

A text book of materia medica and therapeutics / [John Steggall].

Contributors

Steggall, John, 1795?-1871.

Publication/Creation

London : J. Churchill, 1837.

Persistent URL

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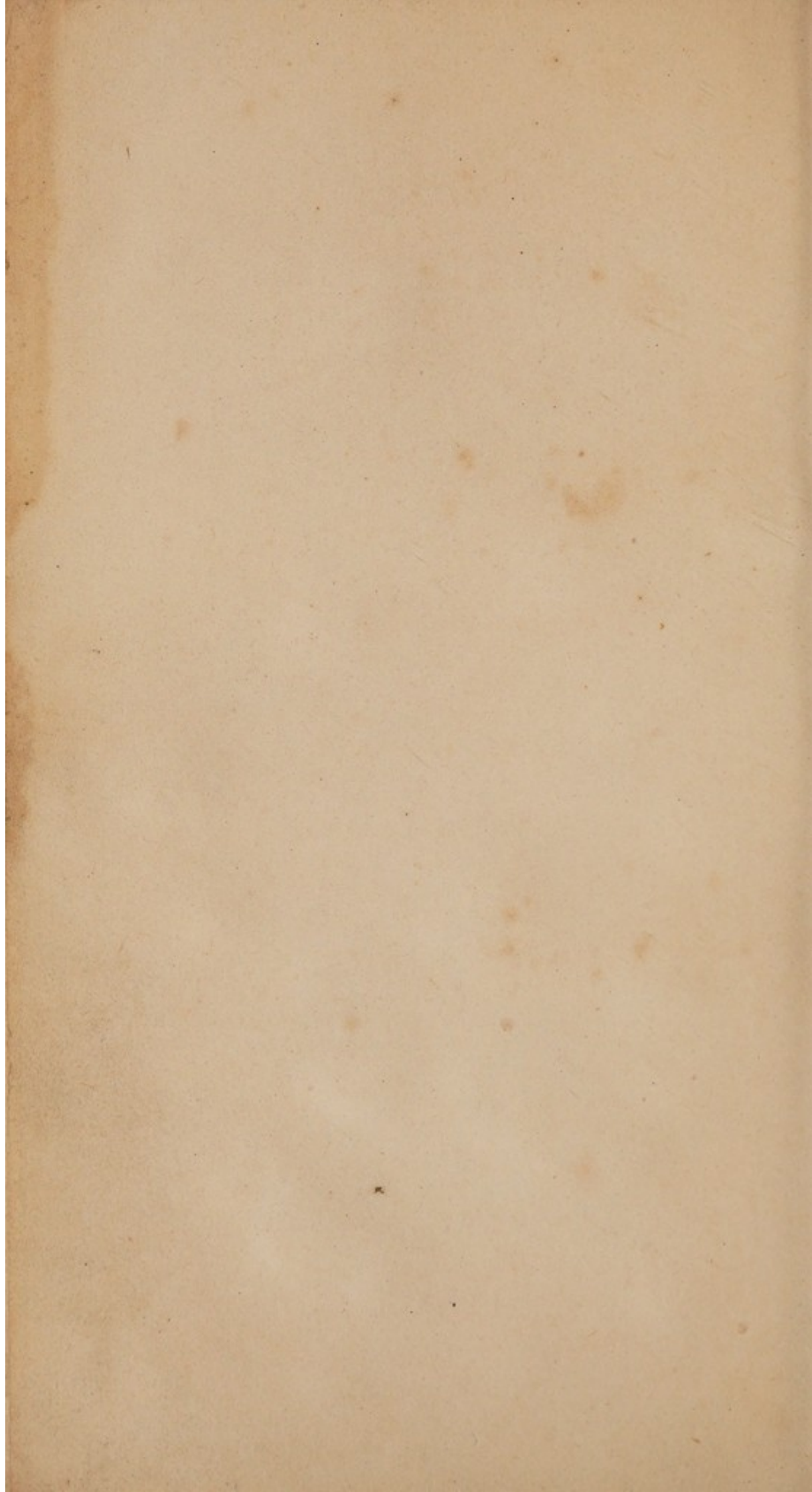


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Medical Books
91,
Aldersgate Street
LONDON
is under



TEXT BOOK
OF
MATERIA MEDICA,
&c. &c.

PRINTED BY J. AND C. ADLARD,
BARTHOLOMEW CLOSE.

W. H. 68084
S. B. G.
A

TEXT BOOK
OF
MATERIA MEDICA
AND
THERAPEUTICS.

BY JOHN STEGGALL, M.D.

LICENTIATE OF THE ROYAL COLLEGE OF PHYSICIANS, &c. &c.

LONDON:

JOHN CHURCHILL, PRINCES-STREET, SOHO.

MDCCCXXXVII.

TEXT BOOK

MATHEMATICS

PHYSICS

BY JOHN STUART MILL



TO

ARCHIBALD BILLING, M.D. B.M.

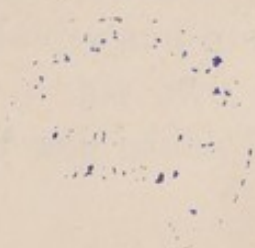
MEMBER OF THE SENATE OF THE LONDON UNIVERSITY.

DEAR SIR,

THE following pages I have ventured to dedicate to yourself, not with a flattering hope that they will be deemed worthy the attention of talent and ability like your own, but as a public acknowledgment of the high esteem I entertain for an individual, who has distinguished himself in medical science, who is the constant patron of industry and zeal, and who has uniformly watched with care, and stimulated by example, all who have had the pleasure and honour of calling themselves his pupils; in the number of which once ranked your devoted and attached friend,

JOHN STEGGALL.

29, *Bloomsbury Square.*



PREFACE.

THE Author of the following pages having often been asked what books he recommended upon *Materia Medica*, he has replied, there are several very good works, and on specifying them, remark has been made that they are too extended, too much mixed up with Chemistry, Natural History, or Theories upon Theories on the Operation of Medicines, and that the information sought for was not sufficiently condensed. This was the origin and cause of committing the following pages to the press. In executing the task, the time afforded has been limited, which requires an apology for some omissions, and for the brevity of some paragraphs. The order of the subjects is adopted in accordance with the table in the London Pharmacopœia. Extensive use has been made of that most excellent Dispensatory of the United States, written by Dr. Wood and Dr. Bache, to whom the author feels deeply indebted for much valuable information which he could not have acquired from other sources without difficulty and great labour. Every one claims a right to his own opinion, and the author trusts, that if any which he has given be in

opposition to the ideas of others, they will not be found to possess an injurious tendency, for they do not interfere with the general practice of the bulk of educated men, and are only intended to afford an explanation of the effects of remedies in a rational manner. In the tabular classification of plants towards the end of the work, use has been made of Dr. Lindley's Natural System of Botany in almost every instance, as that distinguished writer must be looked up to as a first authority in the science.

