, it has also fallen into disuse. Mode of administration, in the form of enema.

In poisoning, if it has been taken by the mouth, give stimulating emetics. Tannin, and strong external and internal stimulants should also be administered.

SCROPHULARIACEÆ.—THE FIGWORT FAMILY.

The plants of this order have bitter and acrid properties, whilst some are poisonous. It contains only one officinal plant.

DIGITALIS PURPUREA, Linn. The Purple Foxglove.

This plant is easily recognised by its beautiful flowering stem, which is often 3 or 4 feet high. The flowers are bell-shaped, and beautifully spotted. It is common in Britain, in woods and mountain glens. The parts officinal are the leaves.

Digitalis Folia. Digitalis Leaf.

The dried leaf of *Digitalis purpurea*, Purple Foxglove; from wild indigenous plants, gathered when about two-thirds of the flowers are expanded.

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

Characters. — Ovate-lanceolate, shortly petiolate, rugose, downy, paler on the under surface, crenate.

Analysis.—Digitalin, volatile oil, fatty matter, extractive, tannin, etc.

Adulterations.—The leaves of different species of *Verbascum*. Attend to the characters given above.

TINCTURA DIGITALIS.—Tincture of Digitalis. Digitalis, bruised, ℥iiss.; proof spt., Oj. Macerate 48 hours, and percolate, as usual.

Dose.—10 to 30 minims.

INFUSUM DIGITALIS.—Infusion of Digitalis. Digitalis, dried, gr. xxx.; boiling distilled water, f̄x. Infuse for an hour, and strain. This is an excellent preparation. As a diuretic, it should be given three times a-day. Some have recommended its external application (on spongio-piline, or flannel, covered with gutta-percha or oil-silk) to the legs in anasarca, and to the surface of the abdomen in ascites, and good has been done in this way.

Dose.—f̄ij. to f̄ss.

Actions and Uses.—Digitalis contracts the capillaries throughout the body, and at the same time acts as a stimulant to the pneumo-gastric and sympathetic nerves. It lessens the frequency of the heart's actions, but at the same time strengthens the individual beats, and this has led to its employment in cases of hæmorrhage. It is also a powerful diuretic. In large doses it occasions vomiting, purging, cold sweats, stupor, a slow, weak, and irregular pulse, suppression of urine, and death, with coma and convulsions. In cases of poisoning, the stomach-pump should be used, and stimulating emetics, with powerful external and internal stimulants, administered. As a diuretic, digitalis deservedly stands high, great success attending its use in the various forms of dropsy. It succeeds best in those cases of effusion into the areolar tissue of the extremities and face depending on cardiac, renal, or hepatic disease, and it is more serviceable in cardiac dropsy than renal. Most good is achieved, too, in

feeble constitutions; in robust individuals, with inflammatory symptoms, antiphlogistic measures should precede it. In ascites it sometimes does good, but oftener fails; and in hydrothorax (simple), and hydrops pericardii, it will generally be found of little service. Its diuretic action is promoted by combination with others, such as squill, juniper, etc. When digitalis is administered for some time, in medicinal doses, it also operates as a sedative, influencing the heart and arterial system, diminishing the strength and frequency of the pulse. Nausea, giddiness, obscure vision, salivation, headache, and delirium, are also common effects; and if the drug is continued, the symptoms of poisoning are developed. These symptoms may arise some days after it has been withdrawn, showing digitalis to be a cumulative medicine. Some affirm that the sedative and diuretic actions do not go on together; nay, that they are even incompatible. The truth appears to be, that free diuresis lessens somewhat the sedative action. The narcotic and sedative actions are also occasioned when it is injected into a vein, or by clyster. As a sedative, then, digitalis is serviceable in diseases of the heart and large arteries, where we want to abate the force of the circulation; as in simple hypertrophy, in increased action, not depending on organic disease, in some forms of functional palpitation, in aneurism of the aorta, and in active hæmorrhages, where the pulse is quick, full, and hard. It should not be used in hypertrophy (with or without dilatation), arising from obstruction, or from regurgitation produced by valvular disease. As a deobstruent, digitalis has deservedly fallen into neglect; and as a tonic it is seldom employed. It has some advocates as a remedy in certain

forms of insanity; and in epilepsy, not dependent on organic disease, it has occasionally done good. In this latter disease, it is, perhaps, entitled to further trial. The infusion (f̄ij. to f̄ss.) is given every night for four or five nights, and suspended for a time, to be renewed again in the same doses. The effects of digitalis should, of course, be observed with vigilance.

Formula in Dropsies named above.—℞ Tincturæ scillæ, f̄ij.; infusi digitalis, f̄ij.; decoctum scoparii ad f̄vj. Misce. Fiat mistura cujus capiat cochleare amplum ter die.

Digitalinum. Digitalin.

The active principle obtained from Digitalis.

Characters and Tests.—In porous mammillated masses, or small scales, white, inodorous, and intensely bitter; readily soluble in spirit, but almost insoluble in water and ether; dissolves in acids, but does not form with them neutral compounds. Its solution in hydrochloric acid is of a faint yellow colour, but rapidly becomes green. It powerfully irritates the nostrils, and is an active poison. Leaves no residue when burned with free access of air.

Dose.— $\frac{1}{60}$ to $\frac{1}{30}$ grain.

Preparations.—See *Brit. Phar.*

Actions and Uses.—It is a very active poison, and possesses in a highly concentrated degree the properties of digitalis. It has a powerful effect on the pulse, reducing it in a few hours to about 40 beats per minute. It is not much employed here, as yet, owing to its potency, but in France it is said to have been serviceable in the treatment of intermittent fevers and spermatorrhœa. It has been applied endermically in

painful cardiac disease with excited action of the heart; but this requires the greatest caution, the $\frac{1}{60}$ th part of a grain having occasioned violent inflammation of the raw surface. The smallest overdose has, moreover, given rise to protracted sickness and vomiting.

LABIATÆ.—THE LABIATE FAMILY.

The plants of this order have aromatic properties, due to the presence of a volatile oil. It contains four officinal plants.

I.—LAVANDULA VERA, D.C. Lavender.

This plant is a shrub 2 to 3 feet high, with opposite linear leaves. Its flowers are violet coloured. The plant has the odour of lavender. It is a native of the South of Europe. The parts officinal are the flowers.

Oleum Lavandulæ. Oil of Lavender.

The oil distilled in Britain from the flowers of *Lavandula vera*.

Characters.—Pale yellow, odour pleasant, like lavender, and a hot, bitter, aromatic taste.

It enters into the composition of liniment. camph. co., 60 minims to one pint.

SRIRITUS LAVANDULÆ.—Spirit of Lavender. Oil of lavender, f̄j.; rect spt., f̄xl̄ix. Dissolve.

Dose.—f̄ss. to f̄j.

TINCTURA LAVANDULÆ COMPOSITA.—Compound Tincture of Lavender. Oil of lavender, f̄iiss.; oil of rosemary, min. x.; cinnamon, bruised, gr. cl.; nutmeg, bruised, gr. cl.; red sandal-wood, gr. ccc.; rect. spt., Oij. Macerate the cinnamon, nutmeg, and red sandal-

wood in the spirit for seven days; then press out and strain; dissolve the oils in the strained tincture, and add sufficient rectified spirit to make two pints. Commonly known as red lavender, and given as an aromatic stimulant in sickness, flatulence, and dull spirits. It is useful combined with the aromatic spirit of ammonia.

Dose.—f̄ss. to f̄ij.

It enters into the composition of liquor arsenicalis.

Actions and Uses.—Stimulant and carminative, but inferior to others, such as peppermint. Principally used for giving an agreeable flavour to mixtures, and in perfumes.

II.—ROSMARINUS OFFICINALIS, *Linn.* Rosemary.

This plant forms a shrub about 4 feet in height, with evergreen leaves, pale blue flowers. It is a native of the coasts of the Mediterranean. The parts officinal are the flowering tops.

Oleum Rosmarini. Oil of Rosemary.

The oil distilled from the flowering tops of *Rosmarinus officinalis*.

Characters.—Colourless, with the odour of rosemary, and a warm aromatic taste.

Dose.—2 to 5 minims.

SPIRITUS ROSMARINI.—Spirit of Rosemary. Oil of rosm., f̄j.; rect. spt., f̄xlix. Dissolve.

Dose.—10 to 30 minims, but chiefly used in lotions.

It also enters into the composition of liniment. saponis, f̄j. in f̄vij. nearly, and tr. lavandul. co. Min. v. in Oj.

Actions and Uses.—An aromatic stimulant and carminative, used in hysteria, and for discutient fomentations.

III.—*MENTHA PIPERITA*, *Linn.* Peppermint.

This plant is a perennial, with a stem 3 or 4 feet high. It has its leaves all stalked. It has a peculiar odour. It is common in many ditches in Britain. The whole plant is officinal.

Oleum Menthæ Piperitæ. Oil of Peppermint.

The oil distilled in Britain from the fresh herb when in flower of *Mentha piperita*.

Characters.—Pale-yellow, with the odour of peppermint; taste warm aromatic, followed by a sensation of coldness in the mouth.

Dose.—2 to 5 minims on sugar.

Essentia Menthæ Piperitæ. Essence of Peppermint.

Oil of peppermint, ℥j.; rect. spt., ℥iv. Mix.

Dose.—10 to 20 minims.

SPIRITUS MENTHÆ PIPERITÆ.—Spirit of Peppermint.

Oil of peppermint, ℥j.; rect. spt., ℥xlix. Dissolve.

Dose.—℥ss. to ℥j.

AQUA MENTHÆ PIPERITÆ.—Peppermint Water.

Oil of peppermint, ℥iiss.; water, cong. iss. Distil one gallon.

Dose.—℥j. to ℥ij.

Oil of peppermint enters into the composition of compound rhubarb pills, and peppermint water into that of aromatic mixture of iron.

Actions and Uses.—A strong aromatic and diffusible stimulant, carminative, and antispasmodic. It is of great service often in gastrodynia, flatulence, and griping pain in the bowels. It is widely used for covering the taste and correcting the disagreeable properties of other drugs.

IV.—*MENTHA VIRIDIS*, *Linn.* Spearmint.

This plant has a considerable resemblance to the preceding, but is at once distinguished by its *sessile* leaves. The plant is indigenous. The whole plant is officinal.

Oleum Menthæ Viridis. Oil of Spearmint.

The oil distilled in Britain from the fresh herb when in flower of *Mentha viridis*.

Characters.—Pale-yellow, with the odour and taste of spearmint.

Dose.—1 to 5 minims.

AQUA MENTHÆ VIRIDIS. — Spearmint Water. Oil of spearmint, fʒiiss.; water, cong. Oiss. Distil one gallon.

Dose.—fʒj. to fʒij.

Actions and Uses.—Same as peppermint, but not so strong.

*MONOCHLAMYDÆ.**PHYTOLACCACEÆ.*—THE PHYTOLACCA FAMILY.

The plants of this order have acrid and purgative properties. It contains no officinal plant. The following plant, however, is extensively used in America as an "eclectic" remedy.

Phytolacca decandra.

From it is derived *Phytolaccin*, which is used in rheumatism. The *dose* is $\frac{1}{8}$ to 1 grain. It increases the secretion of bile.

POLYGONACEÆ.—THE BUCKWHEAT FAMILY.

The plants of this order have astringent and acid properties, whilst others are acrid and purgative. It contains only one officinal *genus*.

RHEUM, *Linn.*—Which furnishes Rhubarb.

It is probable that various plants of this genus furnish officinal rhubarb. It has been proved that *Rheum officinale*, *Baillon*, furnishes Thibet rhubarb. This is a large plant with large leaves. It is a native of Thibet. It is also probable that *Rheum palmatum*, *Linn.*, furnishes some of the rhubarb of commerce. This plant is a native of Thibet, China, etc. The officinal part is the root.

Rhei Radix. Rhubarb Root.

The root of one or more undetermined species of *Rheum*, deprived of the bark and dried; from Chinese Tartary and Thibet.

Characters.—Roundish cylindrical or flattish pieces, frequently bored with one hole, yellow externally. internally marbled with waving greyish and reddish lines; finely gritty under the teeth, taste bitter, faintly astringent and aromatic. Boracic acid does not turn the yellow exterior brown.

Analysis.—Rhabarberic acid (rhabarberin, or chrysophanic acid of others), gallic acid, tannin, uncrystallisable sugar, starch, gum, colouring matter, pectic acid, oxalate of lime, iron, silica, etc.

Dose.—5 to 20 grains.

EXTRACTUM RHEI.—Extract of Rhubarb. This is prepared by means of water and spirit.

Dose.—5 to 15 grains.

PULVIS RHEI COMPOSITUS.—Compound Powder of Rhubarb (Gregory's Powder). Rhubarb, $\bar{3}ij$; light magnesia, $\bar{3}vj$.; ginger, $\bar{3}j$. Mix well, and pass through a fine sieve. A stomachic powder, antacid, laxative, and mildly tonic.

Dose.—20 to 60 grains; for children, 5 to 10 grains.

PILULA RHEI COMPOSITA.—Compound Rhubarb Pill. Rhubarb powder, $\bar{3}ij$.; socotrine aloes, in fine powder, $\bar{3}ii\frac{1}{4}$.; myrrh powder, $\bar{3}iss$.; hard soap, $\bar{3}iss$.; oil of peppermint, $f\bar{3}iss$.; treacle, by weight, $\bar{3}iv$. They are purgative and mildly tonic.

Dose.—5 to 10 grains.

SYRUPUS RHEI.—Syrup of Rhubarb. It contains, besides rhubarb, coriander fruit, sugar, and spirit.

Dose.— $f\bar{3}j$. to $f\bar{3}ss$.

TINCTURA RHEI.—Tincture of Rhubarb. Rhubarb, $\bar{3}ij$.; cardamoms, bruised, $\bar{3}\frac{1}{4}$.; coriander, bruised, $\bar{3}\frac{1}{4}$.; saffron, $\bar{3}\frac{1}{4}$.; proof spirit, Oj . By maceration and percolation, as before.

Dose.— $f\bar{3}j$. to $f\bar{3}ij$., as a stomachic; as a purgative, $f\bar{3}ss$. to $f\bar{3}j$.

VINUM RHEI.—Wine of Rhubarb. Rhubarb, $\bar{3}iss$.; canella alba bark, gr. lx.; sherry, Oj .

Dose.— $f\bar{3}j$. to $f\bar{3}ij$.

INFUSUM RHEI.—Infusion of Rhubarb. Rhubarb, $\bar{3}\frac{1}{4}$.; boiling dist. water, $f\bar{3}x$. Infuse one hour.

Dose.— $f\bar{3}j$. to $f\bar{3}ij$.

Actions and Uses.—In small doses it is astringent and tonic; in large doses, cholagogue and cathartic. It is only a feeble stimulant of the liver. In small doses, it improves digestion and appetite, and renders the intestinal secretions more healthy. In larger doses, it is an excellent cathartic, acting on the whole bowel,

and especially the duodenum, and increasing the peristaltic action. It is well suited for the early stages of diarrhoea, as a laxative in constipation from debility of the digestive organs, and in the disorders of children, such as flatulence and irritation of the alimentary canal. It is extensively employed in combination with bicarbonate of soda as an aperient and stomachic. It renders the serum of the blood yellow, and, while using it, the urine is almost of a blood-red colour.

LAURACEÆ.—THE LAUREL FAMILY.

The plants of this order have aromatic and stimulant properties. It contains four officinal plants.

I.—*CINNAMOMUM ZEYLANICUM*, *Breyn.* CINNAMON TREE.

This is a small evergreen tree. It is a native of Ceylon. The part officinal is the inner bark.

Cinnamomi Cortex. Cinnamon Bark.

The inner bark of shoots from the truncated stock of *Cinnamomum zeylanicum*; imported from Ceylon.

Characters.—In closely rolled yellowish-brown quills, $\frac{1}{5}$ line thick, 4 line diameter. Containing several small quills within them, with a fragrant odour, and warm sweet aromatic taste; breaks with a splintery fracture.

PULVIS CINNAMOMI COMPOSITUS.—Compound Powder of Cinnamon. Cinnamon, cardamom seeds, and ginger, of each, $\bar{3}j$. Powder, and mix well, and pass through a fine sieve. A corrective of, and agreeable addition to, other medicines, such as cathartic and tonic powders. Formerly called aromatic powder.

Dose.—3 to 10 grains.

TINCTURA CINNAMOMI.—Tincture of Cinnamon. Cinnamon, ℥iiss. ; proof spirit, Oj. Make in the usual manner.

Dose.—fʒss. to fʒij.

AQUA CINNAMOMI.—Cinnamon Water. Cinnamon, bruised, ℥xx. ; water, cong. ij. Distil one gallon. A pleasant vehicle for other drugs, and an ingredient of chalk mixture.

Oleum Cinnamomi. Oil of Cinnamon.

The oil distilled from Cinnamon Bark.

Characters.—Yellowish at first, gradually becoming red, having the odour and taste of cinnamon. Sinks in water.

Actions and Uses.—A warm stimulant, used principally for its pleasant flavour as an agreeable addition to more active drugs. It is a good aromatic and carminative, and is useful in correcting the griping of purgative medicines.

II.—SASSAFRAS OFFICINALE, *Nees.* Sassafras.

This is a large tree, 30 or 40 feet high, remarkable in having some of its leaves entire, whilst others are divided nearly into three equal lobes. It is a native of Canada and the United States. The part officinal is the root.

Sassafras Radix. Sassafras Root.

The dried root of *Sassafras officinale* ; from North America.

Characters.—In branched pieces, sometimes eight inches in diameter at the crown ; bark externally greyish-brown, internally rusty brown ; of a warm

aromatic taste, and pleasant odour. Also in chips. Wood light, porous, greyish-yellow.

Analysis.—A volatile oil, on which its properties depend; tannin, etc.

Actions and Uses.—Diaphoretic, but not much employed. A constituent of decoct. sarsæ co. $\bar{3}\frac{1}{4}$ to Oj. An infusion may be made, $\bar{3}j.$ to Oj. water, the dose of which is $f\bar{3}ij.$ to $f\bar{3}iv.$

III.—CAMPHORA OFFICINARUM, *Nees.* The Camphor Tree.

This is a large tree, 30 feet high, with beautiful evergreen leaves. It is a native of China, Japan, etc. The part officinal is the wood.

Camphora. Camphor.

A concrete volatile oil, obtained from the wood of *Camphora officinarum* by sublimation, and resublimed in this country in bell-shaped masses. Imported from China and Japan.

Characters.—White, translucent, tough, and crystalline; has a powerful, penetrating odour, and a pungent taste, followed by a sensation of cold; floats on water; volatilises slowly at ordinary temperatures; is slightly soluble in water, but readily soluble in rectified spirit, and in ether. Sublimes entirely when heated.

Dose.—1 to 10 grains.

SPIRITUS CAMPHORÆ.—Spirit of Camphor. Camph., $\bar{3}j.$; rect. spt., $f\bar{3}ix.$ M.

Dose.—10 to 30 minims.

TINCTURA CAMPHORÆ COMPOSITA.—Compound Tincture of Camphor. Opium, in coarse powder, gr. xl.; benzoic acid, gr. xl.; camphor, gr. xxx.; oil anise, $f\bar{3}ss.$;

proof spirit, Oj. Macerate 7 days; filter, and add proof spirit to make Oj. PAREGORIC ELIXIR.—Anodyne, and expectorant in bronchitis.

Dose.—15 to 60 minims.

AQUA CAMPHORÆ.—Camphor Water. Camphor, ℥ss.; dist. water, cong. j. Enclose the camphor in a muslin bag in the water, invert the jar, and stand for two days. Useful for filling up stimulant mixtures.

Dose.—f̄i. to f̄ij.

LINIMENTUM CAMPHORÆ.—Liniment of Camphor. Camphor, ℥j.; olive oil, f̄iv. Dissolve.

LINIMENTUM CAMPHORÆ COMPOSITUM.—Compound Liniment of Camphor. Camphor, ℥iiss.; oil lavend., f̄j.; strong sol. ammon., f̄v.; rect. spt., f̄xv. M. Stimulant. Useful in neuralgia, rheumatism, and enlarged glands.

Actions and Uses.—Narcotic and irritant, sedative, expectorant, antispasmodic, diaphoretic, stimulant. There is considerable contrariety of opinion in regard to the actions of this drug, but its most notable effect is that of a diffusible stimulant. Large quantities have a kind of intoxicating effect, occasioning giddiness, dimness of vision, confusion of ideas, and delirium, with increased frequency of the pulse, stupor, and convulsions. The amount necessary for the production of these effects varies very much in different individuals; and it is this variable and fluctuating action, due, perhaps, to a widely-prevailing idiosyncrasy, which has given rise to the dubiety that exists in regard to its operation. As a stimulant, it is given with benefit in the advanced stages of continued fever, when nervous symptoms, such as subsultus tendinum, watchfulness, and delirium exist, where it seems also to exercise a

sedative influence. It is given, but with poor results, as an expectorant in catarrh; as an anodyne or sedative, with fair results, in gout and rheumatism, and in painful diseases of the urinary organs, and dysmenorrhœa. Decided benefit is obtained in the nervousness and irritability following some cases of labour, especially combined with an opiate. Externally, in the form of the liniment, camphor is useful as a stimulant and anodyne application in rheumatic pains, enlarged glands, and bruises; and the spirit is one of the best remedies for allaying the heat and itching of chilblains. Camphor has also been found useful in the early stage of coryza. A few grains at bedtime will sometimes cut short the attack. Two other virtues are popularly assigned to camphor when attached in a bag to the person—namely, that of warding off contagious diseases, and checking the secretion of milk! There is reason to fear that such a belief is destitute of foundation. Camphor is given in the form of pill; or suspended in water with mucilage or syrup.

IV.—NECTANDRA RODIÆI, *Schomburgk*. Greenheart Tree.

This is a large tree, 70 or 80 feet high. The trunk is bare and erect, and branches only at the top. It is a native of British Guiana. The part officinal is the bark.

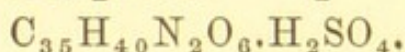
Nectandræ Cortex. Bebeeru Bark.

The bark of *Nectandra Rodiæi*; imported from British Guiana.

Characters.—In large, flat, heavy pieces, one to two feet long, two to six inches broad, about a quarter of an

inch thick ; greyish-brown externally, cinnamon-brown internally. Taste very bitter and astringent. Used for preparing *Beberiaë sulphas*.

Beberiaë Sulphas. Sulphate of Beberia.



The sulphate of an alkaloid prepared from *Nectandra* or *Bebeeru* Bark.

Characters and Tests.—Small, shining, reddish-brown plates, with an intensely and persistently bitter taste, soluble in water and alcohol, but more so on the addition of a little dilute sulphuric acid. Caustic soda gives a yellowish-white precipitate. It is entirely destructible by heat.

Dose.—1 to 10 grains.

Besides *Beberia*, it also contains tannic acid, resin, etc. By many *Beberia* is considered identical with *Buxin*, an alkaloid found in the common Box.

Actions and Uses.—An excellent tonic and antiperiodic. As a tonic, it is useful in dyspepsia, convalescence from acute diseases, and the debility attending phthisis, the colliquative sweating of which it helps to arrest. As an antiperiodic it cannot be placed nearly so high as quinia, especially in intermittent fever ; but it may be tried when the more valuable drug cannot be had. Periodic headache, hemicrania, and various neuralgias are occasionally benefited by it ; and if quinia, iron, arsenic, potass. iodid., ammon. chlorid., fairly fail in the more obstinate cases, resort should be had to this drug. In some few cases it will succeed when these drugs fail.

Formula.—℞ Beberiae sulphatis, gr. lx. ; acidi sulphurici. diluti, f̄3j. ; syrupi floris aurantii, f̄3vj. ; aquam ad f̄3vj. Misco. Fiat mistura, capiat cochleare magnum ter in die.

MYRISTICACEÆ.—THE NUTMEG FAMILY.

The plants of this order have aromatic and stimulant properties. It contains only one officinal plant.

MYRISTICA OFFICINALIS, Linn. The Nutmeg Tree.

This is a tree which sometimes attains a height of 50 or 60 feet, though usually only 30 or 40 feet. It has evergreen leaves. It is a native of the East Indian Islands. The part officinal is the seed.

Myristica. Nutmeg.

The kernel of the seed of *Myristica officinalis*. Cultivated extensively in the Banda Islands of the Malayan Archipelago.

Characters.—Oval, or nearly round, about an inch in length, marked externally with reticulated furrows, internally greyish-red, with dark-brownish veins. Has a strong peculiar odour, and a bitter aromatic taste.

Oleum Myristicæ. Volatile Oil of Nutmeg.

The oil distilled in Britain from nutmeg.

Characters.—Straw-yellow, having the odour and taste of nutmegs.

Dose.—1 to 5 minims on sugar.

SPIRITUS MYRISTICÆ.—Spirit of Nutmeg. Volatile oil of nutmeg, f̄3j. ; rect. spt., f̄3xlix. Dissolve.

Dose.—f̄3ss. to f̄3j.

Oleum Myristicæ Expressum. Expressed Oil of
Nutmeg.

A concrete oil of an orange colour, got by means of expression and heat from nutmegs.

Used in emp. calefac. and emp. picis.

Actions and Uses.—An aromatic stimulant and carminative. Useful at times in vomiting. It is narcotic in virtue of its essential oil, in large quantity, and, therefore, contra-indicated in those who have an apoplectic habit of body, or a tendency to paralysis.

The volatile oil is used chiefly as a corrective to other drugs. Topically, it has been applied as a stimulant in palsy and rheumatism.

THYMELÆACEÆ.—THE DAPHNE FAMILY.

The plants of this order have acrid and irritant properties. It contains two officinal plants.

I. DAPHNE MEZEREUM, *Linn.* Mezereon.

II. DAPHNE LAUREOLA, *Linn.* Spurge Laurel.

These two plants are both shrubs. The Mezereon has beautiful red flowers, which appear in early spring before the leaves. The Spurge Laurel has green flowers. They are both indigenous to Britain. The officinal part in both is the bark.

Mezerei Cortex. Mezereon Bark.

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

Characters.—In tough, pliable, olive-brown strips, or quilled pieces, white within; taste hot and acrid.

Analysis.—A neutral crystalline principle contained in the inner bark—daphnin—an acrid resin combined with wax, sugar, etc.

EXTRACTUM MEZEREI ÆTHEREUM.—Ethereal Extract of Mezereon. Used in lin. sinap. co., gr. viij. in f̄j.

Actions and Uses.—A stimulating diaphoretic and alterative, once a good deal used as an anti-venereal remedy, but now, probably owing to its acidity, as well as its frequent failure, seldom employed. It is very apt to disorder the primæ viæ. As a masticatory, Dr Withering found it serviceable in a case of difficult deglutition from paralysis. It is much employed on the Continent as an epispastic.

ARISTOLOCHIACEÆ.—THE BIRTHWORT FAMILY.

The plants of this order have bitter, tonic, and stimulant properties. It contains only one officinal plant.

ARISTOLOCHIA SERPENTARIA, *Lin.* Virginian Snakeroot.

This is a small plant, seldom above a foot high. The flowers are dark-purple, and near the ground. It is a native of North America. The officinal part is the root.

Serpentariæ Radix. Serpentry Root.

The dried rhizome of *Aristolochia Serpentaria*; from the south of North America.

Characters.—A small, roundish rhizome, with a tuft of numerous slender rootlets, about three inches long, with a subdued camphoraceous odour, and a warm camphoraceous taste.

Dose.—Powder (not a good form), 10 to 30 grains.

Analysis.—A volatile oil, soft resin, gum albumen, starch, etc.

TINCTURA SERPENTARIÆ.—Tincture of Serpentry. Serpentry, ℥iiss. ; proof spt., Oj. Proceed as usual.

Dose.—f℥ss. to f℥ij.

INFUSUM SERPENTARIÆ.—Infusion of Serpentry. Serpentry, ℥¼; boiling dist. water, f℥x. Infuse two hours.

Dose.—f℥j. to f℥ij.

Actions and Uses.—Tonic, stimulant, and diaphoretic, but not much relied on in this country. It has been used in continued fever, intermittents, amenorrhœa, and gangrenous affections, but has not been very successful. In the adynamic stages of continued fever some little temporary benefit is obtained.

It is an ingredient of tinct. cinchon. co., ℥ss. to Oj.

EUPHORBIACEÆ.—THE SPURGE FAMILY.

The properties of the plants of this order are acrid and purgative. Some, however, are tonic. It contains four officinal plants.

I.—RICINUS COMMUNIS, *Linn.* The Castor Oil Plant.

This plant varies in height from a few feet to a tree 30 or 40 feet high. It has large leaves, grows rapidly, and is believed to be the *Gourd* mentioned in Jonah. It is a native of the coasts of the Mediterranean and of India. The parts officinal are the seeds.

Oleum Ricini. Castor Oil.

The oil expressed from the seeds of *Ricinus communis*; imported chiefly from Calcutta.

Characters and Tests.—Viscid, colourless, having a slightly nauseous odour, and a somewhat acrid taste. Entirely soluble in one volume of alcohol, and in two volumes of rectified spirit.

Dose.—fʒj. to fʒj.

Analysis.—Three fatty acids, ricinic, elaiodic, and margaritic. The active part or principle has not yet been detected, but is worthy of investigation.

Adulterations.—Seldom any now; but if so, easily detected by the above tests.

Actions and Uses.—One of our mildest and most effectual cathartics, its operation being seldom attended by abdominal pain or irritation, though sometimes with nausea and vomiting. It acts on the whole bowel, occasioning three or four thin, but not watery, evacuations. It is an admirable laxative in hæmorrhoidal affections, in spasmodic and inflammatory diseases of the bowel or urethra, in stricture of the rectum, prostatic disease; during pregnancy and after delivery, in infantile disorders, and after surgical operations about the pelvis and abdomen.

It is contained in collodium flexile, fʒj. to fʒvj.; in liniment. sinapis co., fʒj to fʒj.; and in pil. hydrarg. subchlor. co.

II.—CROTON TIGLIUM, *Linn.* Purging Croton.

This is a small tree, sometimes 20 feet in height. It is a native of India and the East Indian Islands. The officinal parts are the seeds.

Oleum Crotonis. Croton Oil.

The oil expressed from the seeds of *Croton tiglium*.

Characters and Tests.—Slightly viscid; brownish yellow colour; taste acrid, odour somewhat nauseous. Agitated with its own volume of alcohol, and gently heated, it forms a clear solution, from which about $\frac{3}{4}$ of the oil separate on cooling.

Dose.— $\frac{1}{3}$ to 1 minim.

Analysis.—Crotonic acid, and a bland fixed oil.

Adulterations.—Castor oil; detected by its solubility in alcohol.

LINIMENTUM CROTONIS.—Liniment of Croton. Croton oil, f̄j.; oil of cajuput and rect. spt., of each, f̄iiiiiss. Mix. A strong counter-irritant.

Actions and Uses.—An intensely strong irritant and cathartic. In large doses it is poisonous, and even a few drops occasion severe hypercatharsis. It is a hydragogue cathartic, producing copious watery stools, and operating speedily. It is given for the most part in obstinate constipation, dropsy, comatose affections, neuralgia, convulsions, and apoplexy. In tic-douloureux, with constipation, common among some sedentary females, it is often of great service, so much so, indeed, as to have led some to call it a specific, in which view, however, we do not concur. It occasions an acrid sensation in the throat, unless given in the form of pill, well covered with powder. When given in apoplexy or coma, a drop or two on sugar may be placed on the back of the tongue. It is contra-indicated in cases of debility, and where there is a tendency to inflammation of the digestive organs. Applied to the skin, croton oil excites inflammation, followed by a pustular eruption, and is therefore an active counter-

irritant. If applied to the face or scalp, however, it is apt, in some cases, to induce erysipelatous inflammation.

Formula.—℞ Oleicrononis gtt., ij.; extracticolocynthidis compositi, gr. viij. Misce. Divide in pilulus ij. Dust well with powder of liquorice, or magnesia.

III.—CROTON ELUTERIA, *Bennett*. The Cascarilla Tree.

This is a small tree somewhat resembling the last, but has smaller leaves and differently veined. It is a native of the Bahamas. The part officinal is the bark.

Cascarillæ Cortex. Cascarilla Bark.

The bark of Croton Eluteria; from the Bahama Islands.

Characters.—In quills two to three inches long, two to five lines in diameter, dull-brown, but coated with white crustaceous lichens; warm and bitter to the taste; emitting a fragrant odour when burned; breaks with a short resinous fracture.

Dose in powder.—20 to 30 grains.

Analysis.—A bitter neutral crystalline principle, cascarillin; tannin, albumen, fatty matter, gum, volatile oil, resin, pectic acid, salts, etc.

Adulterations.—Copalchi bark, from the Croton pseudo-china, a native of Mexico, has been substituted for it. The quills are much longer than those of the true, are more covered with white lichens, and have no transverse cracks.

TINCTURA CASCARILLÆ.—Tincture of Cascarilla. Cascarilla, ℥iiss.; proof spt., Oj. Proceed as usual.

Dose.—f℥ss. to f℥ij.

INFUSUM CASCARILLÆ.—Infusion of Cascarilla. Cascarilla, ℥j.; boiling dist. water, f℥x. Infuse an hour.

Dose.—f℥j. to f℥ij.

Actions and Uses.—An aromatic tonic, of great power. It is used chiefly along with other tonics, in chronic diarrhoea and dyspepsia. As a febrifuge, it is sometimes successful in intermittent fever.

IV.—*ROTTLERA TINCTORIA*, *Roxb.* The Kamala Plant.

This a small tree, 10 to 15 feet high. It is a native of Abyssinia, Arabia, and the East Indies. The part officinal is the fruit.

Kamala. Kamala.

A powder which consists of the minute glands that cover the capsules of *Rottlera tinctoria*. Imported from India.

Characters.—Granular, mobile, orange-red, inflammable; not easily mixed with water, but the greater part dissolved in boiling alcohol, forming a red solution. Soluble in ether also, the residue consisting mostly of tufted hairs.

Dose.—ʒss. to ʒij.

Actions and Uses.—This has been used in India as an anthelmintic in tape-worm. It is somewhat irritating to the bowels.

CANNABINACEÆ.—THE HEMP AND HOP FAMILY.

This order contains only three plants, two of which are officinal.

I.—*HUMULUS LUPULUS*, *Linn.* The Hop Plant.

This plant is a climbing perennial, with very rough leaves. It is an indigenous plant, and is also extensively cultivated in several parts of England. The part officinal is the fruit.

Lupulus. Hop.

The dried strobiles of the female plant of *Humulus lupulus*; cultivated in England.

Characters.—Greenish-yellow scales, with an adherent golden-yellow powder (Lupulin) at their base; taste bitter; odour aromatic.

Analysis.—Lupulin, and a volatile oil (on which its efficacy depends); gum, lignin, colouring matter, etc. The lupulin is separated simply by rubbing and sifting.

Extractum Lupuli. Extract of Hop.

This is prepared with water and spirit.

Dose.—5 to 15 grains.

TINCTURA LUPULI.—Tincture of Hop. Hops, ℥iiss.; proof spt., Oj. Macerate, and percolate.

Dose.—℥ss. to ℥ij.

INFUSUM LUPULI.—Infusion of Hop. Hops, ℥ss.; boiling dist. water, ℥x. Infuse two hours, and strain.

Dose.—℥j. to ℥ij.

Actions and Uses.—A feeble narcotic and tonic. Used in medicine chiefly as a hypnotic in sleeplessness, connected with anxiety, nervous irritation, and delirium tremens, but not much to be relied on. A pillow filled with hops has long been a popular soporific. As a tonic, their power is not great; they are no more than a fair stomachic. Beer well impregnated with hops has been alleged to correct the lithic acid diathesis of profuse eaters of animal food.

II.—**CANNABIS SATIVA**, *Linn.* The Hemp Plant.

This plant is an annual, with a stem 6 to 10 feet high. The leaves are rough and palmate. The plant is a native of different parts of Asia. The officinal parts are the flowering-tops of the female plants.

Cannabis Indica. Indian Hemp.

The dried flowering-tops of the female plants of *Cannabis sativa*, from which the resin has not been removed; cultivated in India.

Characters.—Tops consisting of one or more alternate branches, bearing the remains of the flowers and smaller leaves, and a few ripe fruits, pressed together in masses, which are about two inches long, harsh, of a dusky-green colour, and a characteristic odour. Different parts of the plant are known in India, under the names of Gunjah, Bhang, and Hackish.

Analysis.—Cannabin, a resin on which its properties depend, and developed only in warm countries; a small quantity of volatile oil, extractive, etc.

EXTRACTUM CANNABIS INDICÆ.—Extract of Indian Hemp. Indian hemp, ℥j.; rect. spt., Oiv. Macerate seven days; press out the tincture; distil off the spirit; and evaporate by a water-bath to a proper consistence.

Dose.— $\frac{1}{4}$ to 1 grain.

TINCTURA CANNABIS INDICÆ.—Tincture of Indian Hemp. Ext. Indian hemp, ℥j.; rect. spt., Oj. Dissolve. Each ℥j. contains gr. iiss. of extract.

Dose.—10 to 20 minims, gradually increased; and in mucilage or syrup, not in water.

Actions and Uses.—Narcotic, antispasmodic. Long used in India as an intoxicant, but introduced into practice in this country about thirty years ago, after a notice of its alleged virtues by a Calcutta physician. It has now become better known. Like alcohol, it produces a variety of effects on different individuals; in one a dull heavy state of pleasant reverie, with a

rapid succession of unconnected ideas ; in another, a cheerful activity, with giddiness, and a tendency to talk, sing, laugh, or dance. It alleviates pain and subdues spasm, and for this purpose it has been given, but with extremely variable results (it may be owing to inert specimens of it), in neuralgia, chronic rheumatism, painful menstruation, infantile convulsions, hydrophobia, and tetanus. In the last disease a few striking cures have been achieved, but in other cases it has failed. Spasm and spasmodic coughs are frequently relieved by it ; and some obtain sleep from it, who are debarred the more certain soporific opium, owing to its evil effects. In uterine hæmorrhage it often arrests the flooding, and it relieves the pain in dysmenorrhœa.

ULMACEÆ.—THE ELM FAMILY.

The properties of this order are mucilaginous and astringent. It contains only one officinal plant.

ULMUS CAMPESTRIS, *Linn.* English and Scotch Elms.

This species includes both the *Ulmus campestris*, *Smith*, and *Ulmus montana*, *Smith*. They are trees, some of them 60 or 80 feet high. The fruit is a *samara*. They are indigenous. The part officinal is the inner bark.

Ulmi Cortex. Elm Bark.

The dried inner bark of *Ulmus campestris*, Broad-leaved Elm, deprived of its outer layers ; from trees indigenous to, and cultivated in Britain.

Characters and Tests.—A tough brownish-yellow bark, about half-a-line thick, inodorous, taste bitter and astringent. Its decoction is turned green by perchloride of iron, and precipitates with gelatine.

Analysis.—Tannin, resin, gum, etc.

DECOCTUM ULMI.—Decoction of Elm Bark. Elm bark, ℥iiss.; dist. water, Oj.

Dose.—fʒij. to fʒiv.

Actions and Uses.—Tonic and astringent, but not very active or important. Some prescribe it in skin diseases, as it is said to act on the cutaneous capillaries. It is not given in substance.

MORACEÆ.—THE MULBERRY FAMILY.

The properties of this order are demulcent, nutrient, and laxative. It contains two officinal plants.

I.—MORUS NIGRA, *Linn.* The Black Mulberry Tree.

This is a small tree with rough leaves, greenish flowers, and dark purple succulent fruit. It is a native of Persia and China. The part officinal is the fruit.

Mori Succus. Mulberry Juice.

The juice of the ripe fruit of *Morus nigra*; cultivated in Britain.

Characters.—Dark violet colour, faint odour, sweet acidulous taste.

SYRUPUS MORI.—Syrup of Mulberries. Mulberry juice, Oj.; refined sugar, ℔ij.; rect. spt., fʒiiss. Dissolve the sugar in the juice by a gentle heat. Add the spirit lastly. The product should weigh ℔iij. ʒvj. Specific gravity, 1.33.

Dose.—fʒj.

Actions and Uses.—Refrigerant and laxative. Proves a grateful drink in fevers, by cooling and allaying thirst. When too much is taken it is apt to produce diarrhœa.

II.—*FICUS CARICA*, *Linn.* The Fig Tree.

This plant is a small tree with numerous branches. The leaves are thick, dark-green, rough on the upper surface and downy beneath. It is a native of Syria and Asia Minor. The part officinal is the fruit.

Ficus. Fig.

The dried fruit of *Ficus Carica*; imported from Smyrna.

Actions and Uses.—Nutritive, laxative, and demulcent. Used in practice chiefly as suppuratives, or poultices to promote suppuration, especially in gum-boil. It enters into the composition of confect. sennæ, 12 parts to 75.

PIPERACEÆ.—THE PEPPER FAMILY.

The plants of this order have pungent, acrid, aromatic, and astringent properties. It contains three officinal plants.

I.—*PIPER NIGRUM*, *Linn.* Black Pepper.

This is a shrubby climbing plant, 8 or 10 feet long. The fruit is baccate. It is a native of the East Indies. The part officinal is the fruit.

Piper Nigrum, Black Pepper.

The dried unripe berries of *Piper nigrum*; chiefly from the East Indies.

Characters.—Small, roundish, wrinkled, tegument brownish-black, containing a greyish-yellow globular seed. Odour aromatic. Taste pungent and bitterish.

Analysis.—Piperin, a neutral crystalline principle; an acrid soft resin, gum, bassorin, etc.

CONFECTIO PIPERIS.—Confection of Pepper. Black pepper powder, ℥ij.; caraway, powder, ℥iij.; clarified honey, ℥xv. Mix well. Given in hæmorrhoids with debility.

Dose.—℥j to ℥ij.

Actions and Uses.—A hot aromatic stimulant and tonic, but not much used in medicine. *Piperin*, in doses of gr. ij. to vj., every hour or two, has been lauded by some as a remedy in ague, and it appears to have succeeded frequently. It is given in the form of pill with conserve.

II.—CUBEBA OFFICINALIS, *Miquel*. Cubeb.

This is a climbing shrub with zigzag stems. It is a native of Java, Sumatra, and Borneo. The part officinal is the fruit.

Cubeba. Cubeb.

The dried unripe fruit of *Cubeba officinalis*; cultivated in Java.

Characters.—The size of black pepper, globular, wrinkled, blackish, supported on a stalk of rather more than its own length; has a warm camphoraceous taste, and characteristic odour.

Dose.—℥ss. to ℥ij., three or four times a-day.

Analysis.—About 2 per cent. of green volatile oil; 1 of yellow volatile oil; and 4 of a principle named cubebin; balsamic resin, wax, etc.

TINCTURA CUBEBAE.—Tincture of Cubebs. Cubebs, ℥iiss.; rect. spt., Oj.

Dose.—fʒss. to fʒij.

Oleum Cubebæ. Oil of Cubebs.

The oil distilled in Britain from cubebs.

Characters.—Pale greenish-yellow, with the peculiar odour and taste of cubebs.

Dose.—5 to 20 minims.

Actions and Uses.—A special stimulant, like copaiva, acting on the urinary organs, and arresting urethral discharges. It is used solely for gonorrhœa, and is nearly equal to copaiva. In leucorrhœa and catarrh of the bladder it sometimes does good, but often fails. As a carminative it is seldom given.

III.—ARTANTHE ELONGATA, *Miquel*. Matico.

This is a shrub about eight feet high, with large, thick leaves, very much reticulated, especially on the under surface. It is a native of moist forests of tropical America. The parts officinal are the leaves.

Maticæ Folia. Matico Leaves.

The dried leaves of *Artanthe elongata*; imported from Peru.

Characters.—From two to eight inches long, veined and tessellated on the upper surface, downy beneath, with a slightly astringent, warm taste, and aromatic odour.

Analysis.—A volatile oil, tannin, and a resin.

INFUSUM MATICÆ.—Infusion of Matico. Matico, ℥ss.; boiling dist. water, fʒx. Infuse half-an-hour, and strain.

Dose.—f̄j. to f̄iv.

Actions and Uses.—Astringent; but for internal use it has proved almost a failure, hæmorrhages not being at all successfully arrested by it. It is a tolerable styptic in small bleedings from leech-bites and incisions, but we have better ones. Its action in such cases is partly mechanical.

SALICACEÆ.—THE WILLOW FAMILY.

This order contains no officinal plant. The bark, however, of many species of *Salix* (Willow) contains a crystalline principle called *Salicin*, which is an excellent tonic and febrifuge. It ought to be introduced into the pharmacopœia.

CUPULIFERÆ, or CORYLACEÆ.—THE NUT FAMILY.

The plants of this order possess astringent properties, due to the tannin which they contain. It contains two officinal plants.

I.—*QUERCUS INFECTORIA*, *Olivier.* The Gall Oak.

This is a small tree or shrub. It is a native of Asia Minor. The parts officinal are excrescences on the branches.

Galla. Galls.

Excrescences on *Quercus infectoria*, caused by the punctures and deposited ova of *Diplolepis Gallæ tinctoriæ*, *Latr.*

Characters.—Hard, heavy, globular bodies, from a quarter to three-quarters of an inch diameter, tuberculated, the tubercles and intervening spaces smooth; bluish-green on surface, yellowish-white within, with a small central cavity; intensely astringent.

Analysis.—About 30 to 70 per cent. of tannin; gallic acid, resin, etc.

TINCTURA GALLÆ.—Tincture of Galls. Galls, ℥iiss.; proof spt., Oj. Make in the usual way.

Dose.—f℥ss. to f℥ij.

UNGUENTUM GALLÆ.—Ointment of Galls. Galls, in fine powder, gr. lxxx.; benzoated lard, ℥j. M. Useful in piles. See formula under Tannic Acid. Another useful one is—℞ Acidi tannici, gr. xx.; extracti belladonnæ, gr. xx.; olei olivæ, ℥ij; adipis præparati, ℥vj. Misce.

UNGUENTUM GALLÆ CUM OPIO.—Ointment of Galls and Opium. Ointment of galls, ℥j.; opium, powder, gr. xxxij. Mix. For painful hæmorrhoids.

Actions and Uses.—Powerfully astringent, but not very much employed, tannin and gallic acid being preferable. It may, however, be used in the hæmorrhages and discharges for which these others are given. It is also an excellent antidote in cases of poisoning with tartarated antimony, ipecacuanha, and the vegetable alkaloids. Externally, galls have long been in repute as an astringent in hæmorrhoids, in relaxed uvula and tonsils, and in mucous discharges.

Acidum Tannicum. Tannic Acid.

An acid, $C_{27}H_{22}O_{17}$, obtained from galls.

Characters and Tests.—A pale-yellow amorphous powder, with a strong astringent taste and acid reac-

tion, readily soluble in water and rectified spirit, but sparingly in ether. Dissolved in water, it precipitates a solution of gelatine yellowish-white, and the persalts of iron of a bluish-black colour. Leaves no residue when burned with free access of air.

Dose.—2 to 10 grains.

Preparation.—Galls, in coarse powder, ℥viii. ; ether, Oij. ; dist. water, f℥vj. On percolating, the tannin is separated by means of the ether ; two distinct fluid strata are seen ; the heavier, containing the tannin, is evaporated on a water-bath, and the residue dried in a hot-air chamber, temperature not exceeding 212°.

GLYCERINUM ACIDI TANNICI.—Glycerine of Tannic Acid. Tannin, ℥j. ; glycerine, f℥iv. Mix. Useful for chapped nipples.

TROCHISCI ACIDI TANNICI.—Tannic Acid Lozenges. Tannin, tolu, sugar, gum, water. Each lozenge contains gr. $\frac{1}{2}$ tannic acid.

Dose.—1 to 6 lozenges.

SUPPOSITORIA ACIDI TANNICI.—Tannic Acid Suppositories. Tannic acid, benzoated lard, white wax, and oil of theobroma. There are 3 grains of tannin in each.

SUPPOSITORIA ACIDI TANNICI CUM SAPONE.—Tannic Acid Suppositories with Soap. These contain tannin, glycerine of starch, curd soap, and starch. Each suppository contains 3 grains of tannic acid.

Incompatibles.—Alkalies and their carbonates ; the mineral acids, acetate of lead, nitrate of silver, lime water, tartar emetic, the persalts of iron.

Actions and Uses.—An astringent of great power, well adapted for the various hæmorrhages for which gallic acid is given, and for chronic mucous discharges, and the diarrhoea and perspirations of hectic. From its

chemical action on gelatine, it has been proposed as an anthelmintic, but it has not proved very successful; at least we have not seen it so. It is more apt to induce derangement of the stomach than gallic acid, and it certainly aggravates dyspepsia. Extensively used in the form of gargle, gr. v. to x. to the ounce of water, and as an injection in mucous and muco-purulent discharges from the vagina and urethra. In the form of ointment it has done good in eczema and herpes; and combined with a little opium, I have frequently known it beneficial in piles.

Formula for Hæmorrhoids.—℞ Acidi tannici, gr. xx.; sulphuris sublimati, gr. x.; pulveris opii, gr. vj.; unguenti cetacei, ʒj. Misc. For chapped nipples and ulcerated sore throat the following will be found useful: ℞ Acidi tannici, gr. xx.; glycerini, fʒj. M.

Acidum Gallicum. Gallic Acid.

A crystalline acid, $H_3C_7H_3O_5.H_2O$, prepared from galls.

Characters and Tests.—In whitish, or pale fawn, acicular prisms, very sparingly soluble in cold, but freely so in boiling water and rectified spirit. Gives a bluish-black precipitate with a persalt of iron. It gives no precipitate with solution of isinglass.

Preparation.—Galls are exposed under the influence of air and moisture for six weeks, at a temperature of 60° to 70° , when the tannin in them is decomposed, and converted into gallic acid.

Dose.—10 to 15 grains.

GLYCERINUM ACIDI GALLICI.—Glycerine of Gallic Acid. Gallic acid, ʒj.; Glycerine, fʒiv. Mix. 1 part in 6 by weight.

Actions and Uses.—An astringent of great power. It is of considerable value in diarrhœa and in hæmorrhage from the lungs, stomach, kidney, bladder, and uterus. In albuminuria, and fatty kidney, it often arrests, temporarily, at least, the secretion of fat and albumen. In hæmoptysis beneficial results are seldom obtained until the dose is increased to gr. xl. or lx. per diem. The night sweating of phthisis is often mitigated by it.

Formula.—℞ Acidi gallici, gr. lx. ; pulveris opii, gr. iij. ; pulveris aromatici, gr. xi. Misc. Divide in pulveres sex, quorum capiat unum sextis horis. Useful in most kinds of hæmorrhage, and augmented discharges, diarrhœa, etc.

Incompatibles.—The sesquisalts of iron.

II.—QUERCUS PEDUNCULATA, *Willd.* Common Oak.

This is a large tree, 80 or 100 feet in height. It is the common wild oak of Britain. It is the *Quercus Robur*, *Linn.* The part officinal is the bark.

Quercus Cortex. Oak Bark.

The dried bark of the small branches and young stems of *Quercus pedunculata*, collected in spring from trees growing in Britain.

Characters.—Covered with a greyish, shining epidermis, cinnamon-coloured on the inner surface, fibrous, brittle, and powerfully astringent.

Analysis.—About 20 per cent. of tannin, some gallic acid, sugar, pectin, and salts.

DECOCTUM QUERCUS.—Decoction of Oak Bark. Oak bark, bruised, $\bar{3}i\frac{1}{4}$; dist. water, Oj. Boil ten minutes, and strain.

Dose.—f̄j. to f̄iv. This is also the proper strength for injection, etc.

Actions and Uses.—Astringent. In the form of decoction, it may be used in chronic diarrhœa and dysentery, and in intestinal hæmorrhage. Topically, it is much employed as an injection in leucorrhœa, in prolapse of the uterus and rectum, and as a gargle in relaxed uvula and sore throat. It may also be applied to the flabby granulations of unhealthy ulcers. It is, on the whole, an astringent entitled to more support than it has met with of late.

Incompatibles.—Same as tannic acid.

CONIFERÆ. —THE CONE-BEARING FAMILY.

The plants of this order furnish pitch and turpentine, both of which are used in medicine. These are obtained from the stems. It contains nine officinal plants.

- I.—PINUS TÆDA, *Linn.* Frankincense Pine.
- II.—PINUS PALUSTRIS, *Miller's Dict.* Swamp Pine.
- III.—PINUS PINASTER, *Aiton.* Cluster Pine.
- IV.—PINUS SYLVESTRIS, *Linn.* Scotch Fir.

The *Pinus Tæda* is a large tree, 70 or 80 feet high. The leaves are in threes, 6 to 10 inches long. It is a native of the Southern States of America, and is abundant in the swamps of Virginia.

Pinus palustris is a somewhat smaller tree. The leaves are in threes, of a brilliant green colour, and about a foot long. It grows in dry soil, and is a native of Central America.

Pinus Pinaster is also a large tree, with very long twining leaves. It is a native of the South of Europe.

Pinus sylvestris is a large tree with its leaves in pairs. It is a native of the Highlands of Scotland. The parts officinal of all these species are the stems.

Thus Americanum. Common Frankincense.

The concrete turpentine of *Pinus Tæda* and *Pinus palustris*; from the Southern States of North America.

Characters.—A softish, bright-yellow, opaque solid, resinous, but tough, having the odour of American turpentine.

Uses.—For plasters, chiefly to give odour and consistency. A constituent of the Emp. Picis.

Oleum Terebinthinæ. Oil of Turpentine.

The oil distilled from the oleo-resin (turpentine), obtained from *Pinus palustris*, *Pinus Tæda*, and sometimes *Pinus Pinaster*. Imported from America and France.

Characters.—Limpid, colourless, with a strong peculiar odour, and bitter and pungent taste.

Dose.—10 minims to f̄iv.

CONFECTIO TEREBINTHINÆ.—Confection of Turpentine. Oil turpentine, f̄ij. ; liquorice powder, ̄ij. ; clarified honey, ̄ij. M. Anthelmintic.

Dose.—̄ij. to ̄ij.

ENEMA TEREBINTHINÆ.—Enema of Turpentine. Oil of turpentine, f̄ij. ; mucilage of starch, f̄xv. Mix.

LINIMENTUM TEREBINTHINÆ.—Liniment of Turpentine. Soft soap, ̄ij. ; camphor, ̄ij. ; oil of turpentine,

f̄xvj. Mix. Stimulant. Useful as a dressing for extensive burns when the vital powers are sinking; also in rheumatic pains and neuralgia.

LINIMENTUM TEREBINTHINÆ ACETICUM.—Liniment of Turpentine and Acetic Acid. Oil turp., f̄j. ; acetic acid, f̄j. ; liniment of camphor, f̄j. M. A strong counter-irritant (called St John Long's Liniment).

UNGUENTUM TEREBINTHINÆ.—Ointment of Turpentine. Oil turp., f̄j. ; resin, gr. lx. ; yellow wax, ̄ss. ; prepared lard, ̄ss. M.

Actions and Uses.—Anthelmintic, antiseptic, cathartic, diuretic, astringent, stimulant, epispastic. As an anthelmintic it often proves successful in tape-worm, operating by killing the parasite; it is also useful in lumbrici and ascarides. As a cathartic it succeeds best with castor oil, and may be given in constipation resulting from cerebral disease, in spasmodic diseases, such as chorea, hysteria, epilepsy, tetanus; in sciatica, lumbago, and other neuralgic affections. As an astringent, in purpura hæmorrhagica, tympanitis, and passive hæmorrhages. As a diuretic it is not much employed; but it is of service in gleet and chronic cystirrhœa, and, from increasing the quantity of lithic acid in the urine, it does good sometimes in gravel. It is contra-indicated if there be any inflammatory tendency. As a stimulant, it has been given in the adynamic stage of continued fever, in chronic rheumatism, in iritis, mucous hæmorrhages from defective vascular tone, and in neuralgia. Externally it is one of our most useful and effectual counter-irritants. It is applied to the soles of the feet in the stupor of continued fever, in coma, apoplexy, and narcotic poisoning; over the chest in cardiac and pulmonary disease, and over the abdomen in peritonitis,

painters' colic, and renal disease. It is also thrown up the rectum as an anthelmintic, and as a counter-irritant in coma. It is a powerful antiseptic, and is one of the best remedies for chronic bronchitis with muco-purulent expectoration. It is also good in gangrene of the lungs, and is an excellent remedy in passive hæmorrhages.

One of the best papers on the therapeutic action of turpentine is by the late Dr J. W. Begbie, published in the *Edinburgh Medical Journal* for July, 1871.

Resina. Resin.

The residue of the distillation of the turpentine from various species of *Pinus*, *Linn.*, and *Abies*, *Lam.*

Characters.—Semi-opaque, yellowish, brittle; fracture shining; odour and taste slightly terebinthinate. It is readily fusible; burns with a dense yellow flame and much smoke.

EMPLASTRUM RESINÆ.—Resin Plaster. Resin, ℥iv. ; lead plaster, ℔ij. ; hard soap, in powder, ℥ij. M. Stimulant, and for affording support to weak parts.

UNGUENTUM RESINÆ.—Ointment of Resin. Resin, ℥viij. ; yellow wax, ℥iv. ; simple oint., ℥xvj. M. A stimulant to indolent and foul ulcers.

Actions and Uses.—External stimulant; used chiefly for giving consistency to plasters and ointments.

V.—ABIES BALSAMEA, *Aiton.* Balm of Gilead Fir.

This is a small tree, with leaves less than an inch long, green above and white beneath. It is a native of the swamps of Canada. The part officinal is the stem.

Terebinthina Canadensis. Canada Balsam.

The turpentine obtained by incision from the stem of *Abies balsamea*; from Canada.

Characters.—Of a honey colour and consistency when fresh, but gradually thickens into a resinous-looking mass; with a terebinthinate odour, and an acrid taste, solidifying when mixed with a sixth of its weight of magnesia.

Dose.—20 to 30 grains, three or four times a-day.

It enters into the composition of *charta epispastica*, and *collodium flexile*.

Actions and Uses.—A stimulant and tonic to the mucous membranes, especially of the bladder and urethra. It proves useful in gleet, leucorrhœa, and cystirrhœa.

VI.—*ABIES EXCELSA, D.C.* Spruce Fir.

This is a large tree, sometimes 150 feet high. It has tetragonal leaves. It is a native of Norway and other parts of Europe. The part officinal is the stem.

Pix Burgundica. Burgundy Pitch.

A resinous exudation from the stem of *Abies excelsa*, melted and strained. Imported from Switzerland.

Characters.—Hard and brittle, gradually taking the form of the vessel in which it is kept; pale yellow colour.

Adulterations.—It is sometimes a mere mixture of turpentine, resin, and palm oil. It should be without bitterness, free from vesicles, and give off no water when heated.

EMPLASTRUM PICIS.—Pitch Plaster. Burgundy pitch, ℥xxvj.; common frankincense, ℥xiiij.; resin, ℥ivss.; yellow wax, ℥ivss.; expressed oil of nutmeg, ℥j.; olive

oil, f̄ij.; water, f̄ij. Add the oils and water to the frankincense, Burgundy pitch, resin, and wax, previously melted together; then, constantly stirring, evaporate to a proper consistence. Burgundy pitch also enters into the composition of Emplastrum Ferri.

Actions and Uses.—An external stimulant, and useful for affording support to a weak part. The plaster is also used as a stimulant to the chest in chronic bronchitis, and over the seat of rheumatic pains.

VII.—*LARIX EUROPEÆA, D.C., or ABIES LARIX, Rich.*

The Larch.

This is a tall tree, 60 to 70 feet high. Its leaves are in tufts or fascicles. It is a native of Europe. It is extensively cultivated in Britain. The part officinal is the bark.

Laricis Cortex. Larch Bark.

The bark, deprived of its outer layer, of *Larix europæa*, the Common Larch. It is used to prepare the tincture.

TINCTURA LARICIS. — Tincture of Larch. Larch bark, ʒiiss.; rect. spirit, Oj. Prepared by percolation.

Dose.—20 to 30 minims.

Actions and Uses.—Astringent and stimulant. As an astringent it is given in hæmorrhages, and to lessen mucous discharges from the lungs and genito-urinary passages. It has been recommended in the early stages of phthisis.

VIII.—*JUNIPERUS COMMUNIS, Linn.* Common Juniper.

This is an evergreen shrub, with short sharp-pointed linear leaves. The fruit is a succulent cone, about the size of currants. It is an indigenous plant. The part officinal is the fruit.

Oleum Juniperi. Oil of Juniper.

The oil distilled in Britain from the unripe fruit of *Juniperus communis*.

Characters. — Pale greenish-yellow, of a sweetish odour, and aromatic, hot taste.

SPIRITUS JUNIPERI. — Spirit of Juniper. Oil of juniper, f̄j.; rect. spt., f̄xlx. Dissolve.

Dose.—f̄ss. to f̄j.

Actions and Uses.—A stimulating diuretic, of considerable power; used chiefly along with others. In renal disease, or in presence of inflammatory symptoms, it should be withheld. It quickly imparts its odour to the urine. “Hollands” owes its flavour and diuretic properties to this oil. f̄ss. of the spirit of juniper is contained in f̄xvj. of *mist. creasot.*

IX.—JUNIPERUS SABINA, Linn. Common Savin.

This is a small shrub, with very small, adpressed leaves in four rows. Its fruit is smaller than that of the juniper. It is a native of Europe and Asia. The parts officinal are the “tops.”

Sabinæ Cacumina. Savin Tops.

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

Characters. — Twigs densely covered with minute, imbricated adpressed leaves in four rows; odour strong; taste acrid, bitter, resinous, and disagreeable.

Dose in powder.—4 to 10 grains.

TINCTURA SABINÆ. — Tincture of Savin. Savin tops, *dried*, ʒiiss.; proof spt., Oj. Proceed in the usual way.

Dose.—20 to 60 minims.

UNGUENTUM SABINÆ.—Ointment of Savin. Fresh savin, bruised, ℥viiij. ; yellow wax, ℥iiij. ; prepared lard, ℥xvj. Melt the lard and wax together, add the savin, and digest 20 minutes. Then remove the mixture, and impress through calico ; useful for keeping issues and blisters open.

Oleum Sabinæ. Oil of Savin.

The oil distilled in Britain from *fresh* savin.

Characters.—Pale yellow, or colourless.

Dose.—1 to 5 minims.

Analysis.—Resin, volatile oil, on which its properties depend ; gallic acid, extractive, etc.

Actions and Uses.—Emmenagogue and irritant. It has a stimulating effect on the uterus, and is occasionally employed in amenorrhœa with chlorosis. Being poisonous, however, its use demands caution, and it should not be employed where there is a tendency to inflammation of the uterus or pelvic viscera. Savin is occasionally surreptitiously used to produce abortion, but serious risk to life may be occasioned without the accomplishment of the cherished object. In cases of poisoning, use emetics, afterwards demulcents, opiates, and a general antiphlogistic treatment. Externally, the ointment is employed as an irritant to keep up discharges from a blistered surface, making a kind of chronic blister.

MONOCOTYLEDONES, *Juss.*

ZINGIBERACEÆ.—THE GINGER FAMILY.

The plants of this order have aromatic and stimulant properties. It contains two officinal plants.

I.—ZINGIBER OFFICINALE, *Roscoe.* The Ginger Plant.

This plant has a creeping rhizome. The stems are annual, and three or four feet high. The flowers are dark-purple. It is a native of the tropical parts of Asia, Africa, and America. The part officinal is the rhizome.

Zingiber. Ginger.

The scraped and dried rhizome of *Zingiber officinale* (*Amomum Zingiber*); from plants grown in the West Indies, India, and other countries.

Characters.—Knotty, palmated, hard, decorticated pieces, three or four inches long, yellowish-white, with a mealy fracture, hot taste, and aromatic odour. Powder yellowish-white.

TINCTURA ZINGIBERIS.—Tincture of Ginger. Ginger, ℥iiss. ; rect. spt., Oj. Proceed as usual.

Dose.—15 to 60 minims.

TINCTURA ZINGIBERIS FORTIOR.—Strong Tincture of Ginger. Essence of Ginger. Ginger, in fine powder, ℥x. ; rect. spt., Oj. Prepared by percolation.

Dose.—5 to 20 minims.

SYRUPUS ZINGIBERIS.—Syrup of Ginger. Strong tincture of ginger, fʒvj. ; syrup, fʒxix. Mix with agitation.

Dose.—fʒj.

Analysis.—Volatile oil, resin, and starch.

Actions and Uses.—An aromatic stimulant, tonic, and carminative. It is popularly employed for flatulence, and as a condiment; and in practice, very extensively, to give flavour to, or to correct, the griping tendency of other drugs. For this purpose it enters into the composition of many preparations of the pharmacopœia. When chewed, it irritates the mouth, and increases the flow of saliva; and it has been used in paralysis of the tongue. It stimulates the digestion a little, but should not be used in irritable stomach; and from its stimulant effect on the genito-urinary organs, it should be avoided in acute gonorrhœa, and where there is a tendency to stricture.

II.—ELETTARIA CARDAMOMUM, *Maton.* Cardamom.

This plant, like the preceding, has a large rhizome. Its flowering stems are 6 to 12 feet in height. The flowers are small, and the fruit is three-sided, three-celled, and three-valved. It is a native of Malabar. The officinal part is the fruit.

Cardamomum. Cardamoms.

The dried capsules of *Elettaria Cardamomum*, the Malabar Cardamom. The seeds are best kept in the capsules, which are to be removed when the seeds are employed. Cultivated in Malabar.

Characters.—Seeds obtusely angular, corrugated, reddish-brown, internally white, with a warm aromatic taste and odour, contained in ovate-oblong, triangular, pale-brown, coriaceous, ribbed pericarps.

TINCTURA CARDAMOMI COMPOSITA.—Compound Tincture of Cardamoms. Cardamoms, bruised, $\bar{5}\frac{1}{4}$; caraway, bruised, $\bar{3}\frac{1}{4}$; raisins, freed from their seeds, $\bar{5}ij$;

cinnamon, bruised, ʒss. ; cochineal, in powder, gr. lx. ; proof spirit, Oj. Proceed in the usual way.