This work might be made more extensively useful, by having it interleaved, so as to serve as a notebook during attendance upon Lectures on *Materia Medica*; and the author feels confident, that whoever adopts this plan, will in the result feel gratified and obliged by the recommendation.

In conclusion, the author trusts that he has produced a work acceptable to the student and junior practitioner, who will find in it most points of importance connected with each drug, and such as are highly interesting and useful to the medical man.

MATERIA MEDICA.

ABIETIS RESINA.

THE resin, procured from the PINUS ABIES,—
Spruce Fir.

The tree which principally affords this substance grows abundantly in the northern parts of Europe and Asia, attaining an elevation of from 100 to 150 feet, sometimes with a trunk of from three to five feet in diameter. The resin is a natural exudation from the stem. Some authors ascribe it to other species, or give other names to the same tree, such as *Abies communis*, or *Abies excelsa*.

This substance has been known in former pharmacopœias, under the name of *Thus*, or *Frankincense*. It is chiefly imported from Germany.

Medical Uses. It is employed as an ingredient in plasters, being mildly rubefacient.

Preparations. Empl. Galbani, — Empl. Opii, — Empl. Picis.

ABSINTHIUM.

ARTEMISIA ABSINTHIUM.—*Wormwood.*

This plant is indigenous, and also grows freely in most European countries. It is perennial and herbaceous; attaining a height of two or three feet; the radical leaves are triply pinnatifid, with lanceolate, obtuse dentate divisions; those of the stem doubly or simply pinnatifid; the floral leaves are lanceolate; all are hoary; the flowers are small, pedicelled, nodding, and in erect racemes.

The leaves and flowering tops only are used medi-

cinally, and should be gathered in July and August. Wormwood has a strong odour, and a very bitter nauseous taste, which qualities are imparted to water and alcohol. A dark green volatile oil, is obtained by distillation, and on this the odour depends. Braconnot discovered on analysis:

A very bitter azotized substance.

An excessively bitter resinous matter.

Green volatile oil.

Chlorophylle.

Albumen.

Starch.

Saline matter.

Lignin.

Amongst the saline substances, potash exists in combination with a peculiar acid, which Braconnot named Absinthic acid.

Medical Properties. Wormwood is considered to be tonic and anthelmintic. As a tonic, it has been prescribed in many diseases attended with weakness of the digestive organs, and was once in repute in the treatment of intermittent fevers. As an anthelmintic, its virtues are not very decided.

Dose. Of the powdered leaves, from one to two scruples: or an infusion may be made with an ounce of the leaves to a pint of water, and an ounce of it taken two or three times a day.

Some other varieties of *Artemisia* have at times been used medicinally.

The *A. Abrotonum*, southernwood, is considered to be tonic, deobstruent, and anthelmintic.

A. Santonica has a similar character given to it.

A. Pontica acts similarly, but is weaker.

A. Vulgaris, or mugwort, has lately been used in Germany for the cure of epilepsy, by Dr. Burdach.

A. Chinensis and *Indica*, are said to afford, on their leaves, the soft substance employed in China for the formation of moxa.

ACACIA.

The gum, a natural exudation from the *ACACIA VERA*.

The tree specified in the Pharmacopœia, affords but a small share of the gum Acacia, which is imported. The other trees mentioned by travellers, are enumerated below. Still the best gum is the produce of the *A. Vera*, and another species closely allied to it, viz. the *A. Arabica*.

The *Acacia Vera* is a tree of a middling size, with branches, bearing doubly-pinnate leaves; its flowers are yellow, collected into globular heads; the fruit is a flattened legume, divided by contractions into several rounded portions, each containing a seed. This tree flourishes in Upper Egypt and Senegal, and is scattered over the intervening Continent.

The *A. Arabica* is most frequently a small shrub, but occasionally attains the size of a large tree. Its leaves are doubly-pinnate, and its seed-vessel resembles that of the former species. It grows in Upper and Lower Egypt, Senegal, many other parts of Africa, in Arabia, and is abundant in Hindostan, where its gum is eaten as food by the natives. Amongst the other varieties of Acacia, affording this gum, are enumerated the—*A. Senegal*, said to form vast forests in Senegal.—*A. Gummifera*, seen near Mogador.—*A. Ehrenbergiana*, found in the deserts of Lybia, Nubia, and Dongola.—*A. Seyal*, found in the same countries and Upper Egypt.—*A. Tortilis*, inhabiting Arabia Felix and Nubia.—A similar gum is procured, in New Holland, from the *Acacia decurrens* and *floribunda*.—In Hindostan, the gum of the *Feronia elephantum* is largely used by the practitioners of Lower India.

The gum-bearing Acacias are all thorny or prickly trees, or shrubs, flourishing in sandy deserts, or soils

where few other things will grow. In such countries the camels are said to derive from them their chief support; their bark, and unripe fruit, contain tannin and gallic acid. Formerly an extract was procured from the unripe fruit, and was known under the name of *Acaciæ veræ succus*. An imitation of it, is said now to be made, on the Continent, from the unripe fruit of the wild plum-tree.

The gum of the Acacia exudes spontaneously in the hot and dry seasons, and in hot countries only; the most sickly trees afford it in the greatest abundance; its exudation is also assisted by incisions; the colour and appearance of the gum do not alone indicate different sources, as the gum varies considerably, coming from the same tree, requiring to be assorted before being delivered into commerce.

Gum Acacia may be taken as the type or purest form of the proximate principle named gum, by chemists. It is distinguished by its solubility in water, forming a thick viscid liquid, called mucilage. It is precipitated from its solution by alcohol, acetate of lead, and silicate of potash, which are the best tests of its presence. It is miscible with dilute acids and alkalies; is decomposed by the strong concentrated acids, as nitric and sulphuric; the former, by acting upon it, produces mucic, malic, and oxalic acids; the latter disengages acetic acid and charcoal. Gum Acacia generally contains a small quantity of free acid, as its solution reddens litmus paper, also a minute quantity of phosphate and carbonate of lime. The gum which obtains the highest price is whitest, in rounded masses, semiopaque, exhibiting a great number of cracks all through it; when broken, the small separate pieces are transparent. The inferior gum is darker coloured, with various shades of yellow and red, and with a more smooth and uniform surface.

Medical Properties. Gum Acacia is demulcent and mildly nutritive. As a demulcent, it may be used

in inflammation or irritation of mucous membranes generally, as in catarrh, bronchitis, enteritis, gastritis, gonorrhœa, &c. It is likely to do good by lubricating the surfaces to which it can be directly applied, and by protecting them from the action of stimulants and irritants. It is difficult to say how gum allays irritation in passages which it does not directly touch. Some explain the benefit through sympathy; others say that the gum is taken up into the blood, and that it corrects the acrid qualities of the particles contained in it, rendering them less irritating to mucous surfaces. Whatever be the method of operation, it is certain that gum gives considerable relief in ardor urinæ, and other cases in which it is often used.