Dose.—ʒss. to ʒij.

Actions and Uses.—Cardamoms contain a volatile oil, and to this their activity is due. They are carminative, aromatic, and stimulant. They are extensively employed as an adjunct to, and corrective of, other medicines, as the griping cathartics. They are also extensively used as agreeable condiments.

Two other plants of this natural order, though not officinal, are yet of some considerable importance.

CURCUMA LONGA, *Linn.* Turmeric.

The rhizome of this plant furnishes *Turmeric*, which is used as a test to detect the presence of free alkalies.

AMOMUM MELEGUETA, *Roscoe.*

The seeds of this plant furnish *Grains of Paradise*, which have properties resembling those of pepper.

IRIDACEÆ.—THE IRIS FAMILY.

The plants of this order have acrid, stimulant, and aromatic properties. Many of them furnish colouring matters. It contains only one officinal plant.

CROCUS SATIVUS, *Linn.* Common Crocus.

This plant has light-purple flowers, and is a native of Asia Minor. The officinal parts are the stigma and style.

Crocus. Saffron.

The dried stigma and part of the style of *Crocus sativus*; imported from France, Spain, and Italy.

Characters.—A thread-like style, terminated by three long, orange-brown stigmas, which are broadest at their summits; has a powerful aromatic odour. When rubbed on the moistened finger, it tinges it intensely orange-yellow. When pressed between folds of white filtering paper, it leaves no oily stain.

Analysis.—Albumen, mucilage, a colouring extractive matter, named polychroite, volatile oil, etc.

Adulterations.—The petals of the *Carthamus tinctorius*, and of the *Calendula arvensis*; and fibres of smoked beef, with pomegranate blossoms. The flowers are detected by the thickness of their structure when soaked in water, and the beef by the odour emitted on burning it.

TINCTURA CROCI.—Tincture of Saffron. Saffron, ʒj.; proof spt., Oj. Make in the usual way. For improving the colour of mixtures, etc.

Dose.—ʒʒj. to fʒij.

Actions and Uses.—Stimulant, but of little power. Said to exert an influence over the uterus, but as an emmenagogue it is not trustworthy. It has been lauded by some as a remedy for the lumbar pains attendant on menstruation. I have never seen it of any service in such cases. It is useful for flavouring and colouring mixtures.

The *Iris versicolor* furnishes the well-known American eclectic remedy, *Iridin*. The dose is 3 to 5 grains. Professor Rutherford found this substance a powerful hepatic stimulant. It is a valuable cholagogue. Four grains given at bedtime, followed by a seidlitz powder in the morning, is often very beneficial.

LILIACEÆ.—THE LILY FAMILY.

The plants of this order have diuretic, expectorant, and purgative properties. It contains only three official plants, but others also furnish officinal medicines.

I.—URGINEA SCILLA, *Steinheil*. Squill Plant.

This plant has a large bulb, the outer scales being reddish, the internal white. It has long leaves, and its flowering stem is three or four feet high. It is a native of the shores of the Mediterranean. The part officinal is the bulb.

Scilla. Squill.

The sliced and dried bulb of *Urginea Scilla*. From the Mediterranean coasts.

Characters.—Bulb pear-shaped, from one-half to ten pounds in weight; outer scales membranous, brownish-red, or white; inner scales thick, whitish, fleshy, juicy; taste mucilaginous, strongly and disagreeably bitter, somewhat acrid. The dried slices are white, or yellowish-white, slightly translucent, scentless, disagreeably bitter, brittle, and easily pulverisable if very dry, but if exposed, readily recovering moisture and flexibility.

Dose in powder.—1 to 3 grains.

Analysis.—An intensely bitter, uncrystallisable, semi-transparent substance, named scillitin; an acrid, poisonous, resinoid substance, skulein, etc.

PILULA SCILLÆ COMPOSITA.—Compound Squill Pill. Squill, in fine powder, $\bar{3}i\frac{1}{4}$; ginger, $\bar{3}j$.; ammoniac, $\bar{3}j$.; hard soap, $\bar{3}j$.; treacle, $\bar{3}ij$., or a sufficiency. Mix. An expectorant pill.

Dose.—5 to 10 grains.

PILULA IPECACUANHÆ CUM SCILLA contains one part of squill in seven parts.

TINCTURA SCILLÆ.—Tincture of Squill. Squill, ℥iiss.; proof spt., Oj. M. Proceed in the usual way. This is commonly prescribed in diuretic mixtures, such as in decoctum scoparii.

Dose.—10 to 30 minims.

ACETUM SCILLÆ.—Vinegar of Squill. Squill, bruised, ℥iiss.; diluted acetic acid, Oj.; proof spt., f̄iiss. Macerate the squill in the acid 7 days, strain, and add the spirit.

Dose.—15 to 40 minims.

SYRUPUS SCILLÆ.—Syrup of Squill. Vinegar of squill, Oj.; refined sugar, ℔iiss. Dissolve with the aid of heat.

Dose.—f̄iiss. to f̄j.

OXYMEL SCILLÆ.—Oxymel of Squill. Vinegar of squill, Oj.; clarified honey, ℔ij.

Dose.—f̄iiss. to f̄ij.

Actions and Uses.—Diuretic, expectorant, emetic, cathartic, and a narcotic-acrid poison. In large doses it produces inflammation of the alimentary and urinary canals, 24 grains having proved fatal. As an emetic or cathartic, it is seldom given, being less certain and suitable than many others we possess. It is a good deal employed, along with others, such as digitalis, juniper, and spirit of nitrous ether, as a diuretic in dropsies; and it succeeds better in general than in local effusions, and in asthenic cases; indeed, it is not admissible where inflammatory symptoms are present. A little calomel, or a saline purgative, also favours its operation. It is one of our most common and efficient expectorants, and is useful in chronic bronchitis, and pneumonia, and in the viscid

sputa of other chest affections. In some few cases it exerts its irritant action unusually (it may be owing to idiosyncrasy), not only on the alimentary canal, but also on the bronchial mucous membrane; here the addition of a little opium or hydrochlorate of morphia answers admirably, both in the way of prevention and cure. Some physicians believe it admissible even in acute chest diseases, but if given alone in these cases, it is rather apt to aggravate matters; combined, however, with opium and ipecacuanha it answers very well.

Incompatibles.—Persalts of iron, and the alkalies.

II.—ALOE VULGARIS, *Lam. Encycl.* Common Aloe.

This is a succulent plant. Its leaves are thick and fleshy, and have several spines on their margins. The flowers are yellow. It is a native of Africa, but is cultivated in the East and West Indies. The parts officinal are the leaves.

Aloe Barbadosis. Barbadoes Aloes.

The inspissated juice of the leaf of *Aloe vulgaris*; imported from Barbadoes.

Characters.—In dark-brown opaque masses, breaking with a dull conchoidal fracture; has a nauseous bitter taste, and a disagreeable odour, usually imported in gourds. Dissolves almost entirely in proof spirit, and during solution exhibits under the microscope numerous crystals.

Dose.—2 to 6 grains.

EXTRACTUM ALOES BARBADENSIS.—Extract of Barbadoes Aloes. A watery extract.

Dose.—2 to 6 grains.

PILULA ALOES BARBADENSIS—Pill of Barbadoes Aloes. B. aloes, ℥ij.; hard soap, ℥j.; oil caraway, f℥j.; conf. roses, ℥j. M. Divide into five-grain pills.

Dose.—5 to 10 grains.

PILULA ALOES ET FERRI.—Pill of Aloes and Iron. Sulphate of iron, ℥iiss; Barb. aloes, ℥ij.; comp. powd. of cinnamon, ℥iij.; conf. ros., ℥iv. Mix. An excellent cathartic and emmenagogue in amenorrhœa.

Dose.—5 to 10 grains.

ENEMA ALOES.—Enema of Aloes. Aloes, gr. xl.; carbon. of potash, gr. xv.; mucil. of starch, f℥x. Mix. It contains gr. iv. in f℥j. Barb. aloes enters into the composition of pil. cambog. co., pil. colocynth. co., and pil. colocynth. et hyoscyami.

III.—ALOE SOCOTRINA, *Linn.* Socotrine Aloe.

This plant has an unbranched raceme, and its flowers are scarlet at their base. It is a native of Socotra.

And other undetermined species of **ALOE**, *Linn.*

It is likely that several species furnish officinal aloes. The parts officinal are the leaves.

Aloe Socotrina. Socotrine Aloes.

Inspissated juice of the leaf of one or more undetermined species of Aloe, *Linn.* Procured from Socotra, and shipped to Europe by way of Bombay.

Characters.—In reddish-brown masses, opaque or translucent at the edges; breaks with an irregular or smooth and resinous fracture; has a bitter taste, and a strong but fragrant odour; dissolves entirely in proof spirit, and during solution exhibits under the microscope numerous minute crystals.

Dose.—2 to 6 grains.

ENEMA ALOES.—See preceding Enema.

EXTRACTUM ALOES SOCOTRINÆ.—Extract of Socotrine Aloes. A watery extract.

Dose.—2 to 6 grains.

EXTRACTUM COLOCYNTHIDIS COMPOSITUM.—1 part of extract in $2\frac{1}{4}$, nearly.

PILULA ALOES SOCOTRINÆ.—Pill of Socotrine Aloes. Soc. aloes, $\bar{3}ij.$; hard soap, in powder, $\bar{3}j.$; vol. oil of nutmeg, $f\bar{3}j.$; conf. roses, $\bar{3}j.$ Mix.

Dose.—5 to 10 grains.

PILULA ALOES ET ASSAFÆTIDÆ.—Pill of Aloes and Assafœtida. Socotrine Aloes, assafœtida, hard soap, confect. roses, of each, $\bar{3}j.$ M. Divide into five-grain pills.

Dose.—5 to 10 grains.

PILULA ALOES ET MYRRHÆ.—Pill of Aloes and Myrrha. Soc. aloes, $\bar{3}ij.$; myrrh $\bar{3}j.$; saffron dried, $\bar{3}ss.$; confect. roses, $\bar{3}iiss.$ M. Divide into five-grain pills.

Dose.—5 to 10 grains.

PILULA RHEI COMPOSITA.—Compound Rhubarb Pill. Rhubarb, $\bar{3}iij.$; soc. aloes, $\bar{3}ij\frac{1}{4}$; myrrh, $\bar{3}iiss.$; hard soap, $\bar{3}iiss.$; oil of peppermint, $f\bar{3}iiss.$; treacle, $\bar{3}iv.$ M. Make into five-grain pills.

Dose.—5 to 10 grains.

TINCTURA ALOES.—Tincture of Aloes. Aloes soc. $\bar{3}ss.$; ext. liquorice, $\bar{3}iiss.$; proof spt., Oj.

Dose.— $f\bar{3}j.$ to $f\bar{3}ij.$

DECOCTUM ALOES COMPOSITUM.—Compound Decoction of Aloes. Extract of soc. aloes., gr., cxx.; myrrh, saffron, of each, gr. xc.; carb. potash, gr. lx.; ext. liquorice, $\bar{3}j.$; comp. tinct. cardam., $f\bar{3}viiij.$; distilled water, enough to make up to $f\bar{3}xxx.$ For preparation, see *Brit. Phar.*

Dose.— $\bar{3}ss.$ to $\bar{3}ij.$

TINCTURA BENZOINI COMPOSITA contains gr. viij. in f̄ij.

VINUM ALOES.—Wine of Aloes. Soc. aloes, ʒiss.; cardamom seeds (bruised and freed from their pericarps) and ginger in coarse powder, of each, gr. lxxx.; sherry, Oij. Macerate for 7 days. A useful laxative, the card. and ginger preventing griping.

Dose.—f̄ij. to f̄ij.

Analysis.—The three most important constituents of aloes are—

1. A *Volatile Oil*, discovered by the Messrs Smith, of Edinburgh. This oil exists in very small quantity, only one ounce being obtained from 400 lb. of aloes. This oil is a pale-yellow, mobile liquid, specific gravity, 0.863, and boils at 266° or 271° C. To the presence of this oil is due the odour of aloes. It resembles in taste and smell oil of peppermint.

2. *Aloin*.—This is the most important constituent of aloes. It occurs in beautiful yellow crystals, which were discovered by the Messrs Smith in 1851. It constitutes about 25 per cent. of aloes. Aloin is the active principle of aloes, and is the only active principle contained in it. Its *dose* is gr. $\frac{1}{2}$ to j. in pill. Its uniformity in strength, the smallness of its dose, and the certainty of its action should cause it to be substituted for the crude drug. Its dose is so small that it can be easily introduced into tonic pills without making these pills too large, and being a crystalline substance, it is free from all impurities which are apt to cause griping.

3. *Resin*.—This is *inert* and harmless. Besides these three ingredients, aloes contains various impurities.

Actions and Uses.—Cathartic, cholagogue, and, in very small doses, slightly tonic. It acts by exciting the liver, and also the peristaltic action of the bowel, and appears to have a preference for the large intestine, and more so for the rectum. It seems, however, to affect the duodenum, or the mouths of the biliary ducts, an increased flow of bile resulting; and thus it is beneficial in some cases of jaundice. It is one of the most extensively employed cathartics in constipation, with deficient bile; and from its actions on the rectum, and by sympathy on the neighbouring uterus, it has done good as an emmenagogue. Where hæmorrhoids exist, and during pregnancy, it has been deemed inadmissible alone; but combined with hyoscyamus, or sulphate of iron, its acrimony is lessened or modified, and it may be then safely given. The iron seems also to increase the activity of the aloes. The pill of aloes and iron is good in deficient menstruation.

Formula.—℞ Aloin, gr. $\frac{1}{4}$; ferri sulph. exsic., gr. iss.; extract. nucis vom., gr. ss.; extract. belladon., gr. $\frac{1}{4}$. Mix. Fiat pil. One pill two or three times a-day. An excellent tonic pill for constipation, and in many respects superior to the pil. aloes et ferri of the *Brit. Phar.*

MELANTHACEÆ.—THE COLCHICUM FAMILY.

The plants of this order are poisonous, and most of the plants contain one or more alkaloids. They possess acrid, narcotic, emetic and purgative properties. It contains three officinal plants.

I.—COLCHICUM AUTUMNALE, *Linn.* Autumn Crocus.

This plant sends up its flowers in autumn. The flowers are generally reddish-purple. At the time of flowering there are no leaves. These appear soon afterwards, and in spring are six or eight inches long. The plant is indigenous to Britain. The parts officinal are the corm and seeds.

Colchici Cormus. Colchicum Corm.

The fresh corm of *Colchicum autumnale*, Meadow Saffron; collected about the end of June, and the same stripped of its coats, sliced transversely, and dried at a temperature not exceeding 150°. Indigenous.

Characters.—About the size of a chestnut, flattened on one side, where it has an undeveloped bud; furnished with an outer brown and an inner yellow coat; internally white; solid and fleshy; yielding when cut, a milky acrid and bitter juice. Dried slices about a line thick, moderately indented on one side, rarely on both; firm, flat, whitish, amylaceous.

Dose in powder.—2 to 8 grains.

EXTRACTUM COLCHICI. — Extract of Colchicum. Made from the *fresh* corms. See *Brit. Phar.*

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

EXTRACTUM COLCHICI ACETICUM.—Acetic Extract of Colchicum. Made from the *fresh* corms with acetic acid. See *Brit. Phar.*

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

VINUM COLCHICI.—Wine of Colchicum. Colchicum corm, *dried*, ℥iv.; sherry, Oj. Macerate 7 days; strain through calico; then add sufficient sherry to make Oj.

Dose.—10 minims, gradually increased to 30 minims.

Colchici Semina. Colchicum Seeds.

The seeds, fully ripe, of *Colchicum autumnale*.

Characters.—About the size of white mustard seed, very hard, reddish-brown.

TINCTURA COLCHICI SEMINUM.—Tincture of Colchicum Seeds. Colchicum seed, ʒiiss.; proof spirit, Oj. Make in the usual way.

Dose.—10 minims, carefully increased to 30 minims.

Analysis.—An alkaloid called Colchicia or Colchicin. It crystallises in slender needles, having a bitter taste. It resembles veratria, but differs in being soluble in water, being found in crystals, and in not irritating the nostrils. It exists in both the corm and the seeds, and is the active principle of the plant.

Actions and Uses.—Irritant, cathartic, diuretic and cholagogue. In large doses gives rise to vomiting, purging, burning pain in the throat, pain, sensation of fulness and heat about the abdomen; thirst, and intense depression of the circulation, death taking place from exhaustion, the result of inflammation of the intestines, and preceded occasionally by delirium, stupor, and insensibility. When these effects are present, they are to be met by demulcent drinks and tannic acid; and for the coma, if present, brandy, ammonia, and other stimulants. In medicinal doses, one of the most tangible effects is catharsis, yet colchicum is never given as a cathartic, owing to the other disagreeable concomitants. It has also a sedative effect on the circulation, yet we seldom seek its aid in this way, and for a similar reason. It is a diuretic, too, but uncertain, and not to be trusted. Notwithstanding these drawbacks, it is an indispensable

drug, and that owing to its influence over gout and gouty rheumatism. In it we have a drug on which we can depend: we know that, almost as certainly as chloroform will produce anæsthesia, colchicum will alleviate the paroxysm, and abbreviate the fit of gout. Its use, however, is not unattended with evil. In some, not by any means in all cases, the employment of it induces irregular or atonic gout. The kind of rheumatism in which it is beneficial is that supposed to be blended with gout, and jumping about from one small joint to another. It may be given during the paroxysm, or after the fit; during its operation the quantity of urea in the urine is increased. Small doses should be given at first, owing to its variable effect on different individuals; it ought then to be gradually pushed on until its physiological action is developed; this, in the majority of instances, but assuredly not in all, being necessary for successful therapeutic actions.

Professor Rutherford found colchicum a decided, but not a powerful cholagogue. It is thus beneficial in sluggish states of the liver. Colchicum generally may be said to stimulate the secreting organs. It has been recommended in dropsy and obstinate skin diseases. On account of its diminishing the heart's action, it is a drug which must be carefully watched.

II.—VERATRUM VIRIDE, *Willd.* Green Hellebore.

This plant has a large, fleshy rhizome, a stem 3 or 4 feet high, large oval leaves, and greenish flowers. It is a native of damp places in Canada and the United States. The part officinal is the rhizome.

Veratri Viridis Radix. Green Hellebore Root.

The dried rhizome of *Veratrum viride*. Collected in autumn in North America.

Characters.—Thick, fleshy rhizome, with numerous fibrous radicles.

Analysis.—Two alkaloids, *veratria* and *jervia*, on which its activity depends.

TINCTURA VERATRI VIRIDIS. — Tincture of Green Hellebore. Green hellebore root, ℥iv. ; rect. spt., Oj.

Dose.—5 to 20 minims.

Actions and Uses.—Irritant, purgative, emetic, and sedative. Diminishes the pulse very much, producing syncope if given freely. Dilates the pupil also. It has been found beneficial in puerperal convulsions. Given sometimes in rheumatism, neuralgia, and where we wish to abate the force of the circulation. Externally it has been employed in obstinate skin affections, and to destroy pediculi.

Veratrum album, Linn. White Hellebore.

This plant is a native of the Alps and the mountains of Europe. It is possessed of similar properties to the preceding plant, but is not officinal. The only other plant officinal in this order is—

III.—ASAGRÆA OFFICINALIS, Lind. Sabadilla.

This is a bulbous plant with very long linear leaves, and a flowering stem about 6 feet high. The flowers are arranged on the upper 18 inches of the *scape*. It is a native of the eastern side of the Mexican Andes. The part officinal is the fruit.

Sabadilla. Cevadilla.

The dried fruit of *Asagraea officinalis*. Imported from Mexico.

Characters.—Fruit about $\frac{1}{2}$ inch long, consisting of three light-brown papyraceous follicles, each containing from one to three seeds, which are about $\frac{1}{4}$ inch long, blackish-brown, shining, slightly winged, with an acrid bitter taste.

Analysis.—*Veratria*, in union with gallic acid, *sabadilline*, and *sabatine*.

Actions and Uses.—Anthelmintic, stimulant, cathartic, but also highly poisonous. It is employed on the Continent in tape-worm and ascarides; and as an external stimulant in chronic rheumatism and paralysis, and for destroying pediculi. It is used for preparing *veratria*. Its internal use requires the utmost caution.

Veratria. Veratria.

An alkaloid ($C_{32}H_{52}N_2O_8$) obtained from *Cevadilla*; not quite pure.

Characters and Tests.—A greyish-white powder, uncrystallisable, without smell, of an intensely acrid and bitter taste, powerfully irritating to the nostrils, the smallest portion exciting violent sneezing. It is insoluble in water, soluble in ether and in spirit. Acids dissolve it readily, traces of an insoluble brown resinoid matter being left. Heated with access of air, it melts into a yellow liquid, and at length burns away, leaving no residue.

Prepared from *sabadilla* by maceration in water and spirit, and precipitation by solution of ammonia, etc.

Adulterations.—Lime occasionally; heated in a platinum spoon, the pure leaves no residue.

Dose.— $\frac{1}{30}$ grain in pill.

UNGUENTUM VERATRÆ.—Ointment of Veratria. Veratria, gr. viij. ; olive oil, fʒss. ; prepared lard, ʒj. Rub the oil and veratria well together, then add the lard.

Actions and Uses.—A general stimulant, but a strong irritant poison, occasioning inflammation of the alimentary canal, vomiting, and diarrhœa; the least particle also inflaming the lining membrane of the nostrils, and producing coryza. In very small doses it stimulates generally the secretions of the skin, kidney, and intestines. It was at one time highly praised as a remedy in neuralgia, for which purpose it was used internally and externally; but we do not now trust it much in this many-formed disease. On the Continent it has been used in pneumonia, and has acquired also a kind of name in acute rheumatism, but it is not believed in here for these diseases. In the form of ointment, it is recommended in strumous diseases of joints. If heat in the throat, pain in the stomach, vomiting, or diarrhœa result, it should be discontinued. In poisoning, give emetics, demulcent drinks, tannin, and stimulants, such as coffee, brandy, and ammonia.

For external use, the ointment is sometimes valuable in rheumatism and allied affections. It is also a good application in the itchiness of skin so common in the aged, provided the skin be unbroken.

SMILACEÆ.—THE SARSAPARILLA FAMILY.

The plants of this order have mucilaginous and demulcent properties. It contains only one officinal plant.

SMILAX OFFICINALIS, *Humb. and Bonpl.* Sarsaparilla.

This is a prickly, twining plant, with large leaves. It is a native of Central America. The part officinal is the root.

Sarsæ Radix. Jamaica Sarsaparilla.

The dried root of *Smilax officinalis*. Native of Central America; imported from Jamaica.

Characters.—Roots, size of a goose-quill, generally many feet in length, reddish-brown, covered with rootlets, and folded in bundles about eighteen inches long; scentless; taste mucilaginous, feebly-bitterish, faintly acrid.

Analysis.—A white, crystallisable, neutral principle, *smilacin*, volatile oil (lost in drying), acrid, bitter resin, lignin, starch, etc.

EXTRACTUM SARSÆ LIQUIDUM.—Liquid Extract of Sarsaparilla. This is prepared with water and rectified spirit. Specific gravity, 1.095.

Dose.—f̄ij. to f̄ss.

DECOCTUM SARSÆ.—Decoction of Sarsaparilla. Jamaica sarsaparilla, not split, ʒiiss.; boiling dist. water, Oiss. Digest for an hour, boil for ten minutes in a covered vessel, strain. The product should be Oj.

Dose.—f̄ij to f̄x., three or four times a-day.

DECOCTUM SARSÆ COMPOSITUM.—Compound Decoction of Sarsaparilla. Jam. sarsap., ʒiiss.; sassafras chips, ʒ¼; guaiac wood turnings, ʒ¼; fresh liquorice root, ʒ¼; mezereon, gr. lx.; boiling dist. water, Oiss.

Digest. Prepare as the last. The product should be Oj.

Dose.—f̄ij. to f̄x., three or four times a-day.

Actions and Uses.—Diaphoretic, tonic, and alterative. Much discrepancy of opinion exists in regard to the therapeutic actions of this drug, but it seems to possess, when fresh, no insignificant power. It is given in scrofula and secondary syphilis; and the concomitants of these diseases, such as ulcers, cutaneous eruptions, nodes, indurated glands, caries, necrosis, articular swellings, and rheumatism, often improve under a protracted course of it. We are well aware that it has often been employed for months in strumous and syphilitic cases without apparent benefit; but this may have been owing to inert specimens of the drug, the active part being easily expelled. This want of success has led many eminent men to doubt its virtues, and if they employ it at all, it is only as a vehicle for more active alteratives, such as the iodide of potassium. There are others who, sceptical in regard to its alterative or anti-syphilitic powers, still think it a kind of restorative after an exhausting course of mercury (a line of practice not now common), or in cases of debility from grave strumous disease; and some believe it capable of strengthening the generative powers.

Incompatibles.—Acetate of lead and lime water.

PALMÆ.—THE PALM FAMILY.

The properties of this order are very various, many of the plants yielding excellent edible fruits. The medicinal properties are anthelmintic. It contains only one officinal plant.

ARECA CATECHU, *Linn.* Betel-nut Tree.

This is an elegant tree, 40 or 50 feet high, with very large pinnate leaves. It is a native of the Malay Archipelago. The parts officinal are the seeds.

Areca. Areca Nut.

The seed of Areca Catechu, the Betel-nut Tree. Imported from the East Indies.

Characters.—Hard, round, reddish-brown, about one inch by three-fourths.

Dose.— $\bar{3}\frac{1}{2}$ to $\bar{3}\frac{3}{4}$.

Actions and Uses.—Astringent and anthelmintic. It contains tannin, and is, therefore, astringent. It is employed chiefly as an anthelmintic for tape-worm and ascarides. It is much relied on by veterinary surgeons as a vermifuge for dogs. From the seeds is prepared an extract resembling catechu, and it is powerfully astringent.

GRAMINEÆ.—THE GRASS FAMILY.

This is the last family of flowering plants, and is one of the most important orders. It is very useful in furnishing articles of diet. It contains four officinal plants.

I.—HORDEUM DISTICHON, *Linn.* Barley.

This is the common cultivated *Barley* of Britain. It is a native of Tartary. The parts officinal are the seeds.

Hordeum Decorticatum. Pearl Barley.

The seeds of *Hordeum distichon*, deprived of their husks. Cultivated in Britain.

Characters.—White, rounded, retaining a trace of the longitudinal furrow.

DECOCTUM HORDEI.—Decoction of Barley. Pearl barley, ʒij. ; dist. water, Oiss. Wash the barley in cold water, and reject the washings ; boil with the distilled water for twenty minutes in a covered vessel, and strain. For soothing drinks and injections.

Uses.—A nutritious food ; and in medicine useful as a demulcent drink in catarrh, dysentery, and inflammation of the bladder.

II.—TRITICUM VULGARE, *Villars*. Common Wheat.

This is the common cultivated *Wheat* of Britain. It is a native of Tartary. The parts officinal are the seeds.

Farina Tritici. Wheaten Flour.

The grain of wheat, *Triticum vulgare*, ground and sifted. Used for preparing Cataplasma. It is also a most important article of diet.

Mica Panis. Crumb of Bread.

The soft part of bread made with wheat flour. Used in Cataplasma carbonis, and as an excipient in various pills.

Amylum. Wheat Starch.

Starch procured from the seed of *Triticum vulgare*, Common Wheat.

Characters.—In white, columnar masses ; rendered blue with iodine.

GLYCERINUM AMYLI.—Glycerine of Starch. Starch, ʒj. ; glycerine, fʒviiij. Mix intimately, then place in a porcelain dish, and apply heat gradually to 240°, stirring until a translucent jelly is formed.

MUCILAGO AMYLI.—Mucilage of Starch. Starch, gr. cxx.; dist. water, f̄x. Triturate, then boil a few minutes. Starch is also contained in pulv. tragacanth. co., 1 part in 6.

Uses.—Demulcent. Used in the form of enema in diarrhoea and dysentery. The powder is dusted on excoriations, incipient bed sores, and erythematous patches. The mucilage of starch enters into the composition of four of the six officinal enemata.

III.—**SACCHARUM OFFICINARUM**, *Linn.* Sugar Cane.

This plant has a stem 6 to 12 feet high. The *pannicle* is from 1 to 3 feet in length. Its native country is uncertain. It is cultivated extensively in the West and East Indies. The part officinal is the stem.

Saccharum Purificatum. Refined Sugar $C_{12}H_{22}O_{11}$.

The crystallised refined juice of the stem of *Saccharum officinarum*; from plants cultivated in the West Indies, etc.

SYRUPUS.—Syrup. Refined sugar, lbv.; dist. water, Oij. Dissolve with the aid of heat. Used for suspending insoluble substances, and as an agreeable adjunct to mixtures.

Uses.—Nutritive, emollient, and demulcent. Used in coughs, in irritant poisoning, and for making syrups, lozenges, confections, etc.

Theriaca. Treacle.

The uncrystallised residue of the refining of sugar.

Actions and Uses.—Emollient, laxative and demulcent. Used chiefly for pills, electuaries, and as a vehicle for powders.

IV.—SECALE CEREALE, *Linn.* Common Rye.

This plant is the Common Rye. It is a native of the Caspian desert. The part officinal is the diseased fruit.

Ergota. Ergot.

The sclerotium (compact mycelium or spawn) of *Claviceps purpurea*, *Tulasne*, produced within the paleæ of *Secale cereale*, Common Rye.

Characters.—Subtriangular, curved, with a longitudinal furrow on the concave side, obtuse at the ends; from one-third of an inch to an inch and a-half in length; of a violet-brown colour on the surface, yellowish within; solid, frangible, fracture short, odour faintly marked, but strong if the powder be triturated with solution of potash.

Analysis.—A reddish-brown extract, soluble in water, named *ergotin*, on which the properties of the drug depend; a colourless fixed oil, soluble in ether, and which is poisonous; ecboline.

Adulterations.—Plaster of Paris, and flour paste, carefully shaped and coloured. These are not very easily detected; the characters above given should be attended to.

Dose in powder.—20 to 30 grains.

EXTRACTUM ERGOTÆ LIQUIDUM.—Liquid Extract of Ergot. This is prepared by means of ether spirit and water.

Dose.—fʒss. to fʒj.

TINCTURA ERGOTÆ.—Ergot, bruised, ʒv.; proof spt., Oj. Make in the usual way.

Dose.—20 to 60 minims.

INFUSUM ERGOTÆ.—Infusion of Ergot. Ergot, ʒ¼; boiling dist. water, fʒx. Infuse half an-hour.

Dose.—During parturition, f̄ij. to f̄iiij.; renewed in half-an-hour, if necessary. For other purposes, f̄j. to f̄ij.

Actions and Uses.—Ergot contracts the smaller arteries, exerts a special action over the uterus, and causes contraction of that organ. It also increases the arterial pressure. In doses of 20 grains or so, good ergot exerts a specific power over the uterus, causing contraction of the muscular fibres. It is the only drug on which we can rely for this purpose, borax being much less certain. It has little influence over the virgin uterus, unless when active, as at a menstrual period; but possesses great power over the pregnant uterus, especially when the expulsive contractions are begun. These it often recalls when in abeyance, and strengthens and quickens when weak or languid. It is extensively used in midwifery practice, to promote delivery when the uterine contractions are feeble. It should not be given if the os is not dilated, or if the soft parts are very rigid; nor in cases of obstruction from disproportion, deformity, or mal-presentation. Many also are against its being given in primiparous cases. It commonly operates in from five to twenty minutes; and I have observed that a speedy and a vigorous action often concurs. Ergot is given also to promote the expulsion of the placenta, to expel clots, polypi, and hydatids. In uterine hæmorrhage it is of great service, and it does good occasionally in amenorrhœa; but it is not to be relied on in leucorrhœa. There is little doubt but that ergot endangers the life of the foetus, though only when given in excessive doses. From some little experience, we should say that ̄j. taken in doses of ̄j. at a time, would almost certainly occasion the death of the child;

the mother at one time being little the worse, at another experiencing nausea, headache, vertigo, pain and spasm of the stomach, and depression of the pulse. It probably kills both by arresting the utero-placental circulation, and by a specific influence on the circulation of the fœtus. Ergot increases the permanent contraction of the uterus rather than causes regular labour pains. It is not a reliable agent to bring on premature labour, mechanical means being far preferable. For the expulsion of the placenta, and for *post-partum* hæmorrhage, it is an invaluable medicine. It is good in hæmorrhages of all kinds, being one of the most efficacious drugs which we possess for arresting them. In fibroids of the uterus, especially mural and submucoid, it is the best remedy we have. It causes the tumours to diminish in size. For this purpose many prefer the subcutaneous injection of ergotin. It has also been recommended in enlarged spleen, in cystitis, whooping cough, typhoid fever, neuralgia. It has been found useful in atony of the bladder. In heat apoplexy, or sunstroke, ergot has proved of service. It diminishes the secretion of milk. When ergot is used for a lengthened period along with the food, as among rye-eating people, a singular disease called "ergotism" is supposed to be occasioned. There are two species of disorder:—1. Convulsive ergotism, characterised by dimness of sight, giddiness, thirst, imperceptible pulse, cramp, pains in the chest and limbs, insensibility, convulsions, and death in a day or two. 2. Gangrenous ergotism, attended with langour, a sensation of a multitude of insects crawling over the body; then, in a few days, cold, stiff, painful, benumbed limbs, fever, with a tendency to hæmorrhage; finally, dry gangrene of the limbs sets in; the fingers or toes shrivel or drop

off, and the patient either recovers by the setting in of healthy granulation, or sinks from exhaustion.

Ergotin, the active principle of ergot, is not officinal ; but gr. j. to iv., with double that quantity of water, may be injected subcutaneously in cases where ergot is required. In severe cases of uterine hæmorrhage, in uterine fibroids, etc., this is the most effectual method of administering ergot.

CRYPTOGAMOUS PLANTS.

FILICES.—THE FERN FAMILY.

The plants of this order are generally possessed of demuculent and astringent properties. It contains only one officinal plant.

ASPIDIUM FILIX-MAS, *Swartz*. Male Fern.
(Often called *Lastrea Filix-mas*.)

This fern has a short thick rhizome, decumbent, and sometimes rising obliquely a few inches above the ground. It has handsome fronds which form circular tufts, 2 to 3 feet high. They are stiff and erect. The *sori* are large and are situated near the base of the segments. It is a common fern in Britain. The part officinal is the rhizome.

Filix-mas. Male Fern.

The dried rhizome, with the bases of the foot-stalks and portions of the root fibres of *Aspidium Filix-mas*, *Swartz*. Indigenous ; collected in summer.

Characters.—Tufted, scaly, greenish-brown ; powder greenish-yellow, with a disagreeable odour, and a nauseous, bitter, somewhat astringent taste.

Analysis.—An odorous volatile oil, in very small proportion, to which its anthelmintic power is due; fixed oil, fecula, gum, sugar, etc.

Dose of the Powdered Root.—ʒj to ʒij.

EXTRACTUM FILICIS LIQUIDUM.—Liquid Extract of Male Fern. Fern root in coarse powder, ℥ij.; ether, Oiv., or a sufficiency. Mix the fern root with Oij. of the ether; pack closely in a percolator; and add the remainder of the ether at intervals, until it passes through colourless. Let the ether evaporate on a water-bath, or recover it by distillation, and preserve the oily extract. It is a dark-green oleo-resin, of the consistence of thick syrup, with an ethereal and somewhat disagreeable odour.

Dose.—15 to 30 minims.

Actions and Uses.—Anthelmintic, and one of the most (if not the most) efficient and successful we possess for tape-worm. That it occasionally fails, we think, is in great part owing to inert specimens or preparations from a wrong plant, and this may be the reason why so old a vermifuge has been so long in again obtaining general confidence. The liquid extract, pretty recently prepared from the root collected in summer, is the best form, and it should be given soon after the bowels have been well evacuated by an energetic cathartic. The best and most successful plan is to give min. xxx. of the extract in ʒij. to ʒiv. of a strong infusion of quassia or chiretta, following it up, if necessary, with a purgative.

Formula.—℞ Extracti filicis liquidi, min. xxx.; olei anisi, minimum; infusi chiratæ, fʒij. Misce. fiat haustus.

LICHENES.—THE LICHEN FAMILY.

The properties of this order are nutrient and bitter tonics. It contains only one officinal plant.

CETRARIA ISLANDICA, *Acharius*. Iceland Moss.

This lichen is not uncommon in many mountainous parts of Britain. The whole plant is officinal.

Cetraria. Iceland Moss.

The entire lichen, *Cetraria islandica*. Native of the North of Europe.

Characters.—Foliaceous, lobed, crisp, cartilaginous, brownish-white, paler beneath, bitter, and mucilaginous. A strong decoction gelatinises on cooling.

Analysis.—Two starchy matters, lichenin and inulin; a bitter principle, cetrarin. It contains about 80 per cent. of starchy matters. Cetrarin is an acid, sometimes called cetraric acid, and constitutes about 3 per cent. of the plant. It also contains gum, sugar, etc.

DECOCTUM CETRARIE.—Decoction of Iceland Moss. Iceland moss, ℥j.; dist. water, Oj. Wash the moss to remove impurities; boil it with the dist. water for ten minutes in a covered vessel, and strain while hot. The product should measure about a pint.

Dose.—f℥j. to f℥iv.

Actions and Uses.—A feeble tonic, possessing also nutritive properties. Formerly had rather a high reputation as a tonic and restorative in exhausting diseases, such as phthisis, but experience has led many to doubt or deny this. Its tonic property depends on the cetrarin, which is said to have done good in ague. As an antiscorbutic, it is not very much confided in. It is, however, easily digested, and may be given in weak and debilitated constitutions.

FUNGI.—THE MUSHROOM FAMILY.

CLAVICEPS PURPUREA, *Tulasne*. The Ergot Fungus.

See *Ergota*.

ALGÆ.—THE SEAWEED FAMILY.

This is the last order of botanists. It contains no officinal plant. It contains, however—

Sphærococcus (Chondrus) crispus, Carrageen, or Irish Moss, which possesses nutritive properties, and is used as an article of diet.

III.—ANIMAL MATERIA MEDICA.

I.—OILY AND FATTY SUBSTANCES.

Cetaceum. Spermaceti.

Nearly pure cetine, separated by purification from the oil contained in the head of *Physeter macrocephalus*, *Linn.*, the Sperm Whale, inhabiting the Pacific and Indian Oceans.

Characters and Tests. — Crystalline, pearly-white, glistening, little taste or odour; reducible to powder by addition of a little rectified spirit. Scarcely unctuous to the touch, does not melt under 100°.

UNGUENTUM CETACEI. — Ointment of Spermaceti. Spermaceti, $\bar{\text{v}}$.; white wax, $\bar{\text{ij}}$.; almond oil, Oj. Melt with a gentle heat, and stir till it solidifies. A cool and emollient dressing for raw surfaces.

Uses. — Demulcent and emollient, but seldom used internally; chiefly for ointments.

Cera Flava. Yellow Wax.

The prepared honeycomb of *Apis mellifica*, *Linn.*, the Hive Bee; British, and imported.

Characters. — Firm, breaking with a granular fracture, yellowish, having the odour of honey. Not unctuous to the touch; does not melt under 140°, yields nothing to cold rectified spirit, but is entirely soluble in oil of turpentine. Boiling water in which it has been agitated is not rendered blue by iodine.

Uses. — Emollient. Used chiefly for making ointments, plasters, and suppositories.

Cera Alba. White Wax.

Yellow Wax, bleached by exposure to moisture, air, and light. British, and imported.

Characters.—Hard, nearly white, translucent. Not unctuous to the touch; does not melt under 150°.

UNGUENTUM SIMPLEX.—Simple Ointment. White wax, ʒij.; prep. lard, ʒiiij.; almond oil, fʒiiij. M. A simple, cooling dressing after blisters, and for excoriations.

Uses.—White wax enters into the composition of Charta Epispastica, and is used for making ointments and suppositories.

Adeps Præparatus. Prepared Lard.

Synonym.—Axungia, *Ed.*

The fat of the Hog *Sus scrofa*, *Linn.*, deprived of its membranes, and purified by heat.

Characters and Tests.—A soft white fatty substance, melting at about 100°. Has no rancid odour, dissolves entirely in ether. Distilled water in which it has been boiled, when cooled and filtered, gives no precipitate with nitrate of silver, and is not rendered blue by a solution of iodine.

Uses.—A simple dressing for excoriations, and a basis for ointments.

Adeps Benzoatus. Benzoated Lard.

Preparation.—Lard, lbj.; benzoin, in coarse powder, gr. clx. Melt the lard, add the benzoin, stirring frequently; remove the residual benzoin by straining. A useful healing ointment, slightly stimulant, and used in the preparation of ung. gallæ, ung. zinci, etc.

The benzoin prevents the lard becoming rancid.

Sevum Præparatum. Prepared Suet.

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

Characters.—White, smooth, almost scentless; fusible at 103°.

Uses.—It is employed for the same purposes as lard. It has more consistence, and a higher melting point. A constituent of the emp. cantharid. and unguent. hydrarg.

Sapo Animalis. Curd Soap.

A soap made with soda, and a purified animal fat, consisting chiefly of stearin.

Characters and Tests.—White, or with a very light greyish tint, dry; nearly inodorous; horny and pulverisable when kept in dry warm air. Easily moulded when heated. Soluble in rectified spirit. Soluble also in hot water, the solution being neutral, or only slightly alkaline, to test paper. It does not impart a greasy stain to paper.

Uses.—To prepare pil. scam. co.; suppositor. acid. carbol. cum sapone; suppositor. morph. cum sapone; and suppositor. acid. tannici cum sapone. It is also recommended to be substituted for *Sapo Durus* in preparing liniment. potas. iod. cum sapone.

Glycerinum. Glycerine.

A sweet principle, $C_3H_8O_3$, obtained from fats and fixed oils, and containing a small percentage of water.

Characters.—A clear colourless fluid, without odour, oily to the touch, with a sweet taste; freely soluble in water and in alcohol. Specific gravity, 1.25. When decomposed by heat it evolves intensely irritating vapours.

Dose.—ʒj. to ʒij.

Actions and Uses.—Emollient and nutrient. May be employed as a vehicle for various active medicines, such as tannin, iodine, etc. Externally it is useful where we want to allay itching, or secure moistness of a part, as in some skin diseases. It has been used also to moisten cotton for insertion into the ear, as a kind of artificial tympanum. Employed as a substitute for cod-liver oil in phthisis, but is far inferior in nutrient power. Indeed, while the oil often shows early tangible restorative results, the other may be carried on long without doing any visible good. In the strumous diseases of children, too, it is equally unsatisfactory; for while they often improve under the cod-liver oil, they gradually become attenuated under glycerine.

It enters into the composition of liniment. potas. iod. cum sapone, and forms glycerinum acidi carbolici, 1 to 4; glycerinum acidi gallici, 1 to 4; glycerinum acidi tannici, 1 to 4; glycerinum amyli, 1 to 8; glycerinum boracis, 1 to 4.

Oleum Morrhuæ. Cod-Liver Oil.

The oil extracted from the fresh liver of *Gadus Morrhua*, *Linn.*, by a steam heat not exceeding 180°.

Characters and Test.—Pale yellow, with a slight fishy odour, and fishy taste. A drop of sulphuric acid added to a few drops of the oil, on a porcelain slab, develops a violet colour, which soon passes to a yellowish or brownish-red.

Dose.—fʒj. to fʒj.

Analysis.—Oleine, 80 per cent., gadum and margarin, glycerine, traces of butyric, acetic and choleic acids, iodine, chlorine, bromine, phosphorus, phosphoric acids,

soda, lime, etc. The therapeutical powers of the oil are due to the oleine.

Actions and Uses.—Alterative. Cod-liver oil was long popularly employed as a kind of restorative in phthisis, and other emaciating diseases, but fell somewhat into disuse until about thirty years ago, when it was lauded in a book written by the late Professor Bennett. There can be no doubt that cod-liver oil is of great service in scrofula, and the diseases connected with it, such as glandular swellings, abscesses, disease of joints and bones, ophthalmia, tabes mesenterica, etc. Cases of phthisis have been benefited by it, and also chronic rheumatism. Only some adults are able to assimilate it, many having to abandon it owing to the nausea which it occasions, and on account of its disturbance of the digestive functions. Children, as a rule, tolerate it best, and derive most benefit from it. It has been employed in the form of inunction as well as internally, and with undoubted benefit. *Dose* for children, fʒj., three or four times a-day. The quantity may be increased considerably when the stomach becomes habituated to it. Patients who can assimilate cod-liver oil increase in weight. In large doses it is laxative and diuretic. It is often beneficial in chronic skin diseases.

II.—PARTS AND SECRETIONS OF ANIMALS.

Mel. Honey.

A saccharine secretion deposited in the honeycomb by *Apis mellifica*, *Linn.*, the Hive Bee. British and imported.

Characters.—A viscid, brownish-yellow, translucent liquid, with a sweet taste. Does not become blue by iodine.

MEL DEPURATUM.—Clarified Honey. Take of honey, ℥v.; melt the honey in a water-bath, and strain while hot through flannel previously moistened with warm water.

MEL BORACIS.—Borax Honey. Borax, gr. ℥iv.; clarified honey, ℥j. Mix.

Oxymel. Oxymel.

Clarified honey, ℥xl.; acetic acid, f̄v.; dist. water, f̄v. Liquefy the honey by heat, and mix with it the acetic acid and water. Used to prepare Oxymel Scillæ.

Dose.—f̄j. to f̄ij.

Analysis.—Grape-sugar, cane-sugar, acetic acid, mannite, wax, etc.

Actions and Uses.—Demulcent, and slightly laxative. Used chiefly as an ingredient of gargles for sore throat and aphthous ulcerations of the mouth. The mel boracis is useful in apthæ and tenderness of the mouth and gums.

Fel Bovinum Purificatum. Purified Ox Bile.

The purified gall of the Ox, *Bos Taurus*, *Linn.*

Preparation.—Fresh ox bile, Oj.; rect. spt., Oij. Mix the bile and the spirit by agitation in a bottle, and set aside for twelve hours, until the sediment subsides. Decant the clear solution, and evaporate in a porcelain capsule, on a water-bath, until the residue acquires the consistence of a vegetable extract.

Characters and Tests.—A yellowish-green substance of pilular consistence, taste partly sweet and partly

bitter; soluble in water and in spirit. A solution of one or two grains of it in about f̄j. of water, when treated first with a drop of freshly-made syrup, consisting of one of sugar and four of water, and then with sulphuric acid, gradually acquires a cherry-red colour, changing in succession to carmine, purple, and violet. Its watery solution gives no precipitate with rectified spirit.

Dose.—5 to 10 grains in pill.

Actions and Uses.—Tonic and mildly laxative. Given in dyspepsia with irritability of the stomach, and vomiting soon after meals, not resulting from organic disease. It is also useful in scybala of the rectum and as a solvent for resinoid medicines. It is sometimes administered as an enema.

Pepsin. Pepsin.

A preparation of the mucous lining of a fresh and healthy stomach of the pig, sheep, or calf.

Preparation.—See *Brit. Phar.*

Characters and Tests.—A light yellowish-brown powder, having a faint but not disagreeable odour, and a slightly saline taste, without any indication of putrescence. Very little soluble in water or spirit. Gr. ij. of it with about ʒj. of distilled water, to which min. v. of hydrochloric acid have been added, form a mixture in which gr. c. of hard-boiled egg, in thin shavings, will dissolve on their being digested together for about four hours at a temperature of 98°.

Dose.—2 to 5 grains.

Uses.—Given to aid digestion when there is a deficiency of gastric juice. Although it often fails, yet in atonic dyspepsia, arising either from debility or

chronic gastritis, pepsin will frequently benefit the patient. It is good to combine it with a little dilute hydrochloric acid. It has been recommended in the vomiting of pregnancy. It is best given before meals.

Lac. Milk.

The fresh milk of the Cow, *Bos Taurus*, *Linn.* Used in *Mistura Scammonii*.

Uses.—Nutrient, and a powerful antiscorbutic.

Saccharum Lactis. Sugar of Milk. $C_{12}H_{24}O_{12}$.

A crystallised sugar, obtained from the whey of milk by evaporation.

Characters.—Usually in cylindrical masses, two inches in diameter, with a cord or stick in the axis, or in fragments of cakes; greyish-white crystalline on the surface; and in its texture translucent, hard, scentless, faintly sweet, gritty when chewed.

Uses.—Employed in medicine as an excipient for active drugs, such as calomel. Also as an article of diet. It is an ingredient of *pulv. elaterii co.*, 9 in 10.

Albumen Ovi. Egg Albumen.

The liquid white of the egg of *Gallus Banckiva*, *var. domesticus*, *Temminck*.

Uses.—Nutrient and emollient. Useful in poisoning with bichlor. of mercury, sulphate of copper, etc.

Ovi Vitellus. Yolk of Egg.

The yolk of the egg of *Gallus Banckiva*, *var. domesticus*, *Temminck*. Used in *mist. spt. vini gallici*.

Use.—Nutrient.

Os Ustum. Bone Ash.

The residue of bones which have been burned to a white ash in contact with air. Consists principally of phosphate of lime, mixed with about ten per cent. of carbonate of lime, and a little fluoride of calcium and phosphate of magnesia. Used in the preparation of calc. phosph., and sodæ phosph.

Castoreum. Castor.

The dried preputial follicles and their secretion, obtained from Castor Fiber, *Linn.*, the Beaver, and separated from the somewhat shorter and smaller oil-sacks which are frequently attached to them. From the Hudson's Bay Territory.

Characters.—Follicles in pairs about three inches long, fig-shaped, brownish; containing a dry, resinous, reddish-brown, odorous secretion, in great part soluble in rectified spirit and in ether.

Dose.—5 to 10 grains in pill.

TINCTURA CASTOREI.—Tincture of Castor. Castor, ʒj.; rect. spt., Oj. Macerate seven days, and filter.

Dose.—ʒss. to ʒj.

Actions and Uses.—Antispasmodic and stimulant, but of no great power. Some believe it useful in the milder form of hysteria and in the nervous symptoms of adynamic fever.

Moschus. Musk.

The inspissated and dried secretion from the preputial follicles of *Moschus moschiferous*, *Linn.* Native of Thibet and the mountainous regions of Central Asia. Imported from China and India.

Characters.—Small, reddish-black, unctuous grains, with a strong, peculiar, and diffusible odour, and bitter taste; contained in an oval membranous sac, about two inches in diameter, covered on the outer side with stiff greyish hairs, arranged in a concentric manner around its central orifice.

Analysis.—Ammonia, stearine, elaine, cholesterine, *volatile oil*, gelatine, albumen, an undetermined acid, and different salts.

Dose.—5 to 10 grains.

Actions and Uses.—Antispasmodic and stimulant. It is not much employed, being dear; but it does good in hysteria and in the hiccough and subsultus tendinum of fevers. In chorea, its influence is variable or doubtful. It has done good in retrocedent gout.

III.—ENTIRE ANIMALS.

Cantharis. Cantharides.

Cantharis vesicatoria, *De Geer*. Class, Insecta; order, Coleoptera. The Beetle, dried; collected in Russia and Sicily, but chiefly in Hungary.

Characters and Tests.—From eight to ten lines long, furnished with two-wing covers of a shining metallic green colour, under which are two membranous transparent wings; odour strong and disagreeable; powder greyish-brown, containing shining green particles. Free from mites.

TINCTURA CANTHARIDIS.—Tincture of Cantharides. Cantharides, in coarse powder, $\bar{5}\frac{1}{4}$; proof spt., Oj. Macerate seven days; filter, and add spirit to make Oj. This is the preparation chiefly employed internally.

Dose.—5 to 20 minims.

LIQUOR EPISPASTICUS.—Blistering Fluid. Canth., ℥viiij.; acetic acid, ℥iv.; ether, a sufficiency. Prepare by percolation, fill up to ℥xx. with ether. A speedy blister. Applied with a brush or lint. This preparation was called *Linimentum Cantharidis* in the *Brit. Phar.* of 1864.

ACETUM CANTHARIDIS.—Vinegar of Catharides. Cantharid., ℥ij.; glacial acetic acid, f℥ij.; acetic acid, f℥xviiij. Prepared by percolation. Used as a vesicant.

EMPLASTRUM CANTHARIDIS. — Cantharides Plaster. *Fly Blister.* Cantharides, in fine powder, ℥xij.; yellow wax, ℥viiss.; prepared suet, ℥viiss.; resin, ℥ij.; prepared lard, ℥vj. Liquefy the wax, suet, and lard together by a water-bath, and add the resin previously melted; then remove them from the bath, and a little before they solidify, sprinkle in the cantharides, and mix thoroughly. This is used for producing a blister; it is spread with a cold spatula, or the thumb, on the leather or adhesive plaster. It will act with more vigour and certainty if a small portion of the powdered flies is dusted on the surface, and then rubbed or pressed in with the spatula or thumb as before. Ten hours generally suffice to produce vesication; and on removal of the blister the elevated cuticle may be cut; the inflamed part should then be dressed with a little ung. simp. and a layer of raw cotton; a speedy healing being thus insured. If wished, the surface may be kept raw by a dressing of ung. sabinæ, or ung. cantharid.

EMPLASTRUM CALEFACIENS.—Warm Plaster. Cantharid., ℥iv.; boiling water, Oj.; expressed oil of nutmeg, ℥iv.; yellow wax, ℥iv.; resin, ℥iv.; soap plaster, ℔iiii $\frac{1}{4}$; resin plaster, ℔ij. Infuse the cantharides in the boiling water six hours; squeeze through calico, and evapo-

rate the expressed liquid by a water-bath till reduced to one-third ; then add the other ingredients, and melt in a water-bath, stirring well until the whole is thoroughly mixed. A rubefacient plaster ; useful in chronic bronchitis.

CHARTA EPISPASTICA.—Blistering Paper. *Preparation*, see *Brit. Phar.* A clean vesicant preparation, suitable for the young, as less likely to occasion strangury, etc.

UNGUENTUM CANTHARIDIS.—Ointment of Cantharides. Canth., ʒj. ; yellow wax, ʒj. ; olive oil, fʒvj. M. Rubefacient, and for keeping issues open.

Strangury occasionally results from the external use of flies ; when it does so, small doses of pu. ipecac. co. in barley water are of service.

Analysis.—Cantharidin (a white, crystalline substance, on which the activity of the article depends) ; a yellow fat oil, a green concrete oil ; uric, acetic, and phosphoric acids ; salts, etc.

Actions and Uses.—A rubefacient, irritant, and stimulating diuretic, and in some cases aphrodisiac. In large doses it is a dangerous poison, producing inflammation of the alimentary canal, and of the urinary organs (with strangury, bloody urine, priapism) ; delirium, convulsions, and coma. About gr. xx. have proved fatal. These bad effects are to be met by emetics, mucilaginous drinks, opiates, by the mouth, and in the form of enema. Benefit is derived from it, in cautious doses, in leucorrhœa ; in gleet it is not so successful ; and more barren still are the results in amenorrhœa, paralysis of the bladder, and incontinence of urine. In dropsy depending on cardiac disease we will frequently obtain benefit from it ; in

chronic skin diseases it is next to a failure. For external use it is an important drug, owing to its excellent vesicating power. Applied to the skin, it occasions, in the course of from four to ten hours, an effusion of serum between the cuticle and the true skin, or, in briefer terms, a blister. This effect is produced with considerable uniformity, and without inducing much pain. Where the skin, as in a few cases, resists its action, a sinapism before, or a poultice after, will promote it. Blisters are used as derivatives, or counter-irritants, in a number of diseases, such as inflammation of the brain and medulla spinalis, acute and chronic; in diseases of the chest and abdomen; in tic-douloureux, and sciatica. As a vascular stimulant, too, much benefit is derived from blisters over indolent and specific tumours, such as buboes, dropsical effusions, effusions into joints, strumous abscesses, and over the surface of old and indolent ulcers, and chronic pustular eruptions. They are in frequent use also as excitants in the coma of typhoid fever, cholera, and apoplexy. Lastly, they are in daily use for maintaining a continuous discharge from issues, and for removing the cuticle for endermic applications. They should be used with caution in young persons, or in the old and those attenuated and exhausted by disease, as dangerous sloughing is apt to be induced.

Cantharides has also been found beneficial in alopecia, or baldness.

Coccus. Cochineal.

The dried female insect, *Coccus Cacti*, *Linn.* Class, Insecta; order, Hemiptera. Reared in Mexico and Teneriffe.

Characters.—Ovate, plano-convex, about two lines long, wrinkled, black or greyish-white; yields, when crushed, a puce-coloured powder. The greyish-white insect quickly becomes black when warmed before the fire.

TINCTURA COCCI.—Tincture of Cochineal, ℥iiss.; proof spirit, Oj. Macerate seven days.

Dose.—fʒss. to fʒiss.

It is contained also in tr. cardam. co., gr. lx. to Oj.; and in tr. cinchon. co., gr. xxx. to Oj.

Actions and Uses.—Said to be an antispasmodic and anodyne, and popularly employed as such in whooping-cough; but it seems somewhat ineffectual. In neuralgia, for which it has been recommended by some, I have not seen it of the slightest service. Its chief use is for colouring mixtures, etc.

Hirudo. The Leech.

1. Sanguisuga medicinalis, *Savigny*, the Speckled Leech; and 2, S. officinalis, *Sav.*, the Green Leech. Collected in Spain, France, Italy, and Hungary.

Characters.—Body elongated, two or three inches long, tapering to each end, wrinkled transversely; back olive-green, with six rusty-red longitudinal stripes. 1. Belly greenish-yellow, spotted with black; 2. Belly olive-green, not spotted.

Spurious leeches are to be met with, a common one being the horse-leech. It is known by the absence of the rusty-red bands, or having only two. It is a popular, but unfounded, belief that this animal will bleed a person to death, the blood, as is said, discharging at the tail as fast as it is taken in by the mouth. The real truth is, that the leech is provided only with blunt teeth, and cannot properly perforate the human skin.

Uses.—They are useful for small local bleedings, and may be often applied where cupping-glasses cannot, and scarifications are inadmissible. Many persons, too, will admit of bleeding in this way, instead of by the lancet, which inspires considerable terror. Previous to their application, the part should be cleaned, and the leech (dried by rolling gently in a cloth) confined to the part by a glass or other receptacle. If they do not fasten, immersing them in porter, or besmearing the part with cream or blood, will sometimes cause them to fasten. But care should be exercised in their selection: those are most active which roll up into an oval ball on being lightly squeezed in the hand. They should not be applied where there is almost constant motion, as over the neck or costal cartilages; nor where the cellular tissue is lax, as in the eyelids, as erythema or œdema is apt to be occasioned. Large superficial veins, especially in the neck, in children, should be avoided, and the abdomen in general. The quantity of blood drawn by a leech is from $\bar{3}$ ij. to $\bar{3}$ ss., but about thrice this amount may afterwards come away. Should the bleeding continue too long, compression, a red-hot wire, nitrate of silver, perchloride of iron, or transfixion with a needle, will, one or the other, arrest it. Leeches have occasionally been permitted to creep up the nostril, up the rectum, or even into the stomach. An injection of a strong solution of common salt or port wine will kill them, and cause them to be dislodged.

When it is desirable to prolong the bleeding, this can easily be done by applying sponges dipped in tepid water, or hot fomentations over the part.

PART II.

MEDICINES ARRANGED ACCORDING TO THEIR ACTIONS.

Antacids.

(Alkalines, Absorbents, Antilithics, Lithontriptics.)

Antacids are medicines which neutralize, by combining chemically with, any free acid existing in the stomach or intestines. Tonics should be given with them to improve that feeble or perverted state of the digestive organs on which the acidity depends. If the acid exists in the gaseous condition, ammonia, from its volatility, will best combat it; if in the lower bowel, magnesia or lime are most suitable, as they withstand for a longer time the action of the intestinal juices. When the acidity is in the urinary organs, the alkalies are to be preferred, from their direct diuretic action. Ammonia is most suitable for the old and feeble, being most stimulating.

Ammonia Carbonas; Ammon. Aq.; Spiritus Ammonia Aromaticus; Calcis Liquor; Calcis Carbonas Praecipitata; Creta Praep.; Lithia Carbonas; Lithia Citras; Magnesia Levis; Magnesia Carbonas; Magnesia Carbonas Levis; Potassae Bicarbons; Potassae Carbonas; Potassae Liquor; Sodae Bicarbons; Sodae Carbonas.

Anthelmintics. (Vermifuges.)

These are substances which destroy or extirpate worms located in the intestines ; as a rule they should be given on an empty stomach. If the parasite exists in the large bowel, as in the case with *Ascaris vermicularis*, which is chiefly in the rectum, enemata will very readily deal with it, and they should be added to internal remedies.

Cusso ; Filix-mas ; Granati Radicis Cortex ; Saba-dilla ; Santoninum ; Terebinthinæ Oleum. Most of the cathartics also act as vermifuges.

Antispasmodics.

These allay spasm, that is, undue or irregular muscular contraction. There are the pure or direct, and the indirect ; the former have a direct influence on spasmodic action ; the latter (such as a purgative in chorea, where it depends on intestinal irritation, or a tonic in epilepsy arising from vascular atony) operate indirectly. The pure or direct are—Ether, Chloroform, Opium, Ammonia, Assafœtida, Castoreum, Galbanum, Moschus, Rutæ Oleum, Valeriana ; and the salts of valerianic acid.

Astringents. (Styptics. Constringents.)

Substances which arrest secretions and excretions : they do so by causing a condensation of contractile fibres, improving tone, and altering action.

Acetum ; Acidum Carbolicum ; Acidum Gallicum ; Acidum Sulphuricum ; Acidum Tannicum ; Alumen ; Belæ Fructus ; Bismuthi Subnitras ; Borax ; Catechu ; Creasotum ; Calx ; Carb. Præcip. ; Cupri Sulphas ; Ergota ; Ferri Sulphas ; Ferri Perchlor. Tinct. ; Ferri

Pernit. Liquor; Galla; Hæmatoxyli Lignum; Kino; Krameria; Matico; Plumbi Acetas; Plumbi Carbonas; Plumbi Subacet. Liquor Dil.; Quercus; Rosa Gallica; Uva Ursi; Zinci Acetas; Zinci Carb.; Zinci Oxidum; Zinci Sulphas.

Cathartics. (Purgatives. Evacuants.)

Medicines which promote the evacuation of the intestinal contents. Mild ones are laxatives; stronger purgatives; and those are drastic which operate with painful energy. They vary in their mode of action; some rouse and increase the peristaltic action, others merely stimulate the mucous glands—inducing watery evacuations. Further, these medicines elect certain parts of the bowel on which to operate. Jalap acts on the small intestine chiefly; aloes and colocynth on the large bowel; while rhubarb acts on both.

Aloin; Aloe; Cambogia; Cassia; Colocynthis; Crotonis Oleum; Elaterium; Hydrarg. cum Creta; Hydrarg. Subchlor.; Jalapa; Jalapæ Resina; Magnesia; Magnes. Sulph.; Manna; Mel.; Olivæ Oleum; Podophylli Resina; Potass. Acet.; Potass. Sulph.; Potass. Tart. Acida; Prunum; Rhamni Succus; Rheum; Ricini Oleum; Scammoniaë Resina; Scammonium; Senna; Sodæ Phosphas; Soda Tartarata; Sulphur P.; Sulphur Sub.; Tamarindus; Terebinth. Oleum.

Caustics. (Cauterants. Escharotics.)

Substances possessing the power of destroying living tissue. When they act powerfully, they produce an eschar, hence escharotic.

Acidum Aceticum ; Acid. Arseniosum ; Acid. Hydrochlor. ; Acid. Nitric. ; Acid. Sulphuric. ; Ammon. Liq. Fortior ; Antim. Terchlor. Liquor ; Argenti Nitras ; Cupri Sulphas ; Hydrarg. Nit. Liquor Acid. ; Hydrarg. Oxid. Rub. ; Potassa Caustica ; Zinci Chloridum ; Zinci Sulphas.

Diaphoretics. (Sudorifics.)

Remedies which increase perspiration. Some of them act by increasing the functional activity of the skin ; some by quickening the circulation ; others by lowering it where, as in fevers, increased vascular action is associated with a perversion of the cutaneous function. While using them, the surface of the body should be kept warm.

Ammon. Acet. Liquor ; Antimon. Oxid. ; Antimon. Pulv. ; Antimon. Sulphuratum ; Antim. Tartaratum ; Dulcamara ; Guaiaci Lignum ; Guaiaci Resina ; Pulv. Ipecac. Co. ; Mezereum ; Sarsa ; Sassafras ; Sulphur ; Jaborandi.

Disinfectants.

Substances which destroy, by decomposition, foul effluvia, and infections, or putrescent emanations.

Carbo ; Calx Chlorata ; Cerevisiæ Fermentum ; Chlorig. Liquor ; Potassæ Permanganas ; Sodæ Chlor. Liquor ; Zinci Chlor. Liquor ; Chloral Hydras.

Diuretics.

These promote the secretion and evacuation of urine, generally by stimulating the secreting vessels of the kidneys. Their operation is favoured by a cool skin, and that of some of them by not giving so much as would induce catharsis.

Spiritus Ætheris Nitrosi ; Buchu ; Cambogia ; Cantharis ; Digitalis ; Juniperi Oleum ; Pareira ; Potass. Acetas ; Potass. Nitras ; Potass. Tart. Acida ; Scilla ; Scoparius ; Terebinth. Canadensis ; Terebinth. Oleum.

Emetics. (Vomits.)

Medicines which occasion the emptying upwards of the contents of the stomach. There are direct, topical, or irritant, producing vomiting by reflex action, and only when received into the stomach, and whose action is immediate ; and general, or specific, which act alike, whether when introduced into the stomach, or any part of the vascular system (as for instance, the veins), and whose operation is more tardy, a gradually deepening depression preceding it. The specifics are marked thus *.

*Antimonium Tartaratum ; Cupri Sulphas ; *Ipecacuanha ; Sinapis ; Sodii Chloridum ; Zinci Sulphas.

Emmenagogues.