As a nutritive agent, gum is of the mildest character, being less stimulating than any other form of nourishment. It is therefore used advantageously in fevers, in solution, considerably diluted. As a proof of its nutritious qualities, the Moors, who collect it, and inhabitants of many parts of Africa, will live upon it alone for several days together.

In pharmacy, it is useful to mix heavy substances with, in the form of powders; and, in mixtures, to hold in suspension insoluble ingredients.

Dose. Ad libitum.

Prep. Mistura Acaciæ,—Mistura Moschi,—Mistura Guaiaci,—Pulv. Cretæ Comp.—Pulv. Trag. Comp.

ACETOSELLA.

OXALIS ACETOSELLA.—*Wood Sorrel.*

This is a small indigenous herbaceous plant; it also grows in most European countries: with us it is generally found along hedges or in woods. It has ternated leaves, the segments of which are obcordate; the flowers are single, of a pale flesh colour, with red streaks. The leaves are officinal.

Wood-sorrel has an agreeable sour taste, which depends upon the presence of binoxalate of potash: this salt is sold in the shops under the name of salt of sorrel; and is also mixed with bitartrate of potash, and sold as the essential salt of lemons.

Medical Properties. The juice of this plant is refrigerant, and might be given in fevers; but as it can only be procured at certain seasons of the year, and there is nothing in it to make it of great importance, it is scarcely ever prescribed. Some persons consider the plant to be antiscorbutic.

Dose. Of the expressed juice, a table-spoonful several times a day.

ACETUM.

Vinegar is a sour liquid, containing acetic acid, and several impurities. In the various countries, different substances are employed to make it.

In England it is commonly made from malt liquors, but in some counties from cider.

In France, and the Continent generally, it is procured from wine.

In North America, cider is chiefly used.

The requisites for acetous fermentation are saccharine vegetable matter, moisture, heat,—something to excite fermentation,—and it goes on better with the access of atmospheric air; the changes which ensue in its formation are not well understood. When sugar, water, and yeast are mixed together, and exposed to a certain temperature, and access of atmospheric air, vinous fermentation first takes place; the sugar is decomposed and alcohol is formed: if the fermentation be allowed to proceed, the alcohol will be decomposed, and acetic acid will appear. The explanation suggested is, that the alcohol gives up hydrogen

and carbon to unite with oxygen of the air, forming water and carbonic acid, and that the elements remain in due proportion for forming acetic acid.

The impurities of vinegar will vary with the substances used to procure it. In our own vinegar we generally find mucilage, colouring matter, aroma, and some sulphuric acid. The last is allowed by government to be added in the proportion of one part in a thousand. Vinegar is strengthened, in Germany, by exposing it to the air to be frozen. The water freezes first, leaving the vinegar in a very strong state.

Vinegar is sometimes impregnated with small quantities of metallic salts, from the vessels used in the preparation. We find occasionally traces of copper, lead, and tin; and it is also stated that nitric and hydrochloric acids are sometimes added, which, I should say, is an exceedingly rare occurrence; they can all be detected by the usual tests employed for each. The quantity of real acid, in the best vinegar, is about five per cent.

Medical Uses. Vinegar is refrigerant, and supposed to be antiseptic, but not often used internally. It may be given in inflammatory and typhoid fevers, and in cases of poisoning by narcotics, after the stomach has been completely emptied. For the latter purpose, it was once much employed in poisoning by opium; this practice, however, is now discontinued, because the acid rather increases than diminishes the effect of that narcotic, if any portion remains in the stomach. If, however, it could be accurately known that all the opium was expelled, there could be no objection to its use. The vapour of it is often inhaled with advantage in inflammations of the tonsils; and this vapour is diffused through rooms, to decompose noxious effluvia. It is most employed externally, in the form of lotion, for bruises and sprains; and may be

rubbed on the chest or other parts of the body, to act as a rubefacient.

Dose. ʒij to ʒvj.

Prep. Acetum Distillatum,—Ceratum Saponis,—Cataplasma Sinapis,—Emplastrum Ammoniaci,—Linimentum Æruginis.

ACIDUM ARSENIOSUM.

Arsenious Acid, commonly known as White Arsenic.

This substance is usually procured, in Saxony and Bohemia, by roasting or smelting cobalt ores, in which metallic arsenic is a large ingredient. By the heat, metallic arsenic rises, and immediately combines with oxygen of the atmosphere, and forms arsenious acid, which is deposited in flues; it is removed from thence, and purified by subsequent sublimation. When first obtained, it is in large masses, transparent like glass, which become opaque by exposure to the air, and then very much resemble porcelain. This change of appearance is also attended with a change in specific gravity, which, however, is not precisely determined; it is also rendered more soluble. This acid is generally kept, in shops, in the form of powder, and consequently may be easily adulterated; on account of which, it is recommended to sublime the acid, for medical purposes, after purchasing it, in the usual way. It may be adulterated easily with chalk, carbonate of lead, and sulphate of lime; and as these are not volatilized by heat, the acid can be removed from them by the sublimation. This substance has no decided taste, although soon after being taken into the mouth, an acrid sensation is occasioned. It is soluble in water, 1000 parts of which, at 60° F. will dissolve about 9½ grains. It appears, that if this acid be dissolved in

boiling water, the liquid, on cooling, will retain more acid than could be dissolved by the water used cold.

<i>Composition.</i>	1 arsenicum,	= 38
	$1\frac{1}{2}$ oxygen,	= 12
		—
		50

Medical Properties. Tonic, alterative, in large doses irritant, and, externally applied, may become escharotic. The principal diseases in which it is given internally, are intermittent fevers, neuralgic affections, nervous diseases, epilepsy, chorea, and some skin diseases, as lepra and psoriasis. It requires to be administered with caution, as it possesses somewhat of an accumulative action; and if given in doses, even slightly too large, it causes an unpleasant train of symptoms, most of which are referrible to an inflammatory condition of the stomach. The symptoms ordinarily complained of are, sense of fulness in the pharynx and œsophagus, with dryness, pain, and heat at the stomach; then nausea and sickness, a feeling of itching, tightness and pain about the forehead and temples, œdema of the eyelids and face, or other parts of the body, known by the name of œdema arsenicalis: to these may be added griping and purging, with a feeble pulse; when these symptoms shew themselves the medicine should be laid aside, or diminished in quantity, and cooling purgatives and saline antiphlogistic remedies must be given: although arsenious acid is sometimes very useful, it should not be too hastily and freely prescribed; for in some persons it injures considerably the tone of the stomach, which months, and even years, may not restore, so that always when it is given, its effects should be carefully watched.

In agues, it should be used only when cinchona, in its various forms, has failed. Sometimes it acts better with cinchona, than either given alone. In respect to the period of giving it, the stomach bears it best after

a meal; if taken on an empty stomach, even in very small doses, it occasions very disagreeable gripings.

The *modus operandi* of this remedy is not very intelligible, for it does most good when its effects are least sensibly perceived. It cannot be proved to act by counter-irritation, or by promoting any particular discharge; therefore, as a refuge, we fly to the nervous system.

As an external application, arsenious acid is used for cancer of the lip, and for many other cancerous diseases; and, indeed, it is an ingredient in most of the quack remedies which have been advertised for the cure of that form of disease. When applied externally, it appears to destroy the vitality of the morbid parts, before it attacks the healthy structures: but at the same time we must recollect that, thus applied, it has been absorbed into the system, and oftentimes proved fatal. It is also applied in cases of lupus, and other ill-conditioned sores about the body.

Poisonous Effects. In large doses, arsenious acid is a very virulent poison. Not being very soluble, its effects are not much felt before a quarter of an hour. When they manifest themselves, there is heat and pain at the stomach, dryness and sense of constriction in the throat, then vomiting, with violent retching efforts, and blood brought up; the bowels are griped and purged, blood is discharged, there is severe tenesmus and heat in the rectum, the pulse is rapid and becomes gradually weaker, and, towards the last stage, there are sometimes convulsions. In some cases, where it does not kill, it produces paralysis of the extremities. A host of other symptoms are enumerated by toxicologists, but they are not sufficiently constant to be much insisted upon. Occasionally, arsenic has destroyed, in a few hours, without one of the above symptoms having manifested itself.

Treatment. Vomiting, if established, should be

encouraged; if not, it should be excited by doses of sulphate of zinc. There is no certain or effectual antidote, although lime has been considered such. Lime might be given in the form of chalk, stirred up and mixed with milk. In the present day, albumen is considered to be the best remedy at the commencement. It appears to be of service, by enveloping the particles of arsenic, causing them to be more easily evacuated, and may sheath the stomach from the action of the poison. Afterwards, copious demulcents, oily purgatives, and refrigerant antiphlogistic remedies are to be employed; and the diet, very mild at first, may gradually be made more substantial.

The usual morbid appearances from arsenic, taken internally, are some redness about the fauces and œsophagus. The mucous coat of the stomach is soft, pulpy, highly inflamed in patches, with particles of the arsenical substance often remaining in the centre of them, unless the vomiting has been very free; ulceration has occasionally been found: there are inflammatory patches in the duodenum; little to be observed in the rest of the alimentary canal, excepting the rectum, which is usually found highly inflamed, with the vessels gorged with blood. Arsenic destroys life, partly by the inflammation it establishes, but chiefly by its effects on the nervous system.

Tests for Arsenious Acid. In testing for arsenic, if the ejected liquids are lost, the body must be opened, and the stomach be carefully removed. On opening it, any solid particles, or the fluid contained in it should be carefully put aside. Then the stomach may be cut into pieces, boiled in water with charcoal to decolorize, and acetic acid may be added to precipitate animal matter. The liquids should then be filtered and separated into several portions for the application of the various tests, which are the following:

Sulphuretted hydrogen, now named hydrosulphuric

acid, causes, in a solution of arsenic, a yellow precipitate, the sulphuret of arsenic, the hydrogen, and oxygen forming water. In transmitting this gas through the liquid, care must be taken not to force it through in excess, as the sulphuret is soluble in excess of the reagent. Suppose the gas to have been passed through too freely, the excess may be expelled by heat, and the yellow sulphuret will then fall. This yellow substance should next be submitted to the test of reduction. For this purpose it should be dry, and be mixed with black flux, and carefully introduced into a dry glass tube; then heat is to be applied to it, by means of a lamp, and the atmospheric air must be excluded by paper or the finger on the top. By the heat, metallic arsenic should rise, and be condensed on the side of the tube, in the form of minute crystals, of a steel-grey colour and lustre. The decomposition which occurs, is supposed to be the following. The sulphur decomposes the potash; and the consequence is the formation of sulphate of potash and sulphuret of potassium, and metallic arsenic is liberated. Whilst this is rising, it evolves an odour likened to garlic, which may be perceived by applying the nose to the opened end of the tube. If the metallic arsenic be again heated, and air be admitted, it becomes white, by absorbing oxygen, and the conversion into arsenious acid.

The liquid tests for arsenic, are ammoniacal sulphate of copper, and ammoniacal nitrate of silver; lime-water is mentioned, but is of little value. The ammoniacal nitrate of silver causes a yellow precipitate of arsenite of silver, nitrate of ammonia remaining in the solution.

The ammoniacal sulphate of copper produces a grass-green precipitate of arsenite of copper, named Scheeles green, and sulphate of ammonia remains in solution.

The lime-water affords a white precipitate of arsenite of lime.

Either of these precipitates admits of reduction of the arsenic to the metallic state.

A short time since, another test for arsenic has been discovered, and promises to be of the greatest importance. It is commonly called the hydrogen test, and we are indebted for it to an ingenious chemist, Mr. Marsh.

The suspected liquid is to be introduced into a glass vessel; and in it put a piece of metallic zinc and a little dilute sulphuric acid; by the chemical action which ensues, hydrogen, which is disengaged from the water, combines with arsenicum, and rises in the form of arseniuretted hydrogen gas, which is allowed to pass off by a fine tube. If a flame be applied to this gas during its escape, it will burn and produce water and arsenious acid; and if, during this process, a piece of cold glass be put over close to the burning gas, we impede the combustion partially, and find deposited on the glass some white arsenious acid, with a little metallic arsenic in the centre of it.

Dose. Five minims of liquor potassæ arsenitis, three times a day, and may carefully be increased to fifteen minim doses.

Two drachms of liq. potassæ arsenitis contain one grain of arsenious acid.

Prep. Liq. potassæ arsenitis.

ACIDUM SULPHURICUM.

Sulphuric acid, oil of vitriol. This powerful corrosive acid is procured in several ways, most of them modifications of the following process, which is described as having been practised for a long period. The manufacturers of it preserve the strictest secrecy about any trifling improvement, to an extent which astonishes, when we consider the low price of the article.