Medicines which promote the menstrual discharge by stimulating the uterus to increased action. Many so-called emmenagogues are merely cathartics, their influence on the rectum being reflected on the uterus. The following operate directly, and may be termed the true :—Borax ; Ergota ; Rutæ Oleum ; Sabina.

Emollients. (Demulcents. Relaxants.)

Substances which render the tissues softer and laxer, by lessening vital tone or cohesion ; or which soften and protect the sensible surfaces of the body.

Acacia ; Adeps Præp. ; Amygdala ; Amygdal. Oleum ; Amylum ; Cera Alba ; Cera Flava ; Cet-

aceum; Ficus; Glycerinum; Glycyrrhiza; Hemidesmus; Hordeum; Lini Farina; Lini Oleum; Lini Semen; Olivæ Oleum; Saccharum; Theriaca; Tragacantha; Uvæ.

Epispastics. (Counter-irritants. Derivatives.
Rubefacients. Revulsives.)

These redden, inflame, and vesicate the skin.

Acid. Carbolic. ; Ammon. Liq. Fortior ; Antim. Tart. ; Aqua Fervens. ; Cantharis ; Capsicum ; Crotonis Oleum ; Mezereum ; Sabina ; Sinapis ; Terebinth. Oleum.

Expectorants.

Medicines which increase pulmonary secretion, or promote its discharge.

Acid. Benzoicum ; Ammon. Benzoas ; Antim. Tart. ; Bals. Peruv. ; Bals. Tolut. ; Benzoinum ; Ammoniacum ; Ipecacuanha ; Lobelia ; Scilla ; Senega ; Ammonia Carbonas.

Liquefacients. (Deobstruents. Alteratives.)

Medicines acting obscurely or specifically, and altering morbid conditions of the system ; others acting on the lymphatic and capillary systems, accelerating the metamorphosis of tissue, and thus promoting the removal of swellings, fluid and solid.

Acidum Arseniosum ; Hydrargyrum ; Hydr. Perchlor. ; Hydr. Iodid. Rub. ; Hydr. Iodid. Virid. ; Hydr. Subchlor. ; Iodum ; Morrhuæ Oleum ; Podophylli Resina ; Potassii Bromidum ; Potassæ Chloras ; Potassii Iodidum.

Narcotics. (Hypnotics. Soporifics. Anodynes.)

Medicines which induce prostration of the vital powers and sleep; this being preceded by a stimulating effect on the brain and heart. In large doses, the stimulant effect is overborne, and they operate like sedatives.

Belladonna; Cannabis Indica; Hyoscyamus; Lupulus; Morphiæ Hydrochloras; Opium; Papaver Rhœas; Stramonii Folia et Semina; Chloral Hydras.

Refrigerants.

These act by diminishing the force of the circulation when it is unduly or morbidly excited, thus reducing the heat of the body, and giving rise to a sensation of coolness throughout the system. The most powerful are cold drinks, cold bath, cold air, freezing mixtures.

Acetum; Acid. Citric.; Acid. Sulph. Dil.; Acid. Tart.; Limonis Succus; Mori Succus; Potass. Chlor.; Potass. Nit.

Sedatives. (Contra-Stimulants. Calmatives.)

Medicines which directly depress the vital powers, there being no antecedent excitement. In large doses they give rise to delirium, whereas in the case of narcotics the tendency is to apoplexy and coma.

Acidum Hydrocyanicum Dilutum; Aconitum; Aconiti Radix; Antimonium Tartaratum; Chloroformum; Colchicum; Conii Fructus; Conia; Creasotum; Digitalinum; Digitalis; Laurocerasus; Lobelia; Tabacum; Veratri Viridis Radix.

Sialagogues.

Substances which excite the secretion of saliva by a topical, irritant, or stimulant action.

Armoracia ; Caryophyllum ; Mezereon ; Pyrethri Radix ; Senega ; Zingiber ; Jaborandi.

Stimulants. (Excitants. Hypersthenics.)

Remedies which excite the vital powers, and give an impulse to the circulation, by increasing the force and frequency of the heart's contractions. The most important are marked thus *.

*Æther ; Ammoniacum ; *Ammoniaë Carbonas ; *Ammoniaë Liquor ; *Ammon. Spt. Aromat. ; Anethum ; Anisi Oleum ; Armoracia ; Arnica ; Bals. Peruv. ; Cajuputi Oleum ; *Calx Chlorata ; *Camphora ; Capsicum ; Cardamomum ; Carui ; Caryophyllum ; Cerevisiæ Fermentum ; *Chlori Liquor ; Cinnamomum ; Coriandri Oleum ; Elemi ; Fœnicul. Fructus ; Lavandulæ Oleum ; Menth. Piperit. Oleum ; Menth. Virid. Ol. ; Myristica ; Pimentæ Oleum ; Piper. ; Rosmarini Oleum ; Serpentaria ; Sinapis ; *Sodæ Chlor. Liq. ; Sodii Chloridum ; *Terebinth. Oleum ; Thus Americanum ; *Vinum Xericum (and other alcoholic drinks) ; Zingiber.

Tonics. (Corroborants.)

Medicines which impart firmness, vigour, and tone to the body when it is relaxed and debilitated. They are stimulants so far, inasmuch as they quicken the vital powers ; but this result is brought about gradually, and is of a more lasting nature. Some act upon the nervous system only, others on the vascular ; but our

arrangement compels us to class them all together. The more important are marked thus *.

Acid. Hydrochlor. Dil. ; Acid. Nitric. Dil. ; Acid. Phosph. Dil. ; Acid. Sulph. Dil. ; Anthemis ; Argenti Nitras ; Argent. Oxid. ; Aurantii Cortex ; *Beberia Sulphas ; *Bismuth. Subnit. ; *Calumba Radix ; *Cascarilla ; Cetraria ; *Chirata ; *Cinchona ; *Cusparia Cortex ; Fel. Bovinum Pur. ; *Ferri Carb. Sacch. ; *Ferri et Ammon. Cit. ; *Ferri et Quin. Cit. ; *Ferri Iodidum ; *Ferri Perchlor. Tinct. ; *Ferri Pernit. Liq. ; Ferri Perox. ; Ferri Perox. Hydrat. ; Ferri Phosph. ; *Ferri Sulph. ; Ferrum Redact. ; Ferri Tart. ; *Gentiana ; Laricis Cortex ; Myrrha ; *Nux Vomica ; *Quassia ; *Quinia Sulphas ; *Strychnia ; Taraxacum ; Ulmus ; Zinci Oxidum ; Zinci Sulph.



PART III.

ON PARTICULAR FORMS OF MEDICINES.

Alkaloids.

These are the active principles of drugs, removed, in general, by the addition of alkalies, such as Lime, Potash, and Ammonia, to solutions in water or spirit. Many of them are highly poisonous.

Cataplasms. Poultices (Cataplasma.)

These are soft pultaceous preparations, for external use, and made extemporaneously. There are six in the *Brit. Phar.*; the C. Carbonis (absorbent and disinfectant); C. Conii (anodyne); C. Fermenti (stimulant); C. Lini (emollient and suppurative); C. Sinapis (rube-facient); C. Sodæ Chloratæ (suppurative, stimulant, and disinfectant.)

Confections. Conserves. Electuaries. (Confectiones.)

These are preparations of the consistence of honey, composed of dry powders mixed with honey, sugar, syrup, or mucilage. They are a convenient form for covering the taste of disagreeable drugs, or diminishing the bulk of light powders, such as Guaiacum, Sulphur, etc.; and useful excipients for pill masses. There are eight in the *Brit. Phar.*, but none of them contain any very potent drugs, excepting the C. Opii.

Decoctions. (Decocta.)

Solutions of the active parts of vegetables, obtained by boiling in distilled water. They are generally a little stronger than infusions.

Emulsions.

Preparations in which substances sparingly soluble in water, such as oils and resins, are suspended by means of mucilage, sugar, yolk of egg, etc.

Enemas. Clysters. (Enemata.)

Liquid preparations for injection by the rectum. If intended to promote the evacuation of the intestines, a pint or so should be used; but if to be retained, f̄ij. to f̄iv.

Extracts. (Extracta.)

These are prepared by evaporating the juices, infusions, or decoctions of vegetables, down to masses of the consistence of an electuary. They are rather stronger than the drugs from which they are prepared. Liquid extracts are not evaporated, and have, in general, a little spirit added.

Infusions. (Infusa.)

Aqueous solutions of vegetables, made by maceration, either in hot or cold water. Many of them are now made with cold water, thus preserving principles liable to be dispelled by heat, and rendering them less liable to decay. They are not strong preparations, the dose of the great bulk of them being f̄j. to f̄ij. The dose, however, of infusion of digitalis is f̄ij. to f̄ss.

Liniments. (Linimenta.)

Liquid preparations for external use, and generally combinations of rather stronger drugs with fluid and concrete oils, which latter render them of a somewhat emollient nature.

Lotions. Fomentations. Collyria. Gargles. Injections.
(Lotiones. Injectiones.)

Liquids for external use, not oily, and often watery, Fomentations are of the same nature, and are applied of various degrees of temperature. Collyria are those applied to the eye; and gargles those to the mouth and throat. Injections are for throwing up the various canals opening on the surface of the body. Only one is officinal—*Injectio Morphiae Hypodermica*. It is injected into the subcutaneous tissue.

Mixtures. (Misturæ.)

Liquid preparations, consisting of combinations of different solids and fluids in water, syrup, mucilage, milk, etc. The dose of most of them is the same as the infusions.

Ointments. Cerates. (Unguenta.)

Preparations for external use, of the consistence of butter, being combinations of lard or wax and resin (melted at a moderate heat), with various solid ingredients.

Pessaries. (Not in the *Brit. Phar.*)

Preparations of about the consistence of suppositories, larger, and of a conical shape, for introduction into the vagina. They are made with lard and wax, or cacao butter. The following are the chief:—*Astringent*

—Alum, Acetate of Lead, Sulphate of Iron, Gallic Acid, Tannic Acid. *Alterative*—Iodide of Potass., Iodide of Lead, Mercurial Oint., Bromide of Potassium. *Sedative* — Atropine, Belladonna, Morphia, Opium, Conium. *Disinfectant*—Carbolic Acid, Carbolate of Lime. *Caustic*—Sulphate of Zinc, Red Oxide of Mercury.

Pills. (Pilula.)

Masses of firmer consistence than the preceding, so that they may attain the globular form. They are usually combinations of active ingredients reduced to fine powder, and mixed with soap, syrup, confection, water, etc. They are a convenient form for the administration of disagreeable or acrid drugs. The usual size is gr. v., which should not be exceeded; many now make them gr. iv. The usual dose is from one to two pills.

Plasters. (Emplastra.)

Combinations of wax, resin, fats, or soap, with more active ingredients, of firmer consistence than ointments, and intended for application to the surface of the body. There are fourteen in the Pharmacopœia. Three stimulant and resolvent, the Emplast. Plumbi; Emplast. Plumb. Iod.; Emplast. Ammon. cum Hydrarg.; four stimulant and protective, the Emplast. Ferri; Emplast. Galbani; Emplast. Resinæ; and Emplast. Picis; one vesicant, Emplast. Cantharidis; one rubefacient, Emplast. Calefaciens; two anodyne and sedative, the Emplast. Belladonnæ, and Emplast. Opii; the remaining three, Emplast. Lithargyri; Emplast. Saponis; and Emplast. Cerati Saponis, being employed for strapping, and to afford support to weak parts.

Syrups. (Syrupi.)

Watery infusions, juices, solutions, and tinctures combined with sugar.

Suppositories. (Suppositoria.)

Preparations of a rather harder consistence than ointments, of a conical shape, and about the diameter of the little finger, intended for introduction into the rectum. They are made of various drugs, combined with wax and lard or cacao butter.

Tinctures. (Tincturæ.)

Solutions of the active parts of vegetables in proof spirit (which consists of 5 parts of rectified spirit, and 3 parts distilled water), or rectified spirit. They are made either by maceration for 7 days, or 48 hours, in which case they also undergo the process of percolation. The dose of the great bulk of them is from $5\frac{1}{2}$ to $5ij$. The exceptions are :—Tinct. Aconiti (min. v. to xv.); T. Belladonnæ (min. v. to xx.); T. Cannabis Indicæ (min. v. to xx.); T. Cantharidis (min. v. to xx.); T. Capsici (min. x. to xx.); T. Chloroformi Co. (min. xx. to lx.); T. Colchici Seminum (min. x. to xxx.); T. Conii (min. xx. to lx.); T. Digitalis (min. x. to xxx.); T. Ferri Acetatis (min. v. to xxx.); T. Ferri Perchlor. (min. x. to xxx.); T. Hyoscyami (min. xxx. to $f5j$.); T. Iodi (min. v. to xx.); T. Lobeliæ (min. x. to xxx.); T. Lobeliæ Ætherea (min. x. to xxx.); T. Nucis Vomicae (min. x. to xx.); T. Opii (min. v. to xl.); T. Opii Ammon. (min. xxx. to lx.); T. Sabinæ (min. xx. to lx.); T. Scillæ (min. x. to xxx.); T. Stramonii (min. x. to xxx.); T. Sumbul (min. x. to xxx.); T. Tolu (min. xx. to lx.); T. Veratri Viridis (min. v. to xx.); T. Zingiberis (min. xv. to lx.); T. Zingiberis Fortior (min. v. to xx.).



PART IV.

I.—PHARMACOLOGICAL TABLES;

BEING A TABULAR ARRANGEMENT OF ALL THE MEDICINES CONTAINED IN THE BRITISH PHARMACOPŒIA, WITH DOSE, ACTION, AND FORM OF ADMINISTRATION.

<i>Medicine.</i>	<i>Dose for Adult.</i>	<i>Actions and Uses.</i>	<i>Form of Administration</i>
Acaciæ Gummi	gr. xxx. to lx.	Demulcent	In powder or mucilage
Acetum	fʒj. to fʒij.	Refrigerant	In water
„ Cantharidis	Not given inter.	Vesicant	.....
„ Scillæ	min. xv. to xl.	Expectorant, Diuretic	In mixture
Acidum Aceticum	.....	Caustic	Applied with lint or glass rod
„ „ Dilutum	fʒj. to fʒij.	Refrigerant	In water
„ „ Glaciale	.....	Caustic	.....
„ Arseniosum	gr 1-60th to 1-12th	Poison, and Alterative in Skin Disease	In the form of the Liq. Arsen.
„ Benzoicum	gr. x. to xv.	Expectorant	In form of Tinc. Opii Ammon. and Tinctura Camph. Co.
„ Carboicum	gr. j. to iij.	Caustic, Stimulant, Antiseptic	In mucilage or syrup
„ Citricum	gr. x. to xxx.	Refrigerant	In water, much diluted
„ Gallicum	gr. ij. to x.	Astringent in Hæmorrhages and Diarrhœa	In powder
„ Hydrochloricum	.....	Corrosive and Irritant	.....
„ „ Dilutum	min. x. to xxx.	Poison	.....
„ „ Hydrocyanicum Dilut.	min. ij. to viij.	Tonic in Fevers	In water or bitter infusion
„ Nitricum	.....	Poison, and Sedative in Coughs	In draught with mucilage or syrup
		Irritant, Corrosive, and Caustic	Apply with glass rod

<i>Medicine.</i>	<i>Dose for Adult.</i>	<i>Actions and Uses.</i>	<i>Form of Administration.</i>
Acidum Nitricum Dilut.	min. x. to xxx.	Tonic Antisymphilitic	In water or bitter infusion
„ Nitrohydrochlor. Dil.	min. v. to xx.	Tonic, Alterative, and Cholagogue	Do.
„ Phosphoricum Dil.	min. x. to xxx.	Tonic and Aphrodisiac	Do.
„ Sulphuricum	....	Powerful Cor. Poison	....
„ „ Aromat.	min. x. to xxx.	Tonic, Refrigerant, Astringent	In syrup or bitter infusion
„ „ Dilutum	min. x. to xxx.	Do.	Do.
„ Sulphurosum	min. xxx. to lx.	Antiseptic, Disinfect., and given also in Sarcinae	Spray; externally with glycerine; & in bitter infusion
„ Tannicum	gr. ij. to x.	Astringent	In pill or water
„ Tartaricum	gr. x. to xxx.	Refrigerant	In water, largely diluted
Aconiti Folia	....	Poison; used for Ext.	....
„ Radix	....	Poison; used for Tincture and Liniment	....
Aconitia	....	An active Poison and powerful Sedative	Form of oint.
Actea Racemosæ Tinct.	min. xxx. to lx.	Given in Rheumatism	In water
Adeps Benzoatus	....	A healing Ointment	....
„ Preparatus	....	For Ointments	....
Æther	min. xx. to lx.	Antispasmodic, Stimulant, and Anæsthetic	In Tinct. Cardam. Co.
„ Aceticus	min. xx. to lx.	Do.	Do.
„ Purus	min. xv. to xxx.	Do.	Do.
Aloe Barbadosensis	gr. ij. to vj.	Cathartic	In pill
„ Socotrina	gr. ij. to vj.	Do.	Do.
Aloin	gr. ss. to iij.	Do.	Do.
Alumen	gr. x. to xx.	Astringent	In powder
„ Exsiccatum	....	Astringent and Caustic. For External Use	....
Ammoniacum	gr. x. to xx.	Stimulating Expect.	In pill or emul.
Ammonia Benzoas	gr. x. to xx.	Stimulant of the Mucous Membranes. Chol.	In mixture
„ Carbonas	gr. iij. to x.	Antacid and Stimulant	Do.
„ Phosphas	gr. v. to xx.	Antilithic in Gout and Rheumatism. Chol.	Do.
„ Nitras	....	For making Nitrous-Oxide Gas	....
Ammonii Bromidum	gr. ij. to xx.	Antispasmodic in Hooping-cough	In mixture
„ Chloridum	gr. v. to xxx.	Deobstruent and Alterative in Neuralgia	Do.
Amygdala Amara	....	Used for prep. the Oil	....
„ Dulcis	....	Do.	....
Amyl Nitris	min. ij. to v.	Antispasmodic in Angina Pectoris	Inhalation
Amylum	....	Used for prep. Mucilage	....
Anethi Fructus	....	Used for prep. the Aqua	....
Anthemidis Flores	....	Tonic, but Infusion or Extract given	....

<i>Medicine.</i>	<i>Dose for Adult.</i>	<i>Actions and Uses.</i>	<i>Form of Administration.</i>
Antimonii Oxidum	gr. j. to iv.	Diaphoretic, Sedative	In powder
Antimonium Sulphuratum	gr. j. to v.	Diaphoretic	In pill
„ Tartaratum	gr. j. to ij. emetic. Other purposes, gr. 1-16 to 1-6	Poison; Emetic, Diaphoretic, Sedative, Expectorant	In water
Aqua Anethi	fʒss. to fʒij.	Carminative	In mixture
„ Aurantii Floris	fʒss. to fʒij.	Slightly Anodyne	Do.
„ Camphoræ	fʒj. to fʒij.	Weak Stimulant	Do.
„ Carui	fʒj. to fʒij.	Aromatic Stimulant	Do.
„ Chloroformi	fʒss. to fʒij.	Sedative, Antispasm.	Do.
„ Cinnamomi	.....	Carminative	Do.
„ Fœniculi	fʒj. to fʒij.	Stimulant, Carminative	Do.
„ Laurocerasi	min. v. to xxx.	Poisonous, Narcotic and Sedative	In draught or mixture
„ Menthæ Piperitæ	fʒj. to fʒij.	Stimulant, Carminative, Antispasmodic	In mixture
„ „ Viridis	fʒj. to fʒij.	Do., but weaker	Do.
„ Pimentæ	fʒj. to fʒij.	Aromatic Stimulant	Do.
„ Rosæ	.....	Slightly Astring., used for Collyria	.....
„ Sambuci	fʒss.	Chiefly as a Cosmetic	.....
Areca	ʒij. to ʒvj.	Anthelmintic	In powder
Argenti Nitras	gr. 1-6 to ¼	Tonic in Epilepsy, &c.	In pill
„ Oxidum	gr. ½ to ij.	Do.	Do.
Armoraciæ Radix	.....	For preparing the Spirit	.....
Arniciæ Radix	.....	For preparing the Tinc.	.....
Assafœtida	gr. v. to xx.	Antispasmodic in Hysteria, &c.	In pill
Atropia	.....	An active poison	.....
„ Sulphas	.....	Used in solution for dilating the Pupil	.....
„ „ Liquor	.....	Chiefly used for dilating the Pupil	.....
Aurantii Cortex	.....	For preparing Tincture and Infusion	.....
„ Fructus	.....	For preparing Tincture	.....
Balsamum Peruvianum	min. x. to xv.	Stimulating Expectorant	Suspended in mixture
„ Tolutanum	gr. x. to xx.	Do., stronger	Do.
Bebericiæ Sulphas	gr. j. to x.	Tonic and Antiperiodic	In water or pill
Belæ Fructus	.....	For preparing Extract	.....
Belladonnæ Folia	.....	For preparing Extract and Tincture	.....
„ Radix	.....	For preparing the Lini-ment and Atropia	.....
Benzoinum	.....	For preparing Tincture and Adeps	.....
Bismuthi Carbonas	gr. v. to xx.	Tonic, Astringent, and Sedative	In powder or suspended in mucilage
„ Oxidum	gr. v. to xv.	Do.	Do.
„ Subnitras	gr. v. to xx.	Do.	Do.
Borax	gr. v. to xl.	Emmenagogue	In water
Bromum	.....	For preparing Ammon. Bromid. et Potassii Bromid.	.....

<i>Medicine.</i>	<i>Dose for Adult.</i>	<i>Actions and Uses.</i>	<i>Form of Administration.</i>
Buchu Folia	....	For preparing the Infusion and Tincture	....
Cadmii Iodidum	....	For prep. the Ointment	....
Calcii Chloridum	gr. x. to xx.	For sickness, and in Glandular Diseases	In mixture
Calcis Carbonas Præcipitata	gr. x. to lx.	Antacid, Astringent	Suspended in mucilage
„ Hydras	....	For prep. Liquor Calcis	....
„ Hypophosphis	gr. v. to x.	Nerve-tonic	In mixture
„ Phosphas	gr. x. to xx.	Given in Rickets and Mollities Ossium	In mucilage
Calumbæ Radix (Pulv.)	gr. v. to xx.	Tonic	In powder
Calx	....	For preparing Calcis Hydras	....
„ Chlorata	....	Antiseptic, and for preparing Liquor Calcis Chlor.	....
Cambogia	gr. j. to iv.	Drastic Cathartic. In Dropsy	In pill
Camphora	gr. j. to x.	Expector., Antispasm., Diaph., and Stim.	Do.
Canellæ Albæ Cortex	....	For prepar. the Vinum Rhei	....
Cannabis Indica	See Extract and Tincture	Narcotic and Antispasmodic	....
Cantharis	See Tincture	Poison, Vesicant, Diuretic	....
Capsici Fructus	gr. ss. to j.	Hot, Stim. and Astring.	In pill
Carbo Animalis Purificatus	gr. xx. to lx.	Antidote to Morphia	In powder
„ Ligni	gr. xx. to lx.	Aconitia	Do.
Cardamomum	See Tincture	Aromatic Stimulant	....
Carui Fructus	See Aqua Carui	Aromatic Carminative	....
Caryophyllum	See Infusion	Do.	....
Cascarillæ Cortex	See Tinct. and Infusion	Warm Aromatic and Tonic	....
Cassiæ Pulpa	See Confec. Sennæ	Laxative	....
Castoreum	gr. v. to x.	Antispasm. in Hysteria	In powder
Cataplasma Carb.	....	Antiseptic	....
„ Conii	....	Anodyne in Cancer	....
„ Fermenti	....	Stimulant in foul sores	....
„ Lini	....	For promoting Suppur.	....
„ Sinapis	....	Rubefacient	....
„ Sodæ Chloratæ	....	Antiseptic	....
Catechu Pallidum	gr. x. to xxx.	Astringent	In powder
Cera Alba	....	For Oint. and Plasters	....
„ Flava	....	Do.	....
Cerevisiæ Fermentum	f̄ss. to f̄j.	Stimulant and Carminative	In mixture
Cerii Oxalas	gr. j. to ij.	In Chronic Vomiting	Pill or powder
Cetaceum	....	For prepar. Ointment	....
Cetraria	See Decoction	Feeble Tonic	....
Charta Epispastica	....	For blistering	....
„ Sinapis	....	Rubefacient	....
Chirata	See Infus. et Tinc.	Tonic	....

<i>Medicine.</i>	<i>Dose for Adult.</i>	<i>Actions and Uses.</i>	<i>Form of Administration.</i>
Chloral Hydras Chloroformum	gr. v. to xxx. min. iij. to x.	Sedat., Hypno., Antisep. Stim., Anæsthetic, and Antispasmodic	Water or syrup In spirit, water, or tincture, or inhaled
Cinchonæ Flavæ Cortex	gr. x. to lx.	Tonic and Antiperiodic	In powder
„ Pallidæ Cortex	gr. x. to lx.	Do.	Do.
„ Rubræ Cortex	gr. x. to lx.	Do.	Do.
Cinnamomi Cortex	gr. v. to x.	Aromatic Tonic	Do.
Colchici Cormus	gr. ij. to viij.	Irritant, Diuretic; given in Gout	Pill or powder
„ Semina	See Tincture	Do.	....
Collodium	....	For covering wounds	....
„ Flexile	....	Do.	....
Colocynthis Pulpa	gr. ij. to viij.	Cathartic	In pill
Confectio Opii	gr. v. to xx.	Astringent, Anodyne	....
„ Piperis	gr. lx. to cxx.	Laxative and Carmin.	....
„ Rosæ Caninæ	....	For prep. Pil. Quiniæ	....
„ „ Gallicæ	....	For making Pills	....
„ Scammonii	gr. x. to xxx.	Laxative	....
„ Sennæ	gr. lx. to cxx.	Do.	....
„ Sulphuris	gr. lx. to cxx.	Do.	....
„ Terebinthinæ	gr. lx. to cxx.	Laxative, Anthelmintic	....
Conii Folia	gr. ij. to viij.	Sedative and Hypnotic	In powder
„ Fructus	See Tincture	....	....
Copaiba	f̄ss. to f̄j.	Diuretic, Tonic to Mu- cous Memb. Given in Gonorrhœa	In emulsion
Coriandri Fructus	See Confec. Sennæ	Carminative	....
Creasotum	gtt. j. to iij.	Sedative, in vomiting, Antiseptic	In draught
Creta Præparata	gr. x. to lx.	Antacid, Astringent	Powder or mix.
Crocus	See Tincture	Stimul., Emmenagogue	....
Cubeba	gr. xxx. to cxx.	Special Stimulant in Gonorrhœa	In powder
Cupri Sulphas	gr. ¼ to ij. astring.; gr. v. to x. emetic	Astringent and Emetic	In pill. In draught as an emetic
Cuspariæ Cortex	gr. x. to xxx.	Aromatic Tonic	In powder
Cusso (Koussou)	¾ to ̄ss.	Anthel. in Tape-worm	In infusion
Decoctum Aloes Co.	f̄ss. to f̄ij.	Cathartic	Mix. or draught
„ Cetrariæ	f̄j. to f̄iv.	Tonic and Nutrient	Do.
„ Cinchonæ Flav.	f̄j. to f̄ij.	Tonic, Antiperiodic	Do.
„ Granati Radicis	f̄j. to f̄ij.	Vermif. in Tape-worm	Do.
„ Hæmatoxyli	f̄j. to f̄ij.	Astringent	Do.
„ Hordei	Ad libitum	Demul. in Dysuria, &c.	....
„ Papaveris	....	For fomenting inflamed and pained parts	....
„ Pareiræ	f̄j. to f̄ij.	Diuretic and Tonic in Urinary Diseases	In mixture or draught
„ Quercus	....	Astringent, chiefly for Injections	....
„ Sarsæ	f̄ij. to f̄x.	Tonic and Alterative	Draught or mix.
„ „ Co.	f̄ij. to f̄x.	Do.	Do.
„ Scoparii	f̄ij. to f̄iv.	Diuretic	Do.
„ Taraxaci	f̄ij. to f̄iv.	Cholagogue and Tonic	Do.
„ Ulmi	f̄ij. to f̄iv.	Tonic, given in Skin Dis.	Do.

<i>Medicine.</i>	<i>Dose for Adult.</i>	<i>Actions and Uses.</i>	<i>Form of Administration.</i>
Digitalinum	gr. 1-60th to 1-30th	Poison; Sedat., Diur.	In pill
Digitalis Folia (pulv.)	gr. $\frac{1}{2}$ to $1\frac{1}{2}$	Do.	Do.
Dulcamara (infus.)	f $\bar{5}$ j. to f $\bar{5}$ ij.	Diaph. and Alterative in Skin Diseases, &c.	In draught or mixture
Ecbalii Fruc. (juice)	.....	For prep. Elaterium	.....
Elaterium	gr. 1-16th to $\frac{1}{2}$	Powerful Hydrag. Cath.	In pill
Elemi	.....	For prep. the Ointment	.....
Emplast. Ammon. cum Hydrargyro	.....	Resolvent Plaster in glandular swellings	.....
„ Belladonnæ	.....	Anodyne in Rheuma- tism and Neuralgia	.....
„ Calefaciens	.....	Rubefacient	.....
„ Cantharidis	.....	Blistering Plaster	.....
„ Cerati Saponis	.....	Emollient, Protective	.....
„ Ferri	.....	To protect a weak part	.....
„ Galbani	.....	Do.	.....
„ Hydrargyri	.....	Stimulant, Resolvent	.....
„ Opii	.....	To relieve local pains	.....
„ Picis	.....	For mechanical support	.....
„ Plumbi	.....	For strapping and giv- ing support	.....
„ „ Iodidi	.....	Stimulant, Resolvent	.....
„ Resinæ	.....	Protective, Stimulant	.....
„ Saponis	.....	Protective	.....
Enema Aloes	.....	Cathartic	.....
„ Assafœtidæ	.....	Used in Flatulent Colic	.....
„ Magnes. Sulph.	.....	Cathartic	.....
„ Opii	.....	Anodyne in Diseases of Bowels and Bladder	.....
„ Tabaci	.....	In strangulated Hernia	.....
„ Terebinthinæ	.....	Anthel. in Tape-worm	.....
Ergota	gr. xx. to xxx.	Stimulant of Uterus. Emmenagogue	In infusion
Essentia Anisi	min. x. to xx.	Carmin. in Flatulence	Mix. or draught
„ Menthæ Pip.	min. x. to xx.	Do.	Do.
Extractum Aconiti	gr. j. to ij.	Sedative	In pill
„ Aloes Barb.	gr. ij. to vj.	Cathartic	Do.
„ „ Socot.	gr. ij. to vj.	Do.	Do.
„ Anthemidis	gr. ij. to x.	Tonic	Do.
„ Belæ Liquidum	f $\bar{3}$ j. to f $\bar{3}$ ij.	Astringent in Diarrhoea	In draught
„ Belladonnæ	gr. $\frac{1}{4}$ to j.	Narcotic, Anodyne, and Calmative	In pill
„ Calumba	gr. ij. to x.	Tonic	Do.
„ Cannabis In- dicæ	gr. $\frac{1}{4}$ to j.	Narcotic and Antispas- modic	Do.
„ Cinchonæ Flav. Liquid.	min. x. to xxx.	Tonic and Antiperiodic	In draught or mixture
„ Colchici	gr. $\frac{1}{2}$ to ij.	Diur. Irritant. In Gout	In pill
„ „ Aceticum	gr. $\frac{1}{2}$ to ij.	Do.	Do.
„ Colocinth. Co.	gr. ij. to x.	Cathartic	Do.
„ Conii	gr. ij. to vj.	Sedative and Hypnotic	Do.
„ Ergotæ Liquid.	min. x. to xxx.	Stimulant of Uterus	Draught or mix.
„ Filicis Liquid.	min. xv. to xxx.	Anthel. in Tape-worm	Do.
„ Gentianæ	gr. ij. to x.	Tonic	In pill
„ Glycyrrhizæ	<i>Ad libitum</i>	Demulcent	.....
„ „ Liquidum	f $\bar{3}$ j.	Do.	In mixture
„ Hæmatoxyli	gr. x. to xxx.	Astringent	In powder

<i>Medicine.</i>	<i>Dose for Adult.</i>	<i>Actions and Uses.</i>	<i>Form of Administration.</i>
Extractum Hyosey-ami	gr. v. to x.	Narcotic and Anodyne	In pill
„ Jalapæ	gr. v. to xv.	Cathartic	Do.
„ Krameriaë	gr. v. to xx.	Astringent in Bowel and Bladder Diseases	Do.
„ Lactucae	gr. v. to xv.	Narcotic, Sedative	Do.
„ Lupuli	gr. v. to xv.	Tonic, Soporific	Do.
„ Mezerei Æther.	.....	External Stimulant	.....
„ Nucis Vomicaë	gr. ½ to ij.	Nerve-tonic	In pill
„ Opii	gr. ½ to ij.	Narcotic and Sedative	Do.
„ „ Liquidum	min. x. to xl.	Do.	In draught
„ Papaveris	gr. ij. to v.	Feeble Anod., Hypnotic	In pill
„ Pareiraë	gr. x. to xx.	Diuretic and Tonic in Bladder Diseases	Do.
„ „ Liquidum	f̄ss. to f̄ij.	Do.	In mixture
„ Physostigmatis	gr. 1-16th to ¼	Narcotic, contracts the pupil	In pill
„ Quassiaë	gr. iij. to v.	Tonic	Do.
„ Rhei	gr. v. to xv.	Laxative and Tonic	Do.
„ Sarsæ Liquid.	f̄ij. to f̄iv.	Tonic and Alterative	Draught or mix.
„ Stramonii	gr. ¼ to ½	Poison; Narcotic in Asthma	In pill
„ Taraxaci	gr. v. to xxx.	Tonic, Aperient, Chola- gogue	In draught, mix- ture, or pill
Farina Tritici	.....	Used in Yeast Poul- tice	.....
Fel Bovinum Purifi- catum	gr. v. to x.	Tonic and Laxative	In pill
Ferri Arsenias	gr. 1-16th to ½	Tonic and Alterative in Skin Diseases	Do.
„ Carb. Sacchar.	gr. v. to xx.	Chalybeate Tonic	In powder
„ et Ammon. Cit.	gr. v. to x.	Do.	In water
„ et Quiniæ Citras	gr. v. to x.	Do.	Do.
„ Iodidum	gr. j. to v.	Tonic and Alterative	In pill
„ Oxidum Magne- tium	gr. v. to x.	Chalybeate Tonic	In electuary
„ Peroxidum Hu- midum	̄¼ to ̄ss.	Antidote for Arsenic	.....
„ „ Hydratum	gr. ʒ. to xxx.	Chalybeate Tonic	In powder
„ Phosphas	gr. v. to x.	Tonic in Scrofula	In pill or powd.
„ Sulphas	gr. j. to v.	Irritant, Astring., Tonic	In pill
„ „ Exsiccata	gr. ss. to iij.	Do.	Do.
„ „ Granulata	gr. iij. to v.	Do.	Do.
Ferrum Redactum	gr. j. to v.	Chalybeate Tonic	In electuary
„ Tartaratum	gr. v. to x.	Tonic	In mixture
Ficus (Fig)	.....	Used in Confect. Sennaë	.....
Filix-mas	See Ext. Filicis Liquid.	Anthelmintic in Tape- worm	.....
Fœniculi Fructus	See Aqua Fœniculi	Carminative	In pill
Galbanum	gr. v. to xv.	Antispasmodic (feeble)	In powder
Galla	gr. v. to xv.	Astringent	Do.
Gentianæ Radix	gr. x. to xxx.	Tonic	Do.
Glycerinum	f̄j. to f̄ij.	Emollient	In mixture
„ Acidi Carbolic	min. v.	In Chronic Vomiting and Worms	In draught
„ „ Gallici	.....	Astring. in Sore Nipples	.....
„ „ Tannici	.....	Do.	.....
„ Amyli	.....	Emollient, Demulcent	.....