Process. Sulphuric acid is obtained by burning a mixture of nitrate of potash and sulphur in large chambers lined with lead, with water at the bottom. One atom of the sulphur combines with two atoms of oxygen of the air, forming sulphurous acid, which is disengaged; another atom of the sulphur decomposes the nitric acid of the potash, and, uniting with three atoms of its oxygen, forms sulphuric acid; this combining with the potash of the nitrate, forms sulphate of potash, which is left in the earthen pot. The nitrogen, and two atoms of the oxygen of the acid, form the binoxide of nitrogen, or nitrous gas, which, escaping into the air of the chamber, abstracts from it two atoms of oxygen, and then becomes nitrous acid. The sulphurous and nitrous acids, by meeting in the chamber, act upon each other, forming a crystalline solid, composed of sulphuric acid, hyponitrous acid, and watery vapour. When this solid is received by the water in the chamber, it is, in its turn, decomposed; the water retains the sulphuric acid, but the hyponitrous acid is resolved into nitrous acid and binoxide of nitrogen, which fly off with effervescence, and the latter again attracts fresh oxygen to combine with the sulphurous acid, which in the interim has been evolved. When the water is sufficiently acidulated, it is drawn off, and heated until it becomes of a proper specific gravity, which is 1.845, according to the new Pharmacopœia. In the way by which it is commonly procured, if the specific gravity exceeds this, it will arise from impurities.

Sulphuric acid is seldom quite pure: it generally contains a small quantity of sulphate of potash and lead, the latter of which is often seen in the form of a white flocculent precipitate, when the acid is diluted with water; and it is this which slightly colours the acid, when hydrosulphuric acid is transmitted through.

By mixing four parts of sulphuric acid with one of

water, such condensation of volume takes place as to evolve heat of the temperature of 300 degrees.

There is another variety of this acid, called fuming sulphuric acid, and named Nordhausen, from a place in Saxony where it is prepared. It is procured from the sulphate of iron by great heat. Its specific gravity is nearly 1.9, and it contains only one equivalent of water to two of anhydrous acid. By distilling slowly this acid into receivers surrounded with ice, it may be obtained in delicate crystals, very much resembling asbestos.

Composition of the anhydrous acid:

3 oxygen	$3 \times 8 = 24$
1 sulphur	$= 16$
	—
	40

The liquid acid contains

1 water	$= 9$
	—
	49

Medical Properties. Sulphuric acid in a diluted form is tonic, astringent, and refrigerant. As a tonic, it is employed after long fevers, when the stomach is yet enfeebled, or the vessels are in a relaxed condition: for this object it is mostly given with bitter infusions, and especially combined with cinchona in its various forms. As an astringent, it is useful in hæmorrhages from the lungs, stomach, uterus, or other parts, and may be given either in the active or passive states. In these cases, it not only benefits by its local action, but produces, by sympathy, a similar impression on vessels in other parts, and also has a sedative influence upon the heart. It will check diaphoresis, especially that sweat which occurs in hectic fever. It may act as a refrigerant by its sedative qualities, in a similar manner to many other acids.

Dose. Of dilute sulphuric acid,
ten to thirty minims.

Sulphuric acid in an undiluted state is a powerful poison, rapidly destroying all the parts with which it comes in contact. If taken in large doses, the lips and lining membrane of the mouth are found blackened; the epidermis separates in patches; there is severe pain and sense of constriction in the throat, a discharge of salivary fluid from the mouth, violent pains in the stomach and bowels, vomiting of blood and black matter, sometimes purging of blood and mucus; the pulse sinks, and the patient dies in a short period.

The treatment consists in administering antidotes, such as magnesia or chalk, with demulcent drinks; milk is a good vehicle for the antidotes. If the patient survives the first shock, demulcents and antiphlogistic remedies are indicated.

The morbid appearances from this acid, are destruction of the soft parts about the mouth and fauces, a charred blackened state of them, with detachment of the epidermis. The blackness distinguishes this acid from other mineral acids; the stomach is highly reddened, in parts almost black, the mucous membrane is partly removed, and there is black blood and coagula in the stomach. A similar state, but modified, may be seen in the other parts of the alimentary canal.

In testing for sulphuric acid, there is not so much difficulty as in many other cases. We have a certain test for it in the soluble salts of baryta, any of which, with sulphuric acid, forms a sulphate, insoluble in all other acids.

Sulphuric acid is much used in pharmacy, and will be found to be an ingredient in many preparations.

ACONITI, FOLIA ET RADIX.

The leaves and root of *ACONITUM PANICULATUM*, in the former Pharmacopœia A. Napellus, *Monkshood*.

This plant, as well as other varieties of Aconite, has an annual stem, with perennial roots. It is a native of central Europe, and is cultivated and grows readily in our country.

The fresh leaves have a faint narcotic odour, more so when they are rubbed; their taste is at first bitterish, afterwards burning, very acrid, and durable; when long chewed they inflame the tongue. Similar properties are possessed by the root, from which alone aconitine is directed to be prepared in the Pharmacopœia. From the analysis of Aconite, which has not been very accurately performed, chemists have discovered, in the leaves more especially, resin, gum, wax, extractive matter, lignin, malates, and citrates of lime, and other saline matters. Brande considered the active principle to be an organic alkaline substance, for procuring which we have now a formula in the London Pharmacopœia.

Aconitine is soluble in ether, less so in alcohol, very sparingly in water. By heat it is entirely dissipated. It is colourless, granular, not crystallizable, inodorous, with a powerful bitter acrid taste. From experiments with it upon animals, it is a most powerful poison in even very small quantities, and appears to kill by its operation on the nervous system, inducing tetanic contraction of the muscles, and exhausting the heart's action.

Medical Properties. Aconite, in the form of the powdered leaves, or extract, has the character of being an anodyne, diaphoretic, and diuretic. It was formerly in much repute, but now from its uncertain operation in the hands of many practitioners, has fallen almost into disuse. Its most obvious effect is that of subduing pain in several affections, which we can accomplish by more safe and certain remedies. The diseases in which it has been most given are rheumatism, gout, secondary syphilis, cancer, some skin diseases, amaurosis, paralysis, epilepsy, intermittent fever, and dropsies. In

poisonous doses it produces the symptoms that arise generally from narcotic acrid poisons. The morbid appearances from it are, inflammation of the stomach and bowels, and engorgement of the vessels of the brain and lungs.

Aconitine has been lately brought before the public by Dr. Turnbull, who finds it to be a powerful agent in alleviating several diseases. He uses it chiefly as an external application in the treatment of rheumatism and neuralgic affections: the form for employing is an alcoholic solution in the proportion of 1 grain of aconitine to a drachm of alcohol, or an ointment containing 2 grains to 1 drachm; a small quantity of either of these is rubbed on the affected parts night and morning. It produces a sense of warmth, and is said, in a most extraordinary manner to subdue the pains for which it is applied. More cases are required to confirm its efficacy, before we can receive it as one of our standard remedies.

Dose. Of aconite leaves, gr. j., to gr. iij.
of the extract, gr. ss., to gr. ij.

Prep. Extr. aconiti.

ACORUS.

The Rhizome or Rootsock of ACORUS CALAMUS.
—*Sweetflag.*

This plant is indigenous, and is also found in many other parts of the world. It grows in ditches and moist swampy places, flowering in May and June; the leaves have an aromatic odour as well as the rhizome, but the latter only is officinal. After collection, it is dried and loses about half its bulk, but acquires a stronger odour.

The Rhizome has a strong fragrant odour, and a warm, rather bitter, pungent aromatic taste. Its virtues are imparted to boiling water.

From 100 parts, Tromsdorff procured

Volatile oil	0. 1
Soft resin	2. 3
Gum, with phosphate of potash	5. 6
Extractive with a little muriate of potash	3. 3
Starch, like Inulin	1. 6
Lignin	21. 6
Water	65. 7
	<hr/>
	100. 0

Neuman obtained from 16 ounces of the dried rhizome, two scruples of volatile oil; this oil is at first yellow, but afterwards becomes red. The rhizome is often attacked by worms, and is much deteriorated by keeping, in consequence of the gradual escape of the volatile oil.

A variety of this plant is much used by the native practitioners in India; and such is its reputation, that they are obliged to rise at night to supply it to any person demanding it.

In Turkey, the calamus is used as a sweetmeat, and is found in most of the Cafès.

Medical Properties. This plant is of very little importance. It is said to be tonic, stimulant, and aromatic; for the latter purpose it may be given to correct griping and flatulence of the bowels. It has been administered in intermittent fevers, according to some authorities with good effect; and has been sometimes combined with cinchona.

Dose. ʒ j., to ʒ ij.

Or an infusion may be made with an ounce of the rhizome to a pint of water; and an ounce or two of it taken three or four times a day.

ADEPS.

Lard, the fat of the *SUS SCROFA*.—*Common Hog*.

Lard is the fat which is found in the omentum mesentery, surrounding the kidneys, and under the skin. This fat having been deprived of membranous matter, is cut into pieces, washed to remove any blood, then melted, sometimes with some water, over a slow fire. After the water is evaporated, and the whole is melted, it is strained through linen, and poured into suitable receivers. Lard often contains some salt, which may be removed by washing, or melting it in water, from which, on cooling, it separates.

Lard melts at about 100 degrees; one hundred parts consists of
62 oleine,
38 margarine.

According to Dr. Turner, it is a mixture of stearine, margarine, and oleine.

Exposed to the air, lard absorbs oxygen, and becomes rancid; in which state it irritates the skin, and is unfit for combination with substances that are occasionally mixed with it in pharmacy.

Medical Properties. Emollient, chiefly used in the form of ointments and cerates; it is sometimes mixed with poultices, to prevent their adhesion to the skin, and is added to laxative enemata.

Prep. It enters into several ointments.

ÆRUGO.

Verdigris. An Impure Diacetate of Copper.

This substance is prepared chiefly in the south of France, in the neighbourhood of Montpellier, and is procured in the following manner. Sheets of copper are placed amongst the refuse husks of the grape, after the juice has been squeezed out, and allowed to remain

for some weeks, during which time the copper is thickly coated with verdigris. This is scraped off and the copper is again used. After being collected in sufficient quantity, the scrapings are formed into a paste, which is beaten with mallets, then packed up in leathern bags, and exposed to the sun. The copper is acted upon by the acetic acid, formed by the acetous fermentation which occurs in the vegetable matter.

Verdigris is in masses of a pale green colour, consisting of minute silky crystals; sometimes it is of a bright blue. It has a strong coppery taste. When acted upon by sulphuric acid, effervescence takes place, and an odour of acetic acid is evolved. In commerce it contains 2 or 3 per cent. of impurities, consisting of particles of copper, or the husks and stones of the grape. The greenish substance found in copper vessels, not kept clean, is a carbonate of copper.

Verdigris is also made in this country, by exposing thin sheets of copper to acetic acid and its fumes, or by placing sheets of copper, alternately, between woollen cloths steeped in acetic acid: the copper becomes oxidized and then unites with the acid.

It is partially soluble in water, and almost entirely in ammonia or dilute sulphuric acid.

<i>Composition.</i>	2 oxide of copper,	-	2×40	=	80
	1 acetic acid,	-	-	=	51
	6 water,	-	$- 6 \times 9$	=	54
					<hr/>
					185

Medical Properties. Tonic, astringent, emetic, and externally detergent and escharotic. For internal use it is not a good remedy. It has occasionally been given in epilepsy and chorea. As an emetic, it is uncertain in its operation, and if retained on the stomach, will act as a poison. To counteract its poisonous effects, the remedies employed are albumen,

sugar, and coffee, and free vomiting should be encouraged.

As a topical remedy, it is applied to fungous growths and to unhealthy ulcers; in which it induces a more healthy action after destroying the morbid surface of them.

Dose. As a tonic, $\frac{1}{16}$ to $\frac{1}{8}$ of a grain.
As an emetic, 1 to 3 grains.

Prep. Lin. *Æruginis*.

ALLIUM.

The Bulb of ALLIUM SATIVUM.—*Garlic*.

This plant is a native of the South of Europe, growing wild in Italy and Sicily, and is now cultivated in this country. It is a perennial bulbous plant: on the top of the stem it bears flowers and bulbs together, enclosed in a pointed spathe, which opens on one side and withers.

The officinal part of the plant is the bulb: this is dug up with a portion of the stem attached; several of these bulbs are usually tied up together to be dried. By drying, they lose about half their weight, but no diminution of their sensible qualities. The small bulbs, forming together apparently one, are named *cloves* of garlic, and are ordinarily five or six in number. They have a strong peculiar odour, and an acrid taste, which depends on an essential oil. This is volatile, and may be obtained by distillation; it is of a yellow colour, has an exceedingly pungent odour, strong acrid taste, is heavier than water; when applied to the skin it irritates, and sometimes blisters. In addition to this oil, Cadet de Gassicourt discovered in 1406 parts of fresh garlic.

Mucilage,	-	-	520
Albumen,	-	-	37
Fibrous matter,	-	-	48
Water,	-	-	801

Some chemists mention sulphur, sugar, and fæcula. Water, alcohol, and acetic acid, extract its virtues. Boiling water, after some time, renders it inert.

Medical Properties. Stimulant, expectorant, tonic, anthelmintic, diuretic and diaphoretic, and externally irritant. As an internal remedy, garlic is seldom prescribed, in consequence of the unpleasant smell it gives to the breath; and it does this even when applied externally. By absorption, it finds its way into the circulation, and its odour may be perceived in all the secretions. Its general action is that of a stimulant, consequently it is most useful in cases of debility, such as chronic asthma, bronchitis, or catarrh. It may correct flatulence, and be of service in atonic dropsies, and calculous disorders.

When given in over-doses, it causes gastric irritation, hæmorrhoids, headach, and fever. Bruised, and applied to the feet, it may occasion a revulsion in disorders of the head; and mixed with oil, is found to be an useful embrocation in the convulsions of children. Roasted, it may be used in the form of a poultice.

Garlick may be administered in the form of pill, or its juice may be taken with sugar. A clove is ordered to be swallowed whole, but this is an objectionable form, as it will be very imperfectly acted upon by the juices of the stomach, in consequence of its hardness.

ALOE.

The inspissated juice of the leaves of ALOES SPICATA.
—*Socotrine Aloe.*

As there is only one species of aloe designated as the source of the drug called Aloes, we might be led to suppose that all the commercial socotrine aloes was the produce of this plant alone. This is most probably not the case, although the evidence on the

subject is not very conclusive. The spiked aloe is a native of the island of Socotora and South Africa, where it grows in great luxuriance, without cultivation. The process for obtaining aloes is simple: the end of the leaf is cut off, and the juice which flows out is caught in proper receivers. It is then inspissated by heat, and when thick enough, is poured into casks or skins. It is said to be also extracted by pressure, and by boiling.

The commercial varieties are principally three; the *Cape*, *Socotrine*, and *Hepatic*.

The *Cape Aloes* is very abundant and cheap. It has a very shining, vitreous appearance when fractured; its odour is very strong and unpleasant, and the colour of it is more inclined to a green than the other varieties. The powder has a greenish yellow colour. It is imported in casks or boxes.

Socotrine Aloes is produced partly in the island of *Socotora*, and a part on the eastern coast of Africa. The precise species of aloe which affords it is not known. It is obtained by expressing the juice of the leaves, allowing it to stand, that impurities may subside, then pouring it off and drying it in the sun: when sufficiently hard it is introduced into skins, and exported. A portion of it is sent up the Red Sea, and passes through the ports of Malta and Smyrna; and from thence to our country. Another portion finds its way to Bombay, from which place also it reaches us. This species of aloes varies vastly in its appearance, in the markets and shops. Lately, some has come to us of a bright red appearance, translucent, and possessing a pleasant odour, and a more aromatic and agreeably bitter taste, than we usually receive it. Ordinarily, it has a reddish brown colour, breaking with a conchoidal fracture, with translucent edges; the powder has a bright golden colour, and the odour is far from unpleasant. It appears too, that much of the aloes sold as socotrine, comes even from the West Indies,

being the best prepared, and obtained in a similar manner to the aloes of the East.

Hepatic Aloes. This variety comes chiefly from the West Indies, but is also brought from ports in East India, especially Bombay. In Barbadoes and Jamaica the aloe plant is largely cultivated on the poorer soils. This aloe is said to be obtained by expressing the juice, boiling it to a proper consistence, or by first making a decoction of the plant, then evaporating, and when the liquid is thick enough, pouring it into calabashes, in which it hardens. These calabashes are large, and weigh, when full of aloes, from fifty to eighty pounds. This variety of aloes, mostly known as Barbadoes aloes, is of a deep reddish brown colour, but darker, and less glossy. The word hepatic is given to it, from its supposed resemblance to the liver. It has not the aromatic odour of the Socotrine, and is often very unpleasant; the taste is nauseous and intensely bitter; the fracture is not sharp, and the edges are not translucent. The powder is of a dull olive yellow colour. There is a fourth variety rarely met with, named the *caballine*, *fetid*, or *horse aloes*. It is very impure, and is supposed to be procured from the dregs of the better varieties. It is chiefly given to horses.

General Properties.—The taste of all the aloes is very bitter and permanent. Several chemists have analyzed this drug, and find it to consist of bitter extractive, resin, and in some varieties, albumen. The proportion varies in different specimens; the bitter extractive is the *resino-amer* of Braconnot, the resin he designated the *flea-coloured principle*. The chief difference between the Socotrine and Barbadoes aloes consists in this; in the former there is a larger portion of extractive matter, and consequently less resin; and in the latter we find from five to twelve per cent. of

albumen. Aloes yields its active matter to cold water, and when good is almost entirely soluble in hot water; the resinous portion subsides as the liquid cools. It is also soluble in strong or diluted alcohol. Long boiling impairs its activity, by converting the extractive into insoluble *apothème* of Berzelius. The alkalies, in some degree, alter its properties, but render it easier of solution.

Medical Properties. Aloes is tonic, purgative, and emmenagogue. In small doses it improves the secretions and tone of the stomach in cases of dyspepsia, and for this object is best administered in the form of the compound decoction. As a purgative, it is warm, stimulating, and tonic; especially indicated in persons of sedentary habits, and of lax, exsanguineous fibre. In purgative doses it is first supposed to stimulate the gall-ducts, causing an increased flow of bile; it has little action on the small intestines; when it arrives at the colon it promotes muscular action, which is propagated to the rectum, and bulky solid motions ensue. If it be given in larger doses, it may be said to act as a drastic. In ordinary cases, it operates upon the muscular coat of the intestines. An objection to aloes, as a purgative, is the tendency to produce hæmorrhoids, an opinion laughed at by some as absurd, and so far from correct, that they consider aloes a most efficacious remedy in hæmorrhoids. From my own experience, I should say, that aloes most decidedly will cause hæmorrhoids in the greater number of persons, if it be taken in repeated doses for some days; and I know some individuals, in whom a single dose of aloes is sure to bring on that disorder. As an emmenagogue, aloes is very useful, especially when combined with the preparations of iron. Its operation, in this way, is supposed by many to depend chiefly upon its purgative qualities, producing merely by sympathetic excitement, increased vigour in the

uterine vessels. It is probable that aloes has some specific emmenagogue quality, for it acts even best when the purgative action is little experienced.*

As aloes stimulates, and determines so much to the lower parts of the abdominal and pelvic viscera, it should not be used in some particular cases, such as early periods of pregnancy, menorrhagia, hæmorrhoids, fistula in ano, or in inflammatory affections in general. There are other purgatives which seem to act most upon the upper part of the intestinal canal, and therefore are combined advantageously with aloes. They modify the action of each other, and combined, produce an excellent effect: such is gamboge, &c.

A solution of aloes forms an excellent enema in cases of ascarides.

Dose. As a tonic, gr. i. to gr. iij.
Purgative, gr. iv. to gr. x.
Emmenagogue, gr. ij. to gr. iv. night and morning.

ALTHÆÆ FOLIA ET RADIX.

The leaves and root of *ALTHÆA OFFICINALIS*. *Common marsh-mallow.*

This plant is indigenous, and grows likewise in most European countries. It is generally found by the sides of rivers and other moist places. The whole plant abounds in mucilage. The leaves and root are officinal.