<i>Medicine.</i>	<i>Dose for Adult.</i>	<i>Actions and Uses.</i>	<i>Form of Administration.</i>
Glycerinum Boracis	....	For Sore Nipples, and Excoriations	....
Glycyrrhizæ Radix	....	For prep. Extracts, &c.	....
Gossypium	....	For prep. Pyroxylin	....
Granati Radicis Cor.	See Decoctum	Vermif. in Tape-worm	....
Guaiaci Lignum	....	In Decoct. Sarsæ Co.	....
„ Resina	gr. x. to xxx.	Stimulating Diaphoretic in Rheumatism	In powder or electuary
Gutta-Percha	....	For preparing the Liquor	....
Hæmatoxlyi Lignum	....	For preparing the Decoction and Extract	....
Hemidesmi Radix	....	For preparing the Syrup	....
Hirudo (The Leech)	....	For Local Bleedings	....
Hordeum Decort.	See Decoctum	Demulcent	....
Hydrargyri Iodid. Rub.	gr. 1-16th to $\frac{1}{4}$	Alterative, Deobstruent, Sialogogue	In pill
„ Iodid. Viride	gr. j. to iij.	Do.	Do.
„ Oxidum Flav.	....	For prep. the Ointment	....
„ „ Rubrum	....	Do.	....
„ Perchloridum	gr. 1-16th to 1-8th	Alterat., Antisyphilitic	In solution
„ Subchloridum	gr. ss. to v.	Cathartic, Alterative, Cholagogue	In pill or powder
„ Sulphas	....	For prep. Hyd. Perch. and Hyd. Subch.	....
Hydrargyrum	....	In Ileus; rarely used now in metallic state	....
„ Ammoniatum	....	For prep. the Ointment	....
„ cum Creta	gr. iij. to viij.	Laxative and Alterat.	In powder
Hyoscyami Folia	See Ext. & Tinet.	Narcotic	....
Infusum Anthemidis	fʒj. to fʒiv.	Tonic	In draught or mixture
„ Aurantii	fʒj. to fʒij.	Aromatic Tonic	Do.
„ „ Co.	fʒj. to fʒij.	Do.	Do.
„ Buchu	fʒj. to fʒiv.	Stimulating Diuretic	Do.
Infusum Calumbæ	fʒj. to fʒij.	Bitter Tonic	Draught or mix.
„ Caryophylli	fʒj. to fʒiv.	Aromatic	Do.
„ Cascarillæ	fʒj. to fʒij.	Aromatic Tonic	Do.
„ Catechu	fʒj. to fʒij.	Astringent	Do.
„ Chiratae	fʒj. to fʒij.	Bitter Tonic	Do.
„ Cinchonæ Flav.	fʒj. to fʒij.	Tonic, Antiperiodic	Do.
„ Cuspariæ	fʒj. to fʒij.	Tonic	Do.
„ Cusso	fʒiv. to fʒviiij.	Anthel. in Tape-worm	In draught
„ Digitalis	fʒij. to fʒss.	Sedative and Diuretic	Draught or mix.
„ Dulcamaræ	fʒj. to fʒij.	Diaph. and Alterative in Skin Diseases	Do.
„ Ergotæ	fʒj. to fʒij.	Uterine Stimulant	In draught
„ Gentianæ Co.	fʒj. to fʒij.	Bitter Tonic	Draught or mix.
„ Krameriæ	fʒj. to fʒij.	Astringent in Urinary Diseases	Do.
„ Lini	<i>Ad libitum</i>	Demulcent Drink in Urinary Diseases	....
„ Lupuli	fʒj. to fʒij.	Tonic and Hypnotic	Draught or mix.
„ Maticæ	fʒj. to fʒiv.	Astringent in Hæmaturia, &c.	Do.
„ Quassiæ	fʒj. to fʒij.	Bitter Tonic	Do.
„ Rhei	fʒj. to fʒij.	Tonic and Laxative	Do.
„ Rosæ Acidum	fʒj. to fʒij.	Astringent	Do.

<i>Medicine.</i>	<i>Dose for Adult.</i>	<i>Actions and Uses.</i>	<i>Form of Administration.</i>
Infusum Senegæ	fʒj. to fʒij.	Stimulating Expect.	Draught or mix.
„ Sennæ	fʒj. to fʒij.	Laxative	In draught
„ Serpentariæ	fʒj. to fʒij.	Stimulant and Tonic	Draught or mix.
„ Uvæ Ursi	fʒj. to fʒij.	Tonic and Astringent in Urinary Diseases	Do.
„ Valerianæ	fʒj. to fʒij.	Antispas. in Hysteria	Do.
Injectio Morphiæ Hypodermica	min. j. to vj.	Narcotic, Sedative	By subcutaneous injection
Iodum	See Potass. Iodid.	Deobstruent	.....
Ipecacuanha	gr. ½ to ij. expect.; gr. xv. to xxx. emetic	Expectorant, Emetic	In powder
Iridin	gr. j. to v.	Powerful Cholagogue	In pill
Jaborandi	gr. v. to x.	Diaphor. and Sialagogue	In infusion
Jalapa	gr. x. to xxx.	Cathartic	Do.
Jalapæ Resina	gr. ij. to v.	Do.	Pill or powder
Kamala	gr. xxx. to cxx.	Anthel. in Tape-worm	In electuary
Kino	gr. x. to xxx.	Astringent	In powder
Krameria Radix	See Extractum and Infusum	Astringent in Urinary Diseases	.....
Lac	.....	Used in Mist. Scam.	.....
Lactuca	See Extractum	Narcotic, Sedative	.....
Laricis Cortex	.....	For making Tincture	.....
Laurocerasi Folia	See Aqua Lauroc.	For preparing the Aqua	.....
Limonis Cortex	See Syr. and Tinc.	.....	.....
„ Succus	.....	Refrig. Drink in Fevers	.....
Lini Farina	.....	For Poultices	.....
„ Semina	.....	For prep. the Infusion	.....
Linimentum Aconiti	External Use	For Rheumatism and Neuralgia	.....
„ Ammonia	Do.	Rubefacient	.....
„ Belladonna [Oil]	Do.	For Rheumatism and Neuralgia	.....
„ Calcis (Carron)	Do.	Applied in Burns	.....
„ Camphoræ	Do.	Applied in Rheumatism	.....
„ „ Co.	Do.	Stimulating Liniment	.....
„ Chloroformi	Do.	Powerfully stimulating Liniment	.....
„ Crotonis	Do.	For producing Pustules	.....
„ Hydrargyri	Do.	Stimulant, Resolvent	.....
„ Iodi	Do.	Stimulant in Glandular Swellings	.....
„ Opii [Sapone	Do.	Anodyne Liniment	.....
„ Potass. Iod. cum	Do.	Stimulant	.....
„ Saponis	Do.	Used in Sprains, etc.	.....
„ Sinapis Co.	Do.	Epispastic in Muscular Rheumatism	.....
„ Terebinthinæ	Do.	Do.	.....
„ „ Aceticum	Do.	Do.	.....
Liquor Ammonia	min. v. to xv. well diluted	Antacid and Stimulant	In mixture
„ „ Acetatis	fʒij. to fʒvj.	Diaphoretic in Catarrh and Fevers	Do.
„ „ Citratis	fʒij. to fʒvj.	Diaphoretic in Fevers	Do.
„ „ Fortior	External use	Corrosive Poison	.....
„ Antimonii Chloridi	.....	Caustic, and for prepar- ing Antimon. Oxid.	.....

<i>Medicine.</i>	<i>Dose for Adult.</i>	<i>Actions and Uses.</i>	<i>Form of Administration.</i>
Liquor Arsenicalis	min. ij. to viij.	Alterative, Antiperiod. Poison	In draught or mixture
„ Arsenici Hydrochlor.	min. ij. to viij.	Do.	Do.
„ Atropiæ	....	For dilating Pupil	....
„ „ Sulph.	....	Do.	....
„ Bismuthi et Ammon. Cit.	f̄ss. to f̄j.	Tonic, Astringent. In Dyspepsia	In mixture
„ Calcis	f̄j. to f̄iv.	Antacid, Astringent	Alone or in mix.
„ „ Chloratæ	....	Disinfectant	....
„ „ Saccharat.	min. xv. to lx.	Antacid and Astringent in Diarrhoea	In water, well diluted
„ Chlori	min. x. to xx.	Stimulant and Tonic in Typhus. Disinfectant	In mixture
„ Epispasticus	External use	Blistering Fluid	....
„ Ferri Perchlor.	min. x. to xxx.	Chalybeate Tonic	In water
„ „ „ Fortior	External use	Styptic	....
„ „ Pernitrat.	min. x. to xl.	Tonic and Astringent	In water
„ „ Persulphatis	....	For preparing Ferri Tart., &c.	....
„ Gutta-Percha	....	For preparing Charta Sinapis, &c.	....
„ Hydrarg. Nit. Acidus	....	Poison; Caustic	....
„ „ Perchlor.	f̄ss. to f̄ij.	Given in Syphilis	In mixture
„ Iodi	....	A substitute for the Tincture	....
„ Lithiæ Effervesens	f̄v. to f̄x.	Antacid drink in Gout	....
„ Magnesiæ Carbonatis	f̄j. to f̄ij.	Antacid in Dyspepsia	In mixture
„ „ Citratis	f̄v. to f̄x.	Laxative	In draught
„ Morph. Acetat.	min. x. to lx.	Narcotic	Do.
„ „ Hydrochloratis	min. x. to lx.	Do.	Do.
„ Plumbi Subacetatis	External use	For prepar. the Dilute	....
„ „ „ Dilutus	Do.	Lotion for inflamed parts. Injections, &c.	....
„ Potassæ	min. xv. to lx.	Antacid	In mixture
„ „ Effervesc.	<i>Ad libitum</i>	Antacid and Diuretic	....
„ „ Permannanganatis	f̄ij. to f̄ss.	Disinfectant and Antiseptic in Fevers	In water
„ Sodæ	min. x. to xxx.	Antacid in Dyspepsia and Biliary Disorder	Do.
„ „ Arseniatis	min. v. to x.	See Arsenic	Draught or mix.
„ „ Chloratæ	min. x. to xx.	Stimulant and Antiseptic in Fevers	Do.
„ „ Effervesc.	<i>Ad libitum</i>	Antacid and Refriger.	....
„ Strychniæ	min. v. to x.	Nerve-tonic	In mixture
„ Zinci Chloridi	....	Caustic and Disinfect.	....
Lithiæ Carbonas	gr. ij. to vj.	Antacid in Gout	In mixture
„ Citras	gr. v. to x.	Do.	Do.
Lobelia	See Tincture	Narcotic Poison. Emetic and Expectorant	....
Lotio Hydrarg. Flav.	External use	Venereal and unhealthy Sores	....

<i>Medicine.</i>	<i>Dose for Adult.</i>	<i>Actions and Uses.</i>	<i>Form of Administration</i>
Lotio Hydrarg. Nigra	External use	Venereal and unhealthy Sores	....
Lupulus	See Tincture	Tonic and Hypnotic	....
Magnesia	gr. x. to lx.	Antacid and Laxative	In powder
„ Levis	Do.	Do.	Do.
Magnesia Carb.	Do.	Do.	Do.
„ „ Levis	Do.	Do.	Do.
„ Sulphas	gr. lx. to ʒss.	Cathartic	In water
Manganessii Oxid. Nigrum	....	For preparing Chlorine	....
Manna	gr. lx. to ʒj.	Laxative	In mixture
Marmor Album	....	For preparing Carbonic-Acid Gas	....
Mastiche	....	Weak Stimulant; useless, and rarely used	....
Maticæ Folia	See Infusion	Astringent	....
Mel Boracis	....	Astring. in Sore Mouth	....
Mel Depuratum	....	For prep. Mel Boracis	....
Mezerei Cortex	See Ext. and De-coct. Sarsæ Co.	Diaph. and Epispastic	....
Mica Panis (Bread crumb)	....	For making Pills	....
Mistura Ammoniaci	fʒss. to fʒj.	Stimulant and Expect.	In mixture
„ Amygdalæ	fʒj. to fʒij.	A vehicle for other medicines	....
„ Creasoti	fʒj. to fʒij.	Sedative. Given in Vomiting	In mixture
„ Cretæ	fʒj. to fʒij.	Astringent in Diarrhœa	Do.
„ FerriAromatica	fʒj. to fʒij.	Stimulant and Tonic in Amenorrhœa	Do.
„ „ Composita	fʒj. to fʒij.	Do.	Do.
„ Gentianæ	fʒss. to fʒj.	Aromatic Tonic	In mixture
„ Guaiaci	fʒss. to fʒij.	Diaph. in Rheumatism	Do.
„ Scammonii	fʒss. to fʒij. (for a child)	Laxative	By itself
„ Sennæ Comp.	fʒj. to fʒiss.	Do.	In draught
„ Spiritus Vini Gallici	fʒj. to fʒij.	Stimulant and Nutrient	Do.
Mori Succus	See Syrup	For prep. the Syrup	....
Morphiæ Acetas	gr. ¼ to ½	Narcotic, Sedative	Draught, mixture, or pill
„ Hydrochloras	gr. ⅛ to ½	Do.	Do.
Moschus	gr. v. to x.	Antispas. in Hysteria	Pill or powder
Mucilago Acaciæ	....	Demulcent. Vehicle for other medicines	....
„ Amyli	....	For injections	....
„ Tragacanthæ	....	Do.	....
Myristica	See Oleum Myrist.	....	....
Myrrha	gr. x. to xx.	Stimulant and Tonic	Pill or powder
Nectandræ Cortex	See Beberia Sulph.	For prep. Beberia Sulph.	....
Nux Vomica	gr. j. to iij.	Special Stimulant and Nerve-tonic	....
Oleum Amygdalæ	....	Used for Ointments	....
„ Anethi	min. j. to iij.	Carminative	On sugar
„ Anisi	Do.	Do.	Do.
„ Anthemidis	min. ij. to v.	Carminative in Colic	Do.
„ Cajuputi	min. j. to iv.	Stimulant, Rubefacient	Do.

<i>Medicine.</i>	<i>Dose for Adult.</i>	<i>Actions and Uses.</i>	<i>Form of Administration.</i>
Oleum Carui	min. j. to v.	Carminative	On sugar
„ Caryophylli	min. j. to ij.	Do.	Do.
„ Cinnamomi	min. j. to ij.	A warm Stimulant for flavouring	Do.
„ Copaibæ	min. v. to xx.	In Gonorrhœa	In emulsion
„ Coriandri	min. j. to v.	Aromatic, Carminative	On sugar
„ Crotonis	min. $\frac{1}{3}$ to j.	Irrit. Poison. Cathart.	In pill
„ Cubebæ	min. v. to xx.	Special Stimulant in Gonorrhœa	In mixture
„ Juniperi	min. ij. to v.	Diuretic	On sugar
„ Lavandulæ	min. j. to v.	Stimulant, Carminative	Do.
„ Limonis	min. j. to x.	Flavouring Aromatic	Do.
„ Lini	External use	Emollient	....
„ Menthæ Piper.	min. ij. to v.	Carmin. in Flatulence	On sugar
„ „ Viridis	min. ij. to v.	Do., but weaker	Do.
„ Morrhuæ	f̄j. to f̄j.	Alterative and Nutri- tive in Phthisis	In milk
„ Myristicæ	min. j. to v.	Aromatic, Carminative	On sugar
„ „ Expressum	....	Used in the Emp. Pis- cis, &c.	....
„ Olivæ	....	Emollient. Used in Plasters, &c.	....
„ Phosphoratum	min. v. to xx.	Nerve-tonic	In mixture
„ Pimentæ	min. j. to v.	Carminative	On sugar
„ Ricini	f̄j. to f̄j.	Laxative	Draught
„ Rosmarini	min. j. to v.	Carminative and Ex- ternal Stimulant	On sugar
„ Rutæ	min. j. to v.	Antispas. in Hysteria	Do.
„ Sabinae	min. j. to v.	Poison, & Uterine Stimul.	Draught or pill
„ Sinapis	....	Vesicant, Epispastic	....
„ Terebinthinæ	min. x. to f̄jss.	Anthelmin., Stimulant, Cathartic, Epispastic	Enema or draught
„ Theobromæ	....	For making Suppositor.	....
Opium	gr. ss. to ij.	Narcotic, Sedative, and Hypnotic	Pill or powder
Os Ustum	....	Used in preparing Calc. Phosph., &c.	....
Ovi Vitellus	....	Used in preparing Mist. Spt. Vini Gallici	....
Oxymel	f̄j. to f̄ij.	Used in Colds	Pure or in gargle
„ Scillæ	f̄jss. to f̄j.	Do.	In mixture
Papaveris Capsulæ	See Decoction and Extract	Anodyne	In poultices
Pareiræ Radix	Do.	Diuretic and Tonic in Urinary Diseases	....
Pepsin	gr. ij. to v.	Given in Dyspepsia, with deficient secre- tion of Gastric Juice	In powder
Phosphorus	gr. 1-30th	In Nervous Debility	In pill
Physostigmatis Faba	gr. j. to iv.	Narcotic and Sedative	Pill or powder
Phytolaccin	gr. $\frac{1}{3}$ to j.	Hepatic Stimulant	In pill
Pilula Aloes Barba- densis	gr. v. to x.	Cathartic	....
„ „ et Assa- foetidæ	gr. v. to x.	Laxative and Antispas- modic	....
„ „ et Ferri	gr. v. to x.	Laxative and Emmen.	....
„ „ et Myrrhæ	gr. v. to x.	Do.	....

<i>Medicine.</i>	<i>Dose for Adult.</i>	<i>Actions and Uses.</i>	<i>Form of Administration.</i>
Pilula Aloes Socotrinae	gr. v. to x.	Cathartic	....
„ Assafœtidæ Co.	gr. v. to x.	Antispas., Carminative	....
„ Cambogiæ Co.	gr. v. to x.	Cathartic	....
„ Colocynthi. Co.	gr. v. to x.	Do.	....
„ „ et Hyoseyami	gr. v. to x.	Laxative	....
„ Conii Composita	gr. v. to x.	Sedative and Hypnotic. In Coughs	....
„ Ferri Carbonatis	gr. v. to xx.	Chalybeate Tonic	....
„ „ Iodidi	gr. iij. to viij.	Do., and Deobstruent	....
„ Hydrargyri	gr. ij. to viij.	See Mercury	....
„ „ Subchloridi Co.	gr. v. to x.	See Hyd. Subchlorid.	....
„ Ipecacuanhæ cum Scill.	gr. v. to x.	Expectorant	....
„ Phosphori	gr. ij. to vj.	Nervine Tonic	....
„ Plumbi cum Opio	gr. iij. to v.	Astringent and Sedative	....
„ Quiniæ	gr. ij. to x.	Tonic and Antiperiodic	....
„ Rhei Composita	gr. v. to x.	Cathartic	....
„ Saponis Co.	gr. iij. to v.	Anodyne, Hypnotic	....
„ Scammonii Co.	gr. v. to xv.	Purgative	....
„ Scillæ Composita	gr. v. to x.	Expectorant	....
Pimenta	See Aq. and Oleum	Carminative	....
Piper Nigrum	See Conf. Piper	Aromatic Stimulant	....
Pix Burgundica	See Emplastrum Picis, &c.	For making Plasters	....
„ Liquida	See Unguentum	For preparing the Oint.	....
Plumbi Acetas	gr. j. to iv.	Irritant, and Sedative Astringent	In pill and lotion
„ Carbonas	External use	Astring. in Excoriations	....
„ Iodidum	See Emplast. et Unguentum	Used in Porrigo, Enlarged Glands, &c.	....
„ Nitras	....	Used for preparing the Plumb. Iod.	....
„ Oxidum	External use	External Astringent	....
Podophylli Radix	....	For prep. the Resina	....
„ Resina	gr. ¼ to j.	Cathartic, Cholagogue, Alterative	In pill
Potassa Caustica	External use	Corros. Poison; Caustic	....
„ Sulphurata	gr. ij. to viij.	Irritant; Alterative in Skin Diseases	In cinnamon water
Potassæ Acetas	gr. x. to lx.	Diuretic and Cathartic	In mixture
„ Bicarbonas	gr. x. to xl.	Antacid, Antilithic, and Diuretic	Do., and in powder
„ Bichromas	....	Used for preparing the Sodæ Valer.	....
„ Carbonas	gr. x. to xxx.	Corrosive, Antacid, and Diuretic	Largely diluted in water
„ Chloras	gr. x. to xxx.	Given in Fevers and Cancrum Oris	In mixture
„ Citras	gr. xx. to lx.	Given in Gout and Scorbutus	Draught or mixture
„ Nitras	gr. x. to xxx.	Irritant, Sedat., Diur.	Do.
„ Permanganas	See Liquor	Disinfectant, &c.	....
„ Prussias Flava	....	For preparing Acidum Hydrocyan. dilut.	....

<i>Medicine.</i>	<i>Dose for Adult.</i>	<i>Actions and Uses.</i>	<i>Form of Administration.</i>
Potassæ Sulphas	gr. xv. to lx.	Mild Cathartic	In draught
„ Tartras	gr. lx. to ʒss.	Do.	Electuary
„ „ Acida	gr. xx. to lx.	Laxative and Diuretic	Do., or largely dil. in water
Potassii Bromidum	gr. v. to xxx.	Alterative, Calmative, Hypnotic	In water
„ Iodidum	gr. ij. to xxx.	Alterative, Deobstruent, Diuretic	Do.
Prunum	See Confec. Sennæ	Used in Confec. Sennæ	....
Pterocarpi Lignum	....	Used in Tinc. Lav. Co.	....
Pulvis Amygdalæ Compositus	See Mist. Amygd.	For preparing Mistura Amygdalæ	....
„ Antimonialis	gr. ij. to x.	Sedative and Diaphor.	In powder
„ Catechu Co.	gr. xx. to xl.	Astringent	Do.
„ Cinnamomi Co.	gr. ij. to x.	Carmin., Corrective	Do.
„ Cretæ Aromat.	gr. x. to lx.	Aromatic Astringent	In mixture
„ „ „ cum Opio	gr. x. to xl.	Sedative and Astringent	Powder or do.
„ Elaterii Co.	gr. ½ to v.	Hydragogue Cathartic	In powder
„ Glycyrrh. Co.	gr. xxx. to lx.	Laxative	Do.
„ Ipecacuan. Co.	gr. v. to xv.	Sedative, Diaphoretic	Powder or mix.
„ Jalapæ Co.	gr. xx. to lx.	Cathartic	Powder or elec.
„ Kino Co.	gr. v. to xx.	Sedative, Astringent	Do.
„ Opii Co.	gr. ij. to v.	Aromatic, Sedative, and Astringent	Do.
„ Rhei Co.	gr. xx. to lx.	Laxative	Do.
„ Scammonii Co.	gr. x. to xx.	Cathartic	Do.
„ Tragacanth. Co.	gr. xx. to lx.	Demulcent. A vehicle for others	Do.
Pyrethri Radix	See Tincture	Chewed for Toothache	....
Pyroxilin	....	For preparing Colloidion	....
Quassia Lignum	See Infusion, Extract and Tinct.	Bitter Tonic	....
Quereus Cortex	See Decoction	Astringent	....
Quiniæ Sulphas	gr. j. to x.	Tonic, Antiperiodic	Pill or solution
Resina	....	For Plasters and Oint.	....
Rhamni Succus	See Syr. Rhamni	Cathartic	....
Rhei Radix (Pulv.)	gr. v. to xx.	Laxative and Tonic	In powder
Rhœados Petala	See Syrup	For preparing the Syrup	....
Rosæ Caninæ Fruct.	See Confection	For prep. the Confection	....
„ Centifoliæ Petala	....	For prep. Aqua Rosæ	....
„ Gallicæ Petala	....	For prep. Confection, Infusion, and Syrup	....
Sabadilla	See Veratria	For preparing Veratria	In powder
Sabinæ Cacumina	gr. iv. to x.	Irrit. and Uterine Stim.	Do.
Saccharum Purificatum	....	For Confections, Syrups, &c.	....
„ Lactis	....	Vehicle for Powders	....
Sambuci Flores	See Aqua	For preparing the Aqua Sambuci	....
Sanguinarin	gr. ¼ to j.	Cholagogue	In pill
Santonica	gr. x. to lx.	Anthelmintic	Powder or elec.
Santoninum	gr. ij. to vj	Do., for small worms	In powder
Sapo Animalis	....	For Pills, Suppositories, and Liniments	....
„ Durus	....	Do., and for Plasters	....
„ Mollis	....	In Liniment. Terebinth.	....

<i>Medicine.</i>	<i>Dose for Adult.</i>	<i>Actions and Uses.</i>	<i>Form of Administration.</i>
Sarsæ Radix	See Decoct. and Extract	For preparing Decoctions and Extracts	....
Sassafras Radix	....	Used in Decoct. Sarsæ Co.	....
Scammonia Radix	....	For preparing the Resin	....
" Resina	gr. iij. to viij.	Cathartic	Pill or powder
Scammonium	gr. v. to x.	Do.	In powder
Scilla (Powder)	gr. j. to iij.	Diuretic, Expectorant	Pill or powder
Scoparii Cacumina	See Decoctio and Succus	For preparing Decoction, &c.	....
Senegæ Radix	See Infusion	For preparing Infusion	....
Senna Alexandrina	See Infusion, Tincture, &c.	Cathartic	....
" Indica	Do.	Do.	....
Serpentaria Radix	See Infusions	Tonic and Stimulant	....
Sevum Præparatum	....	For prep. Emp. Canthar.	....
Sinapis	....	For Cataplasm and Oil	....
Soda Caustica	See Liquor Sodæ	Caustic, Irritant	....
" Tartarata	ʒ¼ to ʒss.	Mild Laxative	In draught
Sodæ Acetas	....	For prep. Ferri Arsen., &c.	....
" Arsenias	gr. 1-16th to ½	See Acid. Arsenios.	Draught or pill
" Bicarbonas	gr. x. to lx.	Antacid, Diuretic	In powder
" Carbonas	gr. v. to xxx.	Irrit., Antacid, Diuretic	Draught or pill
" " Exsiccata	gr. iij. to x.	Do., but stronger	Do.
" Citro-Tartras Effervescens	gr. lx. to ʒ¼	Antacid and Refrigerant in Fevers	Do.
" Hypophosphis	gr. v. to x.	Nerve-tonic	In mixture
" Nitras	....	For prep. Sodæ Arsenias	....
" Phosphas	ʒ¼ to ʒj.	Gentle Saline Cathartic	Draught or mix.
" Sulphas	ʒ¼ to ʒj.	Saline Cathartic	Do.
" Valerianas	gr. j. to v.	Antispasmodic	In pill
Sodii Benzoas	gr. xx.	Powerful Cholagogue	In solution
" Chloridum	ʒj. to ʒij.	Cathartic, Emetic	In draught
" Salicylas	gr. xx.	Powerful Cholagogue	In solution
Spiritus Ætheris	min. xxx. to xc.	Stimulant, Antispasm.	Draught or mix.
" " Nitrosi	fʒss. to fʒij.	Diuretic, Diaphoretic, Antispasmodic	Do.
" Ammonia Aromaticus	fʒss. to fʒj.	Antacid, Stimulant, and Antispasmodic	Do.
" " Fœtidus	fʒss. to fʒj.	Stimulant, Antispasm.	Do.
" Amoracia Compositus	fʒj. to fʒij.	Warm Stimulant, Antiscorbutic	Do.
" Cajuputi	fʒss. to fʒj.	Stimulant, Antispasm.	Do.
" Camphoræ	min. x. to xxx.	See Camphor	Do.
" Chloroformi	min. xx. to lx.	See Chloroform	Do.
" Juniperi	fʒss. to fʒj.	Diuretic	Do.
" Lavandulæ	fʒss. to fʒj.	See Ol. Lavand.	Do.
" Menthæ Pip.	fʒss. to fʒj.	See Ol. Menth. pi.	Do.
" Myristicæ	fʒss. to fʒj.	See Ol. Myristicæ	Do.
" Rectificatus	....	For prep. Tinctures, &c.	....
" Rosmarini	....	See Ol. Rosmarini	....
" Tenuior	....	For prep. Tinctures	....
" Vini Gallici	....	For preparing Mist. Spt. Vini Gallici	....
Stramonii Folia	....	Poison; Narcotic	By smoking
" Semina	See Ext. & Tinct.	Narcotic, Antispasmodic in Asthma	....
Strychnia	gr. 1-30th to 1-12th	Nerve-tonic in Paral., &c.	Pill or draught

<i>Medicine.</i>	<i>Dose for Adult.</i>	<i>Actions and Uses.</i>	<i>Form of Administration.</i>
Styrax Præparatus	....	For preparing Tinctura Benzoini Co.	....
Succus Belladonnæ	min. v. to xv.	Sedative and Hypnotic	Draught or mix.
„ Conii	f̄ss. to f̄j.	See Conii Folia	Do.
„ Hyoseyami	f̄ss. to f̄j.	Sedative and Hypnotic	Do.
„ Scoparii	f̄j. to f̄ij.	Diuretic	Do.
„ Taraxaci	f̄j. to f̄ij.	Tonic and Cholagogue	Do.
Sulphur Præcipitatum	gr. xx. to lx.	Diaphoretic Laxative in Skin Diseases	In electuary
„ Sublimatum	gr. xx. to lx.	Do.	Do.
Sulphuris Iodidum	....	For prep. the Ointment	....
Sumbul Radix	See Tinctura	For prep. the Tincture	....
Suppositoria Acidi Carbolici cum Sapone	....	Disinfectant	....
„ „ Tannici	....	Astringent	....
„ „ „ cum Sapone	....	Do.	....
„ Hydrargyri	....	Resolvent	....
„ Morphicæ	....	Narcotic and Sedative	....
„ „ cum Sapone	....	Do.	....
„ Plumbi Co.	....	Sedative, Astringent	....
Syrupus	....	Used in Mist. Cretæ, &c.	....
„ Aurantii	f̄j.	Flavouring Aromatic	In mixture
„ „ Floris	f̄j.	Do.	Do.
„ Chloral	f̄ss. to f̄ij.	Hypnotic and Sedative	In water
„ Ferri Iodidi	f̄ss. to f̄j.	Chalybeate Tonic, Alter.	Do.
„ „ Phosphatis	f̄j.	Tonic	Do.
„ Hemidesmi	f̄j.	Tonic and Diaphoretic	In mixture
„ Limonis	f̄j.	Refrigerant	Do.
„ Mori	f̄j.	Refrigerant, Laxative	Do.
„ Papaveris	f̄j.	Sedative and Hypnotic	Draught or mix.
„ Rhamni	f̄j.	Cathartic	Do.
„ Rhei	f̄j. to f̄ss.	Laxative	Do.
„ Rhœados	f̄j.	Feeble Narcotic. For colouring mixtures	Do.
„ Rosæ Gallicæ	f̄j.	Astringent	Do., & in gargles
„ Scillæ	f̄ss. to f̄j.	Diuretic, Expectorant	Draught or mix.
„ Sennæ	f̄j. to f̄ss.	Cathartic	Do.
„ Tolutanus	f̄j.	Expectorant	Do.
„ Zingiberis	f̄j.	Aromatic, Corrective	Do.
Tabaci Folia	See Enema	Narcotico-acrid Poison. Laxative and Emetic	Enema
Tamarindus	See Confec. Sennæ	Laxative	Confection
Taraxaci Radix	See Decoct. and Succus	Tonic and Cholagogue	....
Terebinthina Canadensis	gr. xx. to xxx.	Tonic in Urinary Disorders	In pill
Theriaca	....	For making pills	....
Thus Americanum	....	For making plasters	....
Tinctura Aconiti	min. v. to xv.	Poison and Sedative	Draught or mix.
„ Aloes	f̄j. to f̄ij.	See Aloes	Do.
„ Arnicæ	f̄j. to f̄ij.	Stimul. in Low Fevers	Do.
„ Assafoetidæ	f̄ss. to f̄j.	Antispasmodic and Carminative	Do.
„ Aurantii	f̄j. to f̄ij.	Aromat., for flavouring	Do.
„ „ Recentis	f̄j. to f̄ij.	Do.	Do.

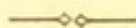
<i>Medicine.</i>	<i>Dose for Adult.</i>	<i>Actions and Uses.</i>	<i>Form of Administration.</i>
Tinctura Belladonnæ	min. v. to xx.	Narcot., Anodyne, Calmative, Antispasmod.	Draught or mix.
„ Benzoini Co.	fʒss. to fʒj.	Expectorant	Do.
„ Buchu	fʒj. to fʒij.	Diuretic and Tonic in Urinary Diseases.	Do.
„ Calumbæ	fʒss. to fʒij.	Tonic	In mixture
„ Camphoræ Co.	min. xv. to fʒi.	Anodyne, Expectorant	Do.
„ Cannabis Indicæ	min. v. to xx.	Narcotic, Antispasmodic. In Tetanus	Draught or mix.
„ Cantharidis	min. v. to xx.	Diuretic, Aphrodisiac	Do.
„ Capsici	min. x. to xx.	Stimulant, Tonic, Epispastic	Mix., or gargle
„ Cardamomi Co.	fʒss. to fʒij.	Aromatic, Tonic	In mixture
„ Cascariillæ	fʒss. to fʒj.	Do.	Do.
„ Castorei	fʒss. to fʒj.	Antispasm. in Hysteria	Do.
„ Catechu	fʒss. to fʒij.	Astringent	Do.
„ Chirataë	fʒss. to fʒij.	Bitter Tonic	Do.
„ Chloroformi	min. xx. to lx.	See Chloroform	Do.
„ Composita			
„ Cinchonæ Co.	fʒss. to fʒij.	Tonic, Antiperiodic	Do.
„ „ Flavæ	fʒss. to fʒij.	Do.	Do.
„ Cinnamomi	fʒss. to fʒij.	Aromatic	Do.
„ Cocci	....	For colouring	....
„ Cole. Seminum	min. x. to xxx.	See Colchicum	In mixture
„ Conii	min. xx. to lx.	See Conii Folia	Do.
„ Croci	....	For colouring	....
„ Cubebæ	fʒss. to fʒij.	In Gonorrhœa	In mixture
„ Digitalis	min. x. to xxx.	Sedative and Diuretic	Do.
„ Ergotæ	min. x. to fʒj.	Uterine Stimulant	Draught or mix.
„ Ferri Acetatis	min. v. to xxx.	Chalybeate Tonic in Amenorrhœa	Do.
„ „ Perchloridi	min. x. to xxx.	Do.	Do.
„ Gallæ	fʒss. to fʒij.	Astringent	Do.
„ Gentianæ Co.	fʒss. to fʒij.	Bitter Tonic	Do.
„ Guaiaci Ammoniata	fʒss. to fʒj.	Stimulating Diaphoret.	Do.
„ Hyoscyami	fʒss. to fʒj.	Narcotic and Sedative	Do.
„ Iodi	min. v. to xx.	Alterat., Deobstruent	Do.
„ Jalapæ	fʒss. to fʒij.	Cathartic	Do.
„ Kino	fʒss. to fʒij.	Astringent	Do.
„ Krameriaë	fʒss. to fʒij.	Astringent in Mucous Discharges	Do.
„ Laricis	min. xx. to xxx.	Do.	Do.
„ Lavandulæ	fʒss. to fʒij.	Aromat., Stimulant, and for colouring	Do.
„ Composita			
„ Limonis	fʒss. to fʒij.	See Limonis Cortex	Do.
„ Lobeliaë	min. x. to xxx.	Poison; Emetic, Expect., Antispasm.	Do.
„ „ Ætherea	min. x. to xxx.	Do.	Do.
„ Lupuli	fʒss. to fʒij.	Tonic and Hypnotic	Do.
„ Myrrhæ	fʒss. to fʒj.	Stim., Emem., Tonic	Do.
„ Nucis Vomicaë	min. x. to xx.	Nerve-tonic	Do.
„ Opii	min. v. to xl.	Narcotic and Sedative	Do.
„ „ Ammoniata	fʒss. to fʒj.	Do., and Expectorant	Do.
„ Pyrethri	....	See Pyrethri Radix	....
„ Quassiaë	fʒss. to fʒij.	Bitter Tonic	Draught or mix.
„ Quiniaë	fʒss. to fʒij.	Tonic and Antiperiodic	Do.

<i>Medicine.</i>	<i>Dose for Adult.</i>	<i>Actions and Uses.</i>	<i>Form of Administration.</i>
Tinctura Quiniae Ammoniata	f3ss. to f3ij.	Tonic, Antiperiod., and Stimulant	Draught or mix.
„ Rhei	f3j. to f3ij.; 3̄ss. to 3̄j. purgative	Laxative, Tonic, Purgative	Do.
„ Sabinæ	min. xx. to f3j.	Irritant, Uterine Stim.	Do.
„ Scillæ	min. x. to xxx.	Expectorant, Diuretic	Do.
„ Senegæ	f3ss. to f3ij.	Expectorant	Do.
„ Sennæ	f3j. to f3ss.	Cathartic	Do.
„ Serpentariæ	f3ss. to f3ij.	Tonic, Stim., Diaphor.	Do.
„ Stramonii	min. x. to xxx.	Narcotic and Sedative	Do.
„ Sumbul	min. x. to xxx.	Stimulant in Nervous Diseases	Do.
„ Tolutana	min. xx. to xl.	Expectorant	Do.
„ Valerianæ	f3j. to f3ij.	Antispasmodic	Do.
„ „ Ammoniata	f3ss. to f3j.	Stim. and Antispasm.	Do.
„ Veratri Viridis	min. v. to xx.	Emetic and Sedative	Do.
„ Zingiberis	min. xv. to f3j.	Aromatic, Corrective	Do.
„ „ Fortior	min. v. to xx.	Do.	Do.
Tragacantha	.....	For making Mucilage	.....
Trochisci Acidi Tannici	1 to 6 lozenges	Astringent	.....
„ Bismuthi	1 to 6 lozenges	Sedative and Tonic	.....
„ Catechu	1 to 6 lozenges	Astringent	.....
„ Ferri Redacti	1 to 6 lozenges	Tonic	.....
„ Ipecacuanhæ	1 to 3 lozenges	Expectorant	.....
„ Morphis	1 to 6 lozenges	Sedative, Expectorant	.....
„ „ et Ipecac.	1 to 6 lozenges	Do.	.....
„ Opii	1 to 6 lozenges	Narcotic and Sedative	.....
„ Potassæ Chlor.	1 to 6 lozenges	Demulcent, Astringent	.....
„ Sodæ Bicarbon.	1 to 6 lozenges	Antacid	.....
Ulmæ Cortex	See Decoctum	Tonic and Diaphoretic	.....
Unguent. Aconitiæ	.....	In Neuralgia	.....
„ Antimonii Tart.	.....	For producing pustules	.....
„ Atropiæ	.....	For dilating pupil	.....
„ Belladonnæ	.....	Do., and in Neuralgia	.....
„ Cadmii Iodidi	.....	Stimulant, Resolvent	.....
„ Cantharidis	.....	Epispastic	.....
„ Cetacei	.....	Simple dressing	.....
„ Creasoti	.....	For Porrigo and Tinea	.....
„ Elemi	.....	Stimulant	.....
„ Gallæ	.....	Astringent	.....
„ Gallæ cum Opio	.....	Sedative and Astringent in Piles	.....
„ Hydrargyri	.....	Resolvent, Alterative	.....
„ „ Ammoniati	.....	In Herpes, Impetigo, &c.	.....
„ „ Compositum	.....	Resolvent, Alterative	.....
„ „ Iodidi Rubri	.....	Do.	.....
„ „ Nitratæ	.....	Stimulant, Alterative. In Skin Diseases	.....
„ „ Oxidi Rubri	.....	Stimulant, Astringent	.....
„ „ Subchloridi	.....	Resolvent, Alterative	.....
„ Iodi	.....	Deobstruent. In Glandular Swellings	.....
„ Picis Liquidæ	.....	Stimulant. In Scaly Skin Diseases	.....
„ Plumbi Acetatis	.....	Astringent	.....
„ „ Carbonatis	.....	Healing Ointment	.....

<i>Medicine.</i>	<i>Dose for Adult.</i>	<i>Actions and Uses.</i>	<i>Form of Administration.</i>
Unguentum Plumbi Iodidi	....	Resolvent, Alterative	....
„ „ Subacet. Co.	....	Astringent and Sedative	....
„ Potassæ Sulphuratæ	....	In Scabies	....
„ Potassii Iodidi	....	Alterative	....
„ Resinæ	....	Stimulant	....
„ Sabinæ	....	Irritant	....
„ Simplex	....	Dressing simple sores	....
„ Sulphuris	....	In Scabies	....
„ „ Iodidi	....	In Porrigo, Tinea, Impetigo, &c.	....
„ Terebinthinæ	....	Stimulant	....
„ Veratriæ	....	In Strumous Diseases of Joints	....
„ Zinci	....	Astringent; in simple sores and Eczema	....
Uvæ Ursi Folia	See Infusion	In Urinary Disorders	....
Uvæ	....	In Tinct. Cardam. Co.	....
Valerianæ Radix	gr. x. to xxx.	Antispasmodic	In powder
Vapor Acidi Hydrocyanici	....	Powerful Sedative	Inhalation
„ Chlori	....	Alterat. and Disinfect.	Do.
„ Coniæ	....	Anodyne, Sedative	Do.
„ Creasoti	....	Sedative, Antiseptic	Do.
„ Iodi	....	Alterative, Deobstruent	Do.
Veratri Viridis Radix	See Tincture	Emetic, Sedative	....
Veratria	See Ointment	For preparing the Ointment; Poison	....
Vinum Aloes	fʒj. to fʒij.	Laxative	Draught or mix.
„ Antimoniale	min. v. to fʒj.	Emetic, Expectorant, Sedative	Do.
„ Aurantii	See Vin Quiniæ	Aromatic	Do.
„ Colchici	min. x. to xxx.	Diuret., Sedat.; in Gout and Rheumatism	Do.
„ Ferri	fʒj. to fʒss.	Chalybeate Tonic	Do.
„ „ Citratis	fʒj. to fʒss.	Do.	Do.
„ Ipecacuanhæ	Expect., min. v. to xl.; emetic, fʒij. to fʒvj.	Expectorant, Emetic	Do.
„ Opii	min. x. to xl.	Narcotic, Sedative	Do.
„ Quiniæ	fʒss. to fʒj.	Tonic, Antiperiodic	Do.
„ Rhei	fʒj. to fʒij.	Tonic, Laxative	Do.
„ Xericum	....	For prep. Vinum Aloes, &c., &c.	....
Zinci Acetas	gr. j. to ij. tonic, gr. x. to xx. emetic	Tonic, Emetic, Astringent	Pill or solution
„ Carbonas	External use	Astringent	....
„ Chloridum	....	Caustic, Disinfectant	....
„ Oxidum	gr. ij. to x.	Tonic in Epilepsy	In pill
„ Sulphas	gr. j. to ij. tonic, gr. x. to xxx. emetic	Tonic, Emetic, Astringent	Pill or solution
„ Valerianas	gr. j. to ij.	Antispasmodic	In pill
Zincum	....	For prep. Zinci Oxid., &c.	....
Zingiber	gr. v. to xv.	Aromatic, Carminative	In powder

TABLE

SHOWING THE GRADATIONS OF DOSES FROM INFANCY TO MANHOOD.



For an adult, supposing the dose to be	.	.	.	.	.	1,	or gr. lx.
Under 1 year will be	.	.	.	.	.	1-12th,	or gr. v.
„ 2 years	„	.	.	.	.	$\frac{1}{8}$,	or gr. viiss.
„ 3	„	.	.	.	.	1-6th,	or gr. x.
„ 4	„	.	.	.	.	$\frac{1}{4}$,	or gr. xv.
„ 7	„	.	.	.	.	$\frac{1}{3}$,	or gr. xx.
„ 14	„	.	.	.	.	$\frac{1}{2}$,	or gr. xxx.
„ 20	„	.	.	.	.	$\frac{2}{3}$,	or gr. lx.
Above 21	„	the full dose.					
„ 70	„	the dose should be diminished in the inverse ratio of the above.					

II.—ON POISONS.

<i>Poison.</i>	<i>Effects and Tests.</i>	<i>Antidotes.</i>
Acidum Arseniosum.	<p>Shortly after partaking, burning pain in the epigastrium, sickness, vomiting, diarrhoea, thirst, feeling of constriction in throat. Heart's action becomes feeble, with quick and weak pulse. Respiration painful and hurried; cold and clammy skin. Death at times within 24 hours from collapse, with or without convulsions.</p> <p><i>Tests.</i>—Slowly sublimed, it forms minute transparent octahedral crystals. Sprinkled on a hot iron, it gives out an alliaceous odour. Solution gives, with ammonio-nitrate of silver, a canary-yellow precipitate, insoluble in water, but readily dissolved by ammonia, and by nitric acid.</p>	<p>Stom.-pump or emetic of zinc. sulph. Wash out stomach with tepid water, in which is suspended the humid peroxide of iron. Give largely also of light magnesia and demulcent drinks.</p>
Acidum Hydrochloricum.	<p>Immediate burning pain in mouth, œsophagus, and stomach. Vomiting of liquid, with mucus. Corrosion of parts touched by the poison. Death from inflammation, or from asphyxia, the chink of the glottis becoming occluded by the tumefaction of the fauces.</p> <p><i>Tests.</i>—Gives, with nitrate of silver, a curdy-white precipitate, soluble in excess of ammonia, insol. in nitric acid.</p>	<p>Chalk, magnesia, and demulcent drinks.</p>
Acidum Hydrocyanicum Dilutum.	<p>Spasmodic breathing, convulsions, insensibility, and speedy death.</p> <p><i>Tests.</i>—Treated with a small quantity of a mixed solution of sulphate and persulphate of iron, afterwards with potash, and finally acidulated with hydrochloric acid, it forms prussian blue. Gives no precip. with chloride of barium, but with nitrate of silver it gives a white precipitate, entirely soluble in boiling concentrated nitric acid.</p>	<p>Fresh air, vigorous cold affusions, water being showered down head and neck, and artificial respiration. Newly precipitated oxide of iron, with an alkaline carbonate.</p>
Acidum Nitricum.	<p>Same as Acid. Hydrochlor.</p> <p><i>Tests.</i>—Poured over copper filings, dense red vapours are immediately formed; but if the acid be mixed with an equal volume of water, and then added to the copper, it gives off a colourless gas, which acquires an orange-red colour as it mixes with the air, and</p>	<p>Same as Acid Hydrochlor.</p>

<i>Poison.</i>	<i>Effects and Tests.</i>	<i>Antidotes.</i>
Acidum Oxalicum.	<p>which, if introduced into a solution of ferri sulph., communicates to it a dark purple or brown colour.</p> <p>Burning pain in throat, œsophagus, and stomach. Vomiting of mucus and blood altered to a dark green or black hue. Feeble pulse, convulsions, and death.</p>	Emetics and stomach-pump. Chalk, magnesia, or whiting suspended in water.
Acidum Sulphuricum.	<p>Same as Acid. Nitric.</p> <p><i>Tests.</i>—Evolves heat on addition of water, and when thus diluted gives a copious precipitate with chloride of barium, insoluble in nitric acid.</p>	Magnesia and demulcent drinks.
Aconiti Radix.	<p>Numbness and tingling in mouth and throat, vomiting, purging, giddiness, dilated pupil, feeble pulse, oppressed breathing, muscular paralysis. Death either from syncope or asphyxia.</p>	Emetic of zinci sulph.; internal and external stimulants.
Antimonium Tartaratum.	<p>Burning pain in stomach and bowels, vomiting, purging. Thirst, cold perspiration, cramps, great debility, and death.</p> <p><i>Tests.</i>—Decrepitates and blackens upon the application of heat. Its solution in water gives, with hydrochloric acid, a white precipitate, soluble in excess, and which is not formed if tartaric acid be previously added. 20 grs. dissolve without residue in fʒj. of aq. dest. at 60°; and the solution gives, with sulphuretted hydrogen, an orange precipitate, which, when washed and dried at 212°, weighs 9·91 grs.</p>	Tannin, catechu, and vegetable astringents.
Argenti Nitras.	<p>Corrosion of the tissues touched by it.</p> <p><i>Tests.</i>—Solution gives, with HCl, a curdy-white precipitate, which darkens by exposure to light, and is soluble in solution of ammonia.</p>	Common salt.
Belladonnæ Folia et Radix.	<p>Dryness of mouth and throat, insatiable thirst, sickness, vomiting, greatly dilated pupil, giddiness, palpitation, coma, death.</p>	Emetic of zinci sulphas, cold to head, ammonia internally & externally, other stimulants, and, after a brisk purgative, careful doses of opium.
Calx Chlorata.	<p>Burning pain in stomach and bowels, and thirst.</p> <p><i>Tests.</i>—The solution evolves chlorine on adding oxalic acid, and deposits at the same time oxalate of lime.</p>	Emetics, albumen, milk, flour, demulcent drinks.
Cantharidis Pu.	<p>Burning pain in stomach, vomiting, purging, pains in loins, bloody urine, strangury, priapism, delirium, convulsions, death.</p> <p><i>Tests.</i>—Powder, greyish-brown, containing shining green particles. Odour, strong and disagreeable.</p>	Emetics, mucilaginous drinks, opium by the mouth, and by enema; blood-letting, if necessary.

<i>Poison.</i>	<i>Effects and Tests.</i>	<i>Antidotes.</i>
Chloroform.	Insensibility, stertorous breathing, relaxation of muscles, arrestment of action of heart.	Currents of fresh air, galvanism, artificial respir., stimulants.
Conii Folia et Fructus.	Dryness of throat, delirium, coma, convulsions, death from paralysis of respiratory muscles.	Emetics; internal and exter. stimulants.
Colchici Cormus et Semina.	Burning pain in belly; vomiting, purging, thirst; depression of circulation, sometimes delirium and stupor; death from exhaustion.	Emetics promptly, and demulcent drinks; and, if coma results, strong stimulants. Tannin also, as it forms an insoluble compound with the colchicin.
Digitalis.	Vomiting, purging, slow and irregular pulse, dilated pupils, great debility, stupor, convulsions, coma, death.	Emetics of zinci sulphas; internal and external stimulants, and particularly the recumbent posture.
Elaterium.	Pain in bowels, purging, vomiting, cold, sweats, collapse.	Demul. drinks, mucil. enemata, small and repeated doses of opium, and the <i>warm bath</i> .
Ferri Perchloridi Liquor.	Same as Acid. Hydrochlor.	Same as Acid. Hydrochlor.
Hydrargyri Perchloridum.	Burning heat and pain in mouth and throat immediately after partaking of it. Pain soon extending to abdomen. Sickness, vomiting. Matters thrown up, mixed with mucus and blood. Diarrhoea, dysentery, cramps, convulsions, insensibility, death. <i>Tests.</i> —Solution (in water) gives a yellow precip. with caustic potash; a white precip. with ammonia; and a curdy-white precip. with nitrate of silver. Heated, it sublimes without decomposing, and without leaving any residue.	Albumen, white of egg, flour, milk, proto-chloride of tin.
Hyoscyami Folia.	Giddiness, delirium, dilated pupil, fullness about head, drowsiness, cold sweats, paralysis, exhaustion, death.	Emetics, stomach-pump, stimulants, lemon juice.
Liquor Ammoniae Fortior.	Burning pain in mouth, throat, and stomach, corrosion of parts, vomiting of blood.	Vinegar, lemon juice, tartaric acid, demulcents.
Lobelia.	Pain, sickness, vomiting, feeble pulse, contraction of pupils, insensibility, death.	Emetic of zinci sulph., internal and external stimulants.
Morphiae Hydrochloras.	See Opium. <i>Tests.</i> —Aqueous solution gives a white curdy precipitate with nitrate of silver, and a white one with potash, which is re-dissolved when an excess of the alkali is added; moistened with strong nitric acid it becomes orange-red, and with solution of perchloride of iron, greenish-blue.	See Opium.

<i>Poison.</i>	<i>Effects and Tests.</i>	<i>Antidotes.</i>
Nux Vomica.	Irritation of alimentary canal, tetanic convulsions, death.	Tobacco, in the form of Enema of the <i>Brit. Phar.</i> Chloral.
Oleum Crotonis.	Burning pain along alimentary tract, severe purging, inflammation of bowels.	Emetic if seen early, demulcent drinks, opium.
Opium.	Drowsiness, giddiness, stupor, insensibility, stertorous breathing, contracted pupils, feeble pulse, coma, convulsions, death.	Emetic of zinci sulph., stomach pump, external stimulants, artificial respiration enforced exertions.
Phosphorus.	Burning pain in alimentary tract, thirst, vomiting of luminous matters, diarrhoea, debility, convulsions at times, death.	Demulcent drinks, and small doses of opium.
Plumbi Acetas.	Dryness and constriction of throat, pain in stomach and bowels, colic, paralysis of extensor muscles, apoplectic symptoms. <i>Tests.</i> —Solution gives a yellow precipitate with iodide of potassium, and is precipitated white by sulphuric acid—acetic acid being set free. Solution in distilled water has a slight milkiness, which disappears on the addition of acetic acid.	Phosphates of soda and magnesia, sulphate of magnesia, laxatives, and afterwards opium and the warm bath.
Potassa Cautica.	Burning pain along alimentary tract, corrosion of tissues, vomiting of mucus and blood, diarrhoea.	Dilute acetic acid, citric acid, fixed oils, demulcents, lemon juice.
Sabinæ Cacumina.	Pain along intestinal canal, vomiting, diarrhoea, tenesmus, cold sweats, feeble pulse, convulsions at times, collapse, death.	Emetics, demulcents, opiates.
Stramonii Folia et Semina.	See Belladonna.	See Belladonna.
Strychnia.	Twitching of muscles, jerking of limbs, tetanic spasms, dyspnoea, death. <i>Tests.</i> —Sparingly soluble in water, but communicating to it its intensely bitter taste; soluble in boiling rectified spirit and in chloroform, but not in absolute alcohol or ether. Pure sulphuric acid forms with it a colourless solution, which, on the addition of bichromate of potash, acquires an intensely violet hue, quickly passing through red to yellow. Not coloured by nitric acid.	Chloral, chloroform, tinct. aconiti, tinct. belladonnæ. A little of either of these tinctures should be given, the patient being afterwards put under chloroform.
Veratria.	Sickness, diarrhoea, vomiting, pain in bowels, dilated pupils, cold sweats, convulsions, death.	Same as for Colchicum.

III.—INDEX OF DISEASES, WITH THEIR MOST IMPORTANT REMEDIES.

- Abscess.**—*Locally*, Poultices of Poppy Heads, Chamomile Flowers, or Linseed Meal. *Internally*, Quinine and Iron, Cod-liver Oil, &c.
- Acne.**—*Locally*, Iodide of Sulphur Ointment, Mercurial Ointment, &c. *Internally*, Arsenic; Nitro-hydrochloric Acid. Dil., Cod-liver Oil, &c.
- Albuminuria.**—*Internally*, Potassæ Acet., Tinct. Ferri Perchlor., Acid. Gallic., &c.
- Alopecia.**—*Locally*, Cantharides, Ammonia, Acetic Acid, &c. *Internally*, Quinine, Iron, Cod-liver Oil, &c.
- Amenorrhœa.**—Pil. Aloes et Ferri, Quinine, Iron, &c.
- Anæmia.**—Iron Tonics, Cod-liver Oil, &c.
- Anasarca.**—See Dropsy.
- Aneurism.**—Potass. Iodid., in 20 grain doses, several times a-day.
- Angina Pectoris.**—*Internally*, Nitrite of Amyl, Hydrocyanic Acid. *Locally*, Aconite, Belladonna, Opium, &c.
- Aphthæ of Mouth.**—*Locally*, Honey of Borax. *Internally*, Iron and Cod-liver Oil.
- Apoplexy.**—Croton Oil, Scammony, Hydrarg. Subchlor., &c.
- Ascites.**—See Dropsy.
- Asthma.**—Lobelia, Stramonium, Ether, Chloroform, Belladonna, &c.
- Biliousness.**—Rhubarb, Hydrarg. Subchlor., Podophyllin, &c.
- Boils.**—*Locally*, Poultices of Linseed Meal or Poppy Heads. *Internally*, Sulphate of Magnesia, &c.
- Bronchitis.**—*Internally*, Squills, Ammonia, Senega, Ipecacuanha, Ether, Turpentine, Opium, &c. *Locally*, Sinapisms, Blisters, Turpentine, Liniments, &c.
- Bruises.**—*Locally*, Chloride of Ammon. in Lotion, Chamomile Flowers, &c.
- Bubo.**—Poultices of Poppy Heads. Free Incision by knife, or by Caustic Potash, &c.
- Burns and Scalds.**—*Locally*, Lini- ment. Calcis, Cotton Wadding, &c.
- Cancer.**—*Locally*, Hemlock, Poppy Heads, Permanganate of Potash, Car- bolic Acid, Belladonna, Opium, Chlor. Soda. *Internally*, Opiates.
- Carbuncle.**—Poultices of Poppy Heads, &c. *Internally*, Quinine and Iron.
- Chicken-pox.**—Quinine, Iron, &c.
- Chilblain.**—*Locally*, Camphor, Iodine, Opium, &c.
- Chlorosis.**—Aloes, Iron.
- Cholera.**—*Internally*, Chlorate of Potash, Chloride of Sodium, Brandy. *Locally*, Opiates, Belladonna, Sinap- isms.
- Chordee.**—Belladonna, Camphor.
- Chorea.**—Iron, Quinine, Arsenic, Oxide of Zinc.
- Colic.**—Ether, Ammonia, Assafoetida, Chloroform, Opium, Ginger.
- Conjunctivitis.**—*Locally*, Sulphate of Zinc, Hydrate of Chloral, Acetate of Lead and Morphia.
- Constipation.**—Aloes and Sulphate of Iron, Belladonna, Nux Vomica.
- Convulsions.**—Scammony, Bella- donna, Chloral, Opium, Chloroform, Valerian, Bromide of Potassium, Iodide of Potassium.
- Coryza.**—Morphia.
- Cough.**—Morphia, Hyoseyam., Ether, Chloroform, Hydrocy. Acid, Senega, Ammonia.
- Croup.**—*Internally*, Ipecacuanha, Belladonna, Chloroform. *Locally* Poultices, Sinapisms, &c.

- Delirium Tremens.**—Chloral, Bromide of Potassium, Digitalis.
- Diabetes Mellitus.**—Milk, Opium, Jaborandi, Nux Vomica, Quinine.
- Diarrhœa.**—Castor Oil and Opium, Gallic Acid, Chalk, Opium, Acetate of Lead, Vegetable Astringents.
- Diphtheria.**—*Internally*, Chlorate of Potash and Iron, Quinine, Sulphite of Soda, Brandy. *Locally*, Solution of Permanganate of Potash, Perchloride of Iron, Hydrochloric Acid, Chlorinated Soda Lotion.
- Diuresis.**—Tinct. Ferri Perchloridi, Opium, Gallic Acid, Phos. Acid.
- Dropsy.**—*Diuretics*, Copaiba, Acetate of Potash, Squill, Digitalis, Juniper, Broom, Jaborandi. *Purgatives*, Jalap, Elaterium, Scammony.
- Dysentery.**—Ipecacuanha, Opium, Gallic Acid, Kino, Logwood, Mucilage, Liquid Extract of Bael, Lead and Opium.
- Dysmenorrhœa.**—Opium, Belladonna, Cannabis Indica.
- Dyspepsia.**—Pepsine, Bismuth, Morphine, Nux Vomica, Iron, Quinine, Ginger, Cascarella, Alkalies, Mineral Acids.
- Dyspnœa.**—Ether, Chloroform, Lobelia, Nitrite of Amyl, Hydrocyanic Acid.
- Eczema.**—*Locally*, Zinc Ointment, Chloral Ointment. *Internally*, Tinct. Ferri Perchloridi, Arsenic.
- Emphysema.**—Lobelia, Ether, Chloroform, Ammonia, Stramonium.
- Enteritis.**—*Internally*, Opium, Calomel, Aconite. *Locally*, Sinapisms, Belladonna, Opiates, Turpentine.
- Entozoa.**—Filix-mas, Santonin, Kamala, Kouso, Pomegranate Root, Turpentine, Scammony, Areca Nut.
- Enuresis.**—Belladonna, Perchloride of Iron, Cantharides.
- Epilepsy.**—Bromide of Potassium, Arsenic, Zinc, Indian Hemp, Belladonna, Quinine, Iron, Cod-liver Oil, Nux Vomica.
- Epiphytes.**—Sulphurous Acid, Corrosive Sublimate.
- Epistaxis.**—*Locally*, Alum, Perchlor. of Iron, Tannin, Gallic Acid. *Internally*, Gallic Acid, Perchloride of Iron, Ergot, &c.
- Epizoa.**—Sulphur, Stavesacre, Corrosive Sublimate.
- Erysipelas.**—*Internally*, Perchloride of Iron and Chlorate of Potash. *Locally*, Acet. of Lead and Morphine.
- Flatulence.**—Charcoal, Ether, Valerian, Ammonia, Assafoetida, Chloroform, Ginger, Sulphurous Acid, Sulphites.
- Gastralgia.**—Morphine, Bismuth, Bicarbonate of Potash, Hydrocyanic Acid, Pepsin.
- Gonorrhœa.**—*Internally*, Acetate of Potash, Bicarbonate of Potash, Belladonna, Morphine, Oil of Sandal-wood, Perchloride of Iron, Gallic Acid, Cubebs, Copaiba. *Locally*, Lead and Morphine, Tannin, Nitrate of Silver, Sulphate of Zinc.
- Gout.**—Colchicum, Bicarbonate of Potash, Opium, Iodide of Potassium.
- Hæmatemesis.**—Ice, Gallic Acid, Opium, Turpentine, Lead and Morphine, Alum, Sulphuric Acid, Ergot.
- Hæmaturia.**—Turpentine, Gallic Acid, Pernitrate of Iron, Logwood, Krameria, Ergot.
- Hæmoptysis.**—Gallic Acid, Mineral Acids, Opium, Acetate of Lead, Ergot, Turpentine, Perchloride of Iron.
- Hæmorrhage (Uterine).**—Ergot, Gallic Acid, Pernitrate of Iron, Opium, Digitalis.
- Hæmorrhoids.**—*Internally*, Sulphur, Acid Tartrate of Potash, Treacle, Castor Oil. *Locally*, Ointment of Galls and Opium.
- Headache.**—Purgatives, Ether, Chloroform, Ginger.
- Heart, Disease of.**—Digitalis, Bromide and Iodide of Potassium, Belladonna.
- Hepatic Diseases.**—Calomel, Podophyllin, Taraxacum, Nitro-hydrochloric Acid.
- Hooping-Cough.**—Ipecac., Belladonna, Hydrocyanic Acid, Bromide of Potassium, Chloride of Ammonium, Bromide of Ammonium, Chloroform, Ammonia, Ether, Aconite, Opium.
- Hysteria.**—Valerian, Assafoetida, Musk, Castor, Hyoscyamus, Quinine, Iron.
- Intermittent Fever.**—Quinine, Cascarella, Arsenic, Beberia.
- Iritis.**—Mercurials, Belladonna.
- Jaundice.**—Aloes, Podophyllin, Taraxacum, Nitric Acid.