The roots are collected in autumn, from plants at least two years old. They vary in size; in England

* What is the reason that aloes, as a purgative, acts most upon the colon and rectum? The common answer is, that it is slowly dissolved, and not perfectly so till it arrives at the lower bowels. This is not quite satisfactory; for if aloes be applied to an abraded surface on almost any part of the body, by absorption, a purgative and stimulating effect will be produced on the colon and rectum similar to that, when it is taken by the mouth.

the younger roots, that is, of one year's growth, are often gathered. In Germany they are generally of the thickness of the finger, and the epidermis having been removed, the root has a very white appearance.

These roots contain a large quantity of mucilage, and besides starch, saccharine matter, and a crystallizable substance, considered to be asparagin. This, however, is considered by some chemists, not to exist ready formed in the root, but is a product of the changes which it undergoes by the action of the water. The root becomes somewhat acrid by decoction, possibly from the formation of aspartic acid.

Medical Properties. Demulcent, used in the form of decoction, to allay irritation in the alimentary canal, and urinary passages, taken freely as a drink. The leaves are sometimes employed as an external application to bruised parts, or to ulcers.

Dose. Ad libitum.

Prep. Syrupus Althææ.

ALUMEN.

Alum is a compound salt, occasionally found ready formed, but generally prepared artificially from the alum ores or earths.

In the neighbourhood of Naples, it is a natural product, and is collected from the surface of the ground on which it effloresces, and afterwards is cleaned and purified.

In this country alum is procured from schistose pyritic clays, consisting of alumina and sulphuret of iron. By exposing the mass to air and moisture, sulphuric acid is formed and the iron is oxidized; and the acid, with the bases, forms a sulphate of iron and sulphate of alumina. These are removed from impurities by lixiviation. The liquid is then heated to evaporate a portion of the water, when the sulphate of

iron crystallizes first and may be removed; to the solution of sulphate of alumina sulphate of potash is added, heat is applied, and the solution is then set by to cool, that the alum may crystallize. It is further purified by repeated solution, if necessary. The crystal of alum is an octaedron.

Several other processes are employed in different countries.

In addition to the alum prepared in our country, we meet with *Roche* alum, so named from being brought originally from Rocca, in Syria; it occurs in small fragments, covered with an efflorescence of a pale rose colour. Similar to this is another variety, named *Roman*; the redness of its surface depends upon oxide of iron.

Most alums, of commerce, contain some sulphate of iron, varying from five to seven parts in a thousand. This can be detected by the usual tests for iron.

CRYSTALLIZED ALUM is composed of,

1 sulphate of potash,	=	88
3 sulphate of alumina,	3×58	= 174
25 water, - - -	25×9	= 225

Atomic number, 487

Medical Properties. Astringent and styptic, both internally and externally. It is most frequently given in hæmatemesis, and less frequently in hæmoptysis, and uterine hæmorrhage. In such cases it may be given in doses of ten grains to twenty, every third or fourth hour. It acts by constringing the minute vessels, and in addition appears to have a sedative effect on the circulation. It is also useful as a gargle in ordinary sore throats, and has been found an useful remedy in the treatment of colica pictonum. In this disease, contrary to expectation, alum seems to act as an aperient, given in doses of \mathfrak{z} j to \mathfrak{z} ss. Its good effects have been thought to arise from the sulphuric

acid decomposing carbonate of lead in the intestines forming an inert sulphate of lead. This is not very probable, as the disease often shews itself long after exposure to lead in any form, and in cases where no carbonate of lead can have found its way into the alimentary canal. Possibly it may act by giving sufficient contractility and tone to the muscular apparatus of the intestines, which was previously in a somewhat paralysed state. However, it has been found useful in the practice of skilful and judicious men, and therefore deserves consideration instead of ridicule.

Alum is useful in collyria, in injections for gleet or leucorrhœa; dissolved in a decoction of oak bark, is a favorite form. Should acetate of lead be taken in large doses by accident, alum would supply a very good antidote.

For collyria, three or four grains to an ounce of water are sufficient. For injections, twice or thrice the quantity may be used.

A nice cooling application for the eye, in ophthalmia, named alum curd, may be made by stirring up a lump of alum in the white of an egg, then placing it in soft linen, and applying it upon the eye, and allow it to remain for some hours.

Some make an alum whey, by boiling two drachms of alum in a pint of milk, then straining it, and give about half an ounce for a dose in diseases which are benefited by the use of alum.

The pulvis aluminis compositus of some Pharmacopœias is a very good styptic application to bleeding vessels.

Prep. Liq. Aluminis Comp.

AMMONIACUM.

A concrete juice, obtained from the *DOREMA AMMONIACUM*.

This plant is umbelliferous, and of a very large size, growing to a height of seven or eight feet: it grows spontaneously in several provinces of Persia, and in some parts of Arabia. At a certain period of its growth, the plant is said to be attacked by insects of the beetle kind, which pierce it in many places, and from these punctures the ammoniacum runs out and concretes in tears.

Ammoniacum is brought over in masses, or in distinct tears. The latter form is the best. It is partly soluble in water, alcohol, ether, vinegar, more completely in volatile oils or ammoniated alcohol. Triturated with water, it forms a milky emulsion.

From 100 parts, Bucholz obtained,

Gum,	-	-	22.4
Resin,	-	-	72.
Bassorin,	-	-	1.6
Volatile oil, including loss and water,			4.

Medical Properties. Stimulating expectorant, possibly antispasmodic, and emmenagogue. It may occasionally become diaphoretic, diuretic, or purgative. The cases most likely to be benefited by it are chronic catarrh, chronic bronchitis and asthma, in which there is more expectoration than is beneficial, and which depends upon debility of the excreting vessels. The ammoniacum then appears to give them tone, and gradually diminishes the quantity of fluid. It seldom succeeds in establishing a discharge of mucus from the air passages by its own unaided operation. In the above diseases it is generally associated with the

vinegar or tincture of squills, and is given in the form of *Mistura Ammoniaci*.

Ammoniacum is also considered to be rubefacient, discutient, and resolvent. For this purpose it is introduced into the *Emplastrum Ammoniaci*, and *Empl. Ammoniaci cum Hydrargyro*.

Modus operandi, as an Expectorant. Its action, as an expectorant, is not agreed upon. It may operate, by its stimulant effect, on the body generally; or by getting into the blood, and coming in contact with the bronchial vessels, and exciting them to healthier action: or, thirdly, by sympathy with the stomach, and for this reason; the stomach and lungs being chiefly supplied by the same nerve, it is highly probable that any impression made on the nerves and vessels of the stomach, will by sympathy be felt in a similar manner by the nerves and vessels of the bronchial tubes. In a like manner