- Lead Colic.**—Sulphate of Magnesia, Opium, Sulphuric Acid, Iodide of Potassium.
- Lepra.**—*Internally*, Arsenic. *Locally*, Pitch Ointment.
- Leucorrhœa.**—*Internally*, Perchloride and Pernitrate of Iron, Gallic Acid, Quinine. *Locally*, Alum, Tannin, Decoction of Oak Bark, Permanganate of Potash.
- Lumbago.**—*Internally*, Potash Salts, Morphia. *Locally*, Belladonna, Aconite, Opium.
- Lupus.**—*Internally*, Quinine and Iron, Arsenic, Cod-liver Oil, Iodide of Potassium. *Locally*, Strong Nitric Acid, Chloride of Zinc.
- Measles.**—Compound Powder of Ipecacuanha, Acetate of Ammonia, Spirit of Nitrous Ether, Compound Tincture of Chloroform, Carbonate of Ammonia.
- Menorrhagia.**—Liquor Ferri Pernitratris, Gallic Acid, Mineral Acids, Opium, Ergot.
- Myalgia.**—*Internally*, Quinine, Iron, Opium. *Locally*, Liniment of Aconite and Belladonna.
- Nephritis.**—*Internally*, Milk, Barley Water, Jalap, Sulphate of Magnesia, Elaterium, Quinine and Iron. *Locally*, Poultices of Poppy Heads, Sinapisms.
- Neuralgia.**—*Internally*, Quinine, Morphia, Sulphate of Beberia, Iron, Iodide of Potassium. *Locally*, Aconite, Belladonna, Morphia, Cantharides.
- Orchitis.**—*Locally*, Lead and Morphia Lotion.
- Otalgia.**—*Locally*, Opiates and Poultices. *Internally*, Quinine.
- Otorrhœa.**—*Locally*, Sulph. of Zinc, Permanganate of Potash, Chloral Hydrate. *Internally*, Quinine, Iron, Cod-liver Oil.
- Oxaluria.**—Nitro-hydrochloric Acid Dilute.
- Ozæna.**—*Internally*, Quinine, Iron, Cod-liver Oil. *Locally*, Permanganate, of Potash, Sulphate of Zinc, Chlorine, Carbolic Acid.
- Paralysis.**—Croton Oil, Elaterium, Scammony, Nux Vomica, Strychnia.
- Pericarditis.**—*Internally*, Opium, Antimony. *Locally*, Belladonna, Poultices.
- Peritonitis.**—*Internally*, Opium, Calomel. *Locally*, Poultices, Turpentine.
- Phlebitis.**—*Internally*, Chlorate of Potash, Quinine, Iron, Opium. *Locally*, Poultices.
- Phlegmasia Dolens.**—Opium, Aconite, Iodide of Potassium, Sulphite of Soda.
- Phthisis.**—*Internally*, Cod-liver Oil, Quinine, Iron, Morphia, Hydrocyanic Acid, Mineral Acids. *Locally*, Iodine.
- Pleurisy.**—*Locally*, Sinapisms, Cantharides, Aconite, Belladonna. *Internally*, Aconite, Opium, Iodide of Potassium, Sweet Spirits of Nitre.
- Pleurodynia.**—*Locally*, Aconite, Belladonna, Morphia. *Internally*, Quinine, Opium.
- Pneumonia.**—*Internally*, Acetate of Ammonia, Pulv. Ipecac. Co., Carbonate of Ammonia, Antimony, Aconite. *Locally*, Turpentine, Cantharides, Aconite, Belladonna.
- Prostatitis.**—*Locally*, Morphia Suppositories, Belladonna. *Internally*, Opium, Iodide of Potassium.
- Psoriasis.**—*Locally*, Pitch Ointment. *Internally*, Arsenic, Iodide of Potassium.
- Pruritus Ani.**—*Locally*, Lead and Morphia Lotions.
- Purpura.**—Milk, Iron and Quinine, Chlorate of Potash, Turpentine.
- Pyrosis.**—Bismuth, Bicarb. of Potash and Soda, Nux Vomica.
- Rheumatism.**—*Internally*, Acetate and Bicarb. of Potash, Colchicum, Morphia, Iodide of Potassium, Quinine. *Locally*, Aconite, Belladonna, Cantharides, Turpentine.
- Rheumatoid Arthritis.**—Sulph. and Carbon. of Magnesia, Arsenic, Quinine, Iron.
- Rickets.**—Iron, Cod-liver Oil.
- Rupia.**—Quinine, Iron, Mineral Acids. Iodide of Potassium.
- Scabies.**—*Locally*, Sulphur Ointment, Solution of Chloride of Lime, Stavesacre.
- Scarlet Fever.**—Pulv. Ipecac. Co., Potass. Nitrate, Potass. Chlor., Tinct. Ferri Perchlor., Acet. of Ammon.
- Sciatica.**—*Locally*, Acupuncture, Liniment of Aconite and Belladonna, Hypodermic Injection of Morphia. *Internally*, Iodide of Potassium.

- Scrofula.**—Cod-liver Oil, Iron, Quinine, Iodine, and Iodides.
- Scurvy.**—Lemon Juice, Citric Acid, Chlorate of Potash, Iron, Fresh Meat and Vegetables.
- Sleeplessness.**—Bromides of Potas. and Ammonium, Chloral, Opium.
- Small-Pox.**—Barley Water, Pulv. Ipecacu. Co., Acetate of Ammon., Spt. Æther. Nitrosi, Brandy.
- Sore Nipples.**—*Locally*, Sulphurous Acid and Glycerine, Tannic Acid, Solution of Chloral.
- Sore Throat.**—*Internally*, Pulv. Ipecacu. Co., Potass. Nitras, Potass. Chloras, Tinctura Ferri Perchloridi. *Locally*, Permanganate of Potash in Solution, Sulphurous Acid, Alum, Tannic Acid.
- Spermatorrhœa.**—Camphor, Hyoscyamus, Belladonna, Dilute Nitric Acid, Nux Vomica.
- Sweating.**—Oxide of Zinc, Mineral Acids, Quinine.
- Synovitis.**—*Locally*, Cantharides, Iodine. *Internally*, Iodide of Potassium, Cod-liver Oil, Iron.
- Syphilis.**—Potass. Iodidum, Quinine, Iron, Mineral Acids, Hydrargyri Perchloridum.
- Tabes Mesenterica.**—Phosphate of Iron, Cod-liver Oil, Quinine, Perchloride of Iron.
- Tetanus.**—Chloral, Calabar Bean, Enema of Tobacco, Belladonna, Opium, Chloroform.
- Tinea.**—*Locally*, Solution of Sulphurous Acid and Glycerine.
- Tonsillitis.**—*Internally*, Chlorate of Potash, Perchloride of Iron. *Locally*, Poultices, Acetic Acid, Sulphurous Acid, Belladonna, Opium.
- Toothache.**—Creasote, Chloroform, Tinct. Opii, Tinct. Capsici, Carbolic Acid, Nitrate of Silver.
- Tuberculosis.**—Cod-liver Oil, Iron Tonics, Quinine.
- Typhoid Fever.**—Mineral Acids, Opiates, Sulphites, Quinine, Iron, Bromide of Potash, Chloral.
- Typhus.**—Mineral Acids, Quinine, Iron, Opium, Chloral, Bromides of Potash and Ammonium.
- Uræmia.**—Elaterium, Croton Oil, Iron, Turpentine.
- Urticaria.**—*Internally*, Chlorate of Potash and Perchloride of Iron, Saline Purgatives. *Locally*, Glycerine, Alkaline Baths.
- Vesical Inflammation.**—Opium, Belladonna, Alkalies or Acids, Uva Ursi, Buchu, Pareira, Barley Water.
- Vomiting.**—Bismuth, Cerium, Hydrocyanic Acid, Morphia, Creasote, Calomel, Hydrargyrum cum Creta, Belladonna.
- Vulvitis.**—*Locally*, Morphia and Lead Lotions. *Internally*, Opium, Quinine, Iron.
- Worms.**—See Entozoa.



PART V.

ON PRESCRIPTION WRITING,

AND CERTAIN POINTS WHICH SHOULD BE ATTENDED
TO IN PRESCRIBING.

1. On Prescription Writing.

A prescription may often properly and preferably contain only one drug; as, for example, ergota, acidum gallicum, or liquor ferri pernitratidis: these (the first in uterine inaction, and the others for astringent purposes) it would be difficult to improve by the addition of others. This is exceptional, however; most other drugs being rendered either more active and pleasant by combination with others, or having objectionable properties neutralised or modified. For instance, scilla is the better of digitalis, and both (for diuretic purposes) of a little hydrarg. subchlorid.; colocynthis is improved by scammonium or jalapa; and aloe by ferri sulph. or extract. hyoscyami; while the acrid properties of elaterium, sabadilla, crotonis oleum, and cambogia may be modified by judicious combinations. There are other drugs, again, which cannot be very safely given in substance, although they may not require to be united with others, such as hydrargyri perchlorid., acid arseniosum, etc. As a result of this,

a medicinal formula is usually divided into several parts, and most commonly into four—viz., the Base, the Adjuvant, the Corrective, and the Excipient.

1. *The Base.* This is the active ingredient. 2. *The Adjuvant.* This is meant to promote the action of the base. 3. *The Corrective.* This is intended to neutralise, modify, or diminish its hurtful or disagreeable properties. 4. *The Excipient.* This gives consistence and form.

Now let us take, for example, the *Pilula Cambogiæ Co.* In this the gamboge is the base, the aloes and aromatic powder the adjunct and corrective, while the soap and syrup form the excipient.

When any officinal preparation (that is, one ordered in the Pharmacopœia, and for which a formula is given) is prescribed, its officinal name is simply written; as, for instance, unguentum atropiæ, pilula rhei composita, etc.; but in extemporaneous formulæ the medicines are placed in separate lines, the base going first. Incompatibles, though not always therapeutically inert or objectionable when combined, should, in general, be avoided: acid. sulph. dil. should not go along with potassii iodid. (as we have seen); acid. gallic. with the persalts of iron, nor ammonia with peruvian bark, and so on.

2. On certain points which demand the consideration of the Prescriber.

In prescribing, it should be borne in mind that the action of medicines is influenced by age, sex, temperament, and habit; by diet, condition of system, idiosyncrasy, and climate.

1. *Age*.—Children bear nearly as large a dose of calomel as an adult, but they are extremely susceptible of the action of opiates. Old people do not tolerate narcotics and sedatives so well as those of middle life.

2. *Sex*.—Females, as a rule, require rather smaller doses than males, and they are especially susceptible to the operation of drastic cathartics. The state of the uterine system always requires attention.

3. *Temperament*.—The phlegmatic tolerate stimulants and cathartics better than the sanguine.

4. *Habit*.—This is an important head. It is a well-known fact that the habitual use of many drugs, as, for instance, opium, arsenic, and even such powerful cathartics as croton oil, colocynth, etc., begets a tolerance of them in gradually and greatly increased doses; so much so that some individuals are in the habit of taking daily as much of any one of these as would certainly destroy those unaccustomed to their use. Many persons are known who daily take as much opium as would kill a dozen people, and we know an individual who can hardly obtain a motion from any of the drastic cathartics. Again, we know some who at one time had their neuralgic pains effectually allayed by ext. belladonnæ, who can now obtain no relief whatever from it; and many more examples might be multiplied.

5. *Diet, or Condition of Stomach*.—Anthelmintics, in general, operate most effectually on an empty stomach, while this condition is unfavourable in the case of iron, zinc, arsenic, etc., pain and nausea being more apt to follow when they come in contact with the mucous membrane of the stomach.

6. *Condition of System*.—If a disease is going on favourably, it is as well to consider whether improve-

ment can be furthered by the administration of drugs, or whether, on the other hand, it may not be retarded. If a patient is suffering from intense pain, say in acute rheumatism, and the agony is aggravated by the least personal movement, we had better abstain from the use of cathartics, though called for by the state of the intestines, until the pain be lessened or allayed. Again, if the patient were suffering from an acute internal inflammation, it would be as well to know the state of the kidneys before resorting to mercury. The head, moreover, merits attention in a contemplated resort to narcotics, and the heart in connection with sedatives.

7. *Circumstances of the Patient.*—We should not give a diaphoretic to a man obliged to be in the open air, nor suppositories to those who could not command a good deal of rest in the recumbent posture, nor drugs in diabetes, where we could not thoroughly control the diet.

8. *Idiosyncrasy.*—We occasionally meet individuals (but the class is not a very large one) in whom the usual and common effects of certain drugs are either aggravated or lessened, inverted or absent. In one, a small dose of mercury will salivate intensely; in another, a purgative will constipate; and in a third, the smallest opiate will induce profound sleep. There are others, again, whom an astringent will loosen, and some who are slowly acted upon by either opium or mercury. The explanation is not easily given, and it is as well to begin always with moderate doses of powerful drugs, until the patient's system is understood.

9. *Climate.*—Narcotics are better borne in hot climates than in cold, but the reverse is the case in general with mercurials.

10. *Peculiarities connected with certain Drugs.*—Lead, digitalis, silver, and probably mercury and iodine, accumulate in the system; hence the doses should not follow each other too quickly, nor be administered for protracted periods without considerable breaks or intermissions.

There are some drugs which should be cautiously given to children, if given at all, such as opium, including morphia.

Oleum Crotonis, Elaterium, Strychnia, Digitalis; Acidum Arseniosum, Aconitum, Aconiti Radix, Stramonii Fol. et Sem., and Veratria, demand caution in the adult.

There are some drugs never given internally either to the child or adult. They are—Aconitia; Antimonii Terchloridi Liquor; Atropia; Belladonnæ Radix; Elemi; Hydrarg. Ammon.; Lythargyrum; Plumbi Subacet. Liq.; Potassa Caustica; Zinci Chloridum.

Officinal Preparations containing Opium, with the Proportion.

Tinctura Opii	contains gr. j.	in min. xiv.
Tinctura Opii Ammon.	„ gr. j.	in min. xcvj.
Tinct. Camphoræ Composita	„ gr. j.	in f̄ss.
Extractum Opii Liquidum	„ gr. j. ext.	in min. xxij.
Vinum Opii	„ gr. j. ext.	in min. xxij.
Confectio Opii	„ gr. j.	in gr. xl.
Pulvis Opii Co.	„ gr. j.	in gr. x.
Pilula Saponis Co.	„ gr. j.	in gr. v.
Pilula Plumbi cum Opio	„ gr. j.	in gr. viij.
Pulvis Cretæ Aromat. „	„ gr. j.	in gr. xl.
Pulvis Ipecacuanhæ Co.	„ gr. j.	in gr. x.
Pulvis Kino Co.	„ gr. j.	in gr. xx.

Enema Opii	min. xv. tinc. or gr. j.	in f̄3j.
Emplastrum Opii	„ 1 part	in 10 parts.
Linimentum Opii	„ f̄3ij. tinc.	in f̄3iv.
Unguentum Gallæ cum Opio	„ gr. xxxij.	in 3j.
Suppositor. Plumbi Co.	„ gr. j.	in each.
Trochisci Opii	„ gr. j.	in each.

Officinal Preparations of Morphia, with the Proportion.

Morph. Acetat. Liquor	contains gr. iv.	in f̄3j.
Morph. Hydrochlor. Liq.	„ gr. iv.	in f̄3j.
Suppositor. Morph.	„ gr. $\frac{1}{2}$	in each.
Injectio Morph. Hypodermica	„ gr. j.	in min. xij.

Officinal Preparations containing Mercury, with the Proportion in each.

Hydrargyrum cum Creta	contains gr. j.	in gr. iiij.
Pilula Hydrargyri	„ gr. j.	in gr. iiij.
Unguentum Hydrargyri	„ 1 part	in 2 parts.
Linimentum Hydrargyri	„ 1 „	in 3 „
Emplastrum Hydrargyri	„ 1 „	in 3 „
Emplastrum Ammoniaci cum Hydrargyro	„ 1 „	in 5 „
Suppositoria Hydrargyri	about gr. ij.	in each.

Preparations of Acidum Arseniosum, with the Proportion.

Liquor Arsenicalis	contains gr. $\frac{1}{24}$	in min. v.
Liq. Arsenici Hydrochlor.	„ gr. $\frac{1}{24}$	in min. v.

Preparation of Strychnia, with the Proportion.

Liquor Strychniæ	contains gr. $\frac{1}{24}$	in min. v.
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Preparation of Hydrarg. Perchlorid., with Proportion.

Liquor Hydrarg. Perchlor.	contains gr. $\frac{1}{16}$	in f̄3j.
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APPENDIX.

CONTRACTED TERMS IN COMMON USE.

- A. Aa. Ana.* Of each ingredient.
Ad libit. Ad libitum. At pleasure.
Adde, or addantur. Add.
Admov. Admoveatur. Apply.
Alternis horis. Every other hour.
Alvo adstricto. When costive.
Aqua bulliens. Boiling Water.
Aqua fervens. Boiling Water.
Bis indies. Twice a-day.
Bulliat. It should boil.
Balneum vaporis. A vapour-bath.
Capiat. Take.
Capillitium abradatur. Let the head be shaved.
Cras mane. To-morrow morning.
Coch. amp. Cochleare amplum. A table-spoon.
Coch. mag. Cochleare magnum. A table-spoon.
Coch. med. Cochleare mediocre. A dessert-spoon.
Coch. parv. Cochleare parvum. A tea-spoon.
Col. Colatus. Strained.
Congius. A gallon.
Cont. med. Continuantur medicamenta. The medicines
to be continued.
Contr. Contritus. Finely powdered.

Coq. Coque. Boil.

Cras. Crastinus. To-morrow.

Cujus. Of which.

Cyathus. A wine-glass.

Dej. alvi. Dejectiones alvi. Stools.

Det. Detur. It should be given.

Diebus alternis. Every other day.

Diebus tertiis. Every third day.

Dimidius. One-half.

Donec alvus soluta fuerit. Until a stool has been obtained.

Extende super alutum. Spread upon leather.

Femoribus internis. On the inner part of the thighs.

Fiat venæsectio. Bleed.

Fist. arm. Fistula armata. A clyster-pipe and bladder, fitted.

Gr. Granum. A grain.

Gtt. Gutta. A drop.

Hor. decub. Hora decubitus. At going to bed.

Hora somni. At bed-time, or the hour of sleep.

Injiciatur enema. An enema should be given.

Lateri dolenti. To the affected side.

Lb. Libra. A pound weight.

M. Misce. Mix.

Manipulus. A handful.

Mane primo. Early in the morning.

Min. Minimum. The 60th part of a drachm.

Mitte. Send.

Mor. sol. More solito. In the usual manner.

O. Octarius. A pint.

Omni hora. Every hour.

Omni biduo. Every two days.

Omno bihorio. Every two hours.

- Omni mane.* Every morning.
Omni nocti. Every night.
Omni quadrante horæ. Every quarter of an hour.
Partitis vicibus. In divided doses.
Post singulas sedes liquidas. After very loose stool.
Pro re nata. As occasion deserves.
Quantum sufficit. As much as may suffice.
R. Recipe. Take.
Redactus in pulverem. Powdered.
Repet. Repetatur. It should be continued.
Semihora. Half-an-hour.
Sesquihora. An hour and an-half.
Si opus sit. If necessary.
Signa (Signetur). Write (as follows, or the direction).
Singulorum. Of each.
S. V. R. Spiritus vini rectificatus. Rectified spirit.
Temp. dext. Tempori dextro. To the right temple.
Ult. præscr. Ultimo præscriptus. The last ordered.
V. O. S. Vitello ovi solutus. Dissolved in the yolk
of an egg.
Vom. urg. Vomitione urgente. When the vomiting
begins.

WEIGHTS AND MEASURES OF THE BRITISH PHARMACOPŒIA.

Weights.

1 pound . . lb.	= 16 ounces	= 7000 grs.
1 ounce . . oz.		= 437·5 grs.
1 grain . . gr.		= 1 gr.

Measures.

1 gallon. . . C.	= 8 pints. . . O.	viiij.
1 pint . . . O.	= 20 fluid ounces	fl. oz. xx.
1 fluid ounce . fl. oz.	= 8 fluid drachms	fl. drs. viiiij.
1 fluid drachm fl. drm.	= 60 minims. . . min.	lx.
1 minim . . . min.	= 1 minim . . . min.	j.

Relation of Measures to Weights.

1 min. is the measure of . . .	0·91	grains of water.
1 fl. drm. ,, ,,	54·68	,, ,,
1 fl. oz. ,, ,,	1 oz., or 437·5	,, ,,
1 pint ,, ,,	1·25 lb., or 8750·0	,, ,,
1 gallon ,, ,,	10 lb., or 70,000·0	,, ,,

QUESTIONS IN MATERIA MEDICA.

The following questions are inserted to afford an indication of the style and scope of examinations on the subject of Materia Medica :—

Actions, poisonous and medicinal, of the preparations of lead ; doses of the acetate, and the chief diseases in which it is employed.

The distinctive characters of sulphurous thermal springs ; the chief ones in Europe, and the maladies in which they are employed.

General external characters of digitalis, aconite, and hyoscyamus.

Prescriptions.—A chalybeate tonic in the form of pill. An emetic in narcotic poisoning. An astringent and sedative in chronic diarrhœa.

The preparations of iron in which it exists simply as an oxide ; characters, doses, and manner of administration.

The poisonous and medicinal actions of squill, and the diseases in which it is given.

Prescriptions.—An aperient in habitual constipation, when there is a tendency to hæmorrhoids. Nitric acid and uva ursi, in chronic inflammation of the bladder. A purgative in a case of lead colic.

Distinguishing characters of ergot in the entire state and in powder.

Composition and distinguishing marks of calomel, corrosive sublimate, white precipitate and red precipitate.

Actions, poisonous and medicinal, of cantharides.

How is Gallic Acid prepared, and what are its characters and tests? By what chemical tests may the Iodide be distinguished from the Bromide of Potassium?

What are the officinal compounds and preparations of Bismuth? Describe their general therapeutical uses, and mention the dose of each of them.

What symptoms are produced by the inhalation of Nitrite of Amyl, and to what therapeutical purposes may the inhalation of this substance be applied?

Describe the physiological action of ergot.

What is the general method followed in the preparation of the *Succi*? Mention the officinal *Succi*.

What effects does Hydrochloric Acid produce when swallowed undiluted, and when swallowed in small quantities and diluted? In what diseases is it employed? What are the officinal preparations and their doses?

Mention the chief purgative salts of Potassium, and the purgative dose of each of them.

What are the botanical and geographical sources of Ipecacuanha? Describe the appearance of the part employed, and name its active principle.

Describe the effect produced by Atropia upon (a) the heart; (b) the spinal cord; (c) the salivary glands; and (d) the sweat glands.

Describe the physiological action of strychnia. Mention first the symptoms produced by a large dose, and the action upon the spinal cord, stomach, circulation, and respiration. What officinal preparations contain strychnia, and what are their doses?

Nature, proximate composition, and actions, poisonous and medicinal, of gamboge.

Treatment, medicinal and dietetic, of uric acid gravel.

What is elaterium? Give the botanical name, and natural order of the plant yielding it, its action, and dose for an adult.

Prescriptions.—A lotion with acid. hydrocyan., for allaying the irritation of a cutaneous eruption.

Prescription for a course of powders with rheum, sodæ bicarb., and calumba, in dyspepsia.—Oxide of zinc in pill.

Formula for nit. argent., and name the diseases in which it is employed.

Aconite.—Its actions, poisonous and medicinal. Ordinary officinal forms. Dose. Frequency of administration. Effect and treatment of overdose. Principal diseases in which it is used.

Colchicum.—Poisonous and medicinal actions. Officinal forms. Doses. Frequency of Administration. Effect and treatment of overmuch. Principal diseases treated by it.

Hemlock.—Name of plant. Family. Habitat. Odour. Odour disengaged by trituration with potash solution. External marks of the plant and root.

Prescriptions.—A diuretic pill containing iron and squill, and state at what intervals it is to be administered.

Prescription for a blister six inches long and four broad to be applied to the chest.

Prescription for a gargle of alum in infusion of roses.

Prescribe strychnia in solution as a remedy in nervous diseases.

From what plants and natural orders are the following drugs obtained :—ipecacuanha, jalap, scammony, croton oil, elaterium ?

What are the physiological actions of gamboge ? With what objects, in what doses, and with what precautions is it usually prescribed ?

What are the chief mineral and vegetable vermifuge substances ?

Tartar emetic ; its physiological actions ; and how should it be administered to induce its various therapeutic actions ?

Colocynth.—Botanical source, natural family. Chief pharmaceutical preparation, and its medicinal dose and action. Its inconveniences, and how these are prevented. Is it ever a poison ?

Ether.—Characters, density. In what shape administered. Action when swallowed. Medicinal dose. Action when inhaled. Quantity required in this way. Is it ever a poison ?

Prescriptions.—Aconite for external use. Belladonna for internal use. A tonic and sedative in dyspepsia. Quinine in solution for a case of tertian ague. Sulphate of zinc in a case of poisoning with laudanum. An astringent and anodyne ointment for a case of piles. A bitter infusion along with a mineral acid. Veratria for external use. An emmenagogue pill with directions. An expectorant mixture with directions.

Nitric Acid.—Characters. Odour. Effect on skin. Action in poisonous doses. On the lips and mouth, gullet, stomach, bowels. Treatment of these effects. Action in medicinal doses on the stomach, liver, and urine. Uses in fevers. In dyspepsia. In gravel. The urinary diathesis in which it is serviceable. Theory

of its action in this. Pharmaceutic form of use, and its dose. How to cover its acid taste, and how to prevent its action on the teeth.

Nitrate of Silver.—Characters. Effect on the skin. Action internally in large doses. Any remote action. Antidote. Actions in medicinal doses. Special uses. Form for giving it, and dose. Inconvenient effect which may arise, and in what circumstances. Precautions for avoiding it. Is it avoidable by substituting another preparation of silver? Action externally when concentrated. Examples in the case of certain ulcers. Of acute inflammation. Of chronic inflammation. Action in diluted solution. Examples.

Spirit of Nitrous Ether—Characters. Actions in large and in medicinal doses. Special uses in disease. Dose.

Belladonna.—Characters and family of the plant. Preparations of it. Source of activity. Nature and constitution of that substance. Actions of belladonna in large doses. Actions in medicinal doses internally on the nervous system. On the intestinal canal. Topical actions. Doses of the chief preparations internally. Forms for external use.

Chlorinated Lime.—Constitution. Characters. Form. Odour. Taste. Actions in large doses internally. Topical effects in ordinary quantity. Special uses as a topical remedy. Form for use.

Prescriptions.—A colchicum mixture in gout. Oil of male-shield fern for tape-worm. Corrosive sublimate in solution as an alterative. An astringent mixture in chronic diarrhoea.

Ipecacuanha.—External characters. Natural family. Sources of its activity. Nature of its active principle.

Its various actions. Some diseases in which these are applied in practice. Its principal preparations. Doses, according to its varied actions. The several modes of using it in dysentery.

Nux Vomica.—Natural family. Country. Part used. Form, texture, and taste. Source of its activity. The chief galenical preparation, and its dose. Chemical test for the active principle. Action of the principle as a poison. Action in medicinal doses. Diseases in which it is used. Doses, and frequency.

Carbonate of Lead.—Characters. How formed naturally on lead. Composition. Action in continued small doses. How counteracted.

Prescriptions.—Calumba, sodæ bicarb., and aloes in powder for disorder of stomach and sluggish bowels. Nitrate of silver in pill, to be taken every eight hours. Epsom salts and tartar emetic in solution, in a febrile attack.

Gallic Acid.—Its form, taste, solubility, test, elementary composition. Action. Diseases in which it is given. Doses, and frequency. Forms for administration.

Hydrochlorate of Morphia.—Form, taste, solubility, composition. Physiological action on stomach, bowels, mucous membrane, skin. Its occasional inconvenient effects on the nervous system, the stomach, and skin. Modes of administration in acute dysentery, with the best forms and doses; also in acute bronchitis, and obstruction of the bowels. Its chief pharmaceutic forms, and their doses.

Prescriptions. — Pills with strychnia in paraplegia. A diaphoretic mixture containing acetate of ammonia and tartar emetic. A diuretic mixture containing

squill, sweet spirits of nitre, and foxglove. Remedies applicable in a case of painters' colic. An acid mixture for a case of oxaluria.

Assafoetida.—Whence obtained. Natural family. How known by sensible properties. Its active part. Actions on the body. Chief uses in diseases. How given by the mouth and anus respectively.

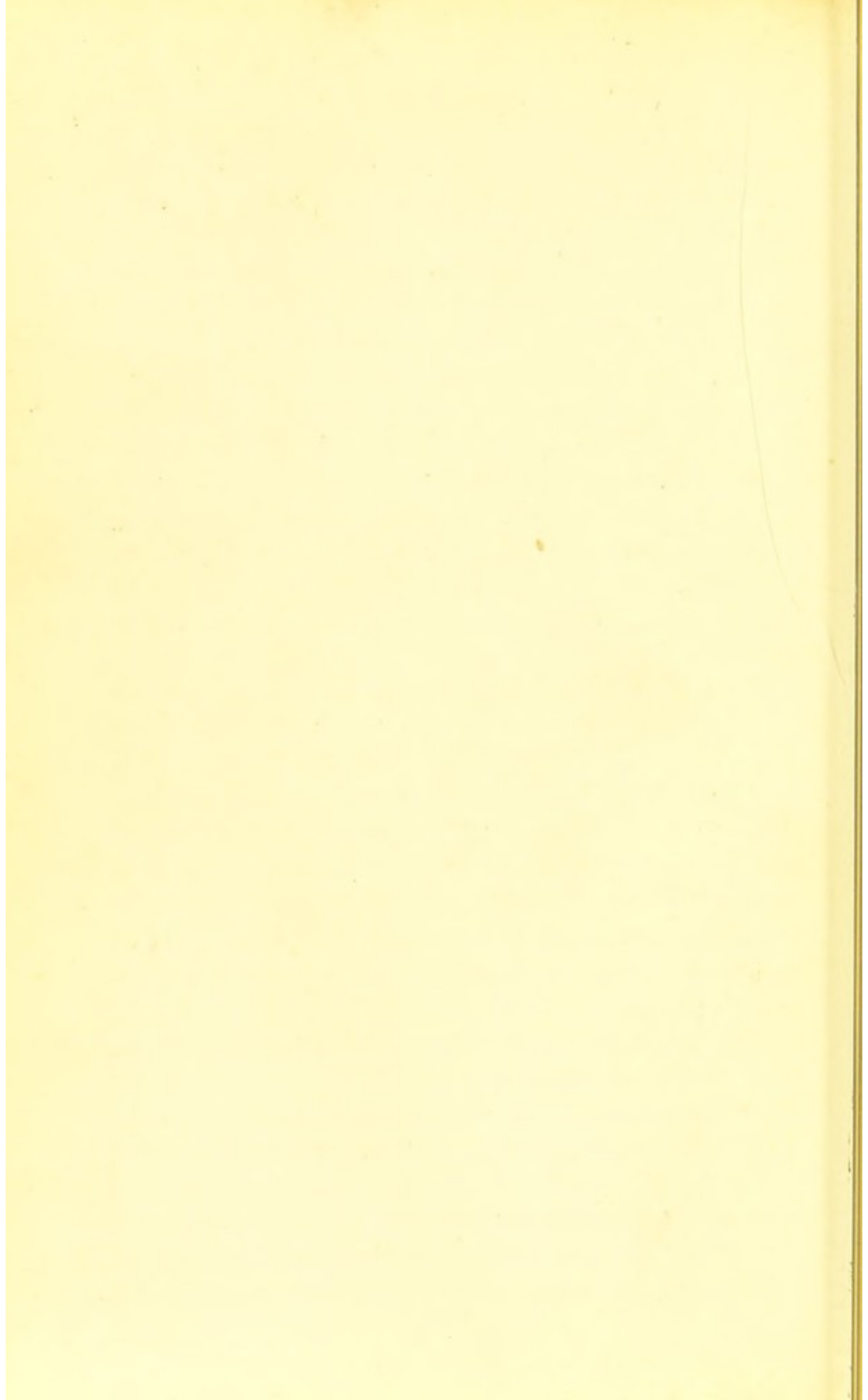
Chalybeate Mineral Waters.—The two forms of iron in them. Examples in Britain, or on the Continent. Actions of a simple chalybeate spring. Diseases chiefly treated by them. Any precautions necessary.

Charcoal.—Define it. Two kinds employed in medicine. Their composition respectively. Uses as disinfectants. Chemical action as such. Which preferable.

Cantharides.—Ordinary actions in medicinal doses on the urine. On the mucous membranes. In large doses on the alimentary canal. On the kidneys. On the genital organs. Usual form for internal use. Dose and frequency of this preparation. Action of cantharides externally; the several local changes occasioned according to the length of its application; in certain constitutional states, such as typhus; occasional inconveniences through absorption by the skin; treatment of these.

Mention a remedy for destruction of vermin on the skin, and the form for use.

Prescriptions.—Nux vomica and phosphate of zinc, in pill, for paraplegia. A carminative for an infant of six months. Ergot of rye, in feeble action of the uterus. A dose of calomel and jalap for an adult. Nitrate of silver as a collyrium in chronic ophthalmia. Gallic acid and opium, in pill, for diarrhoea.





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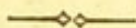
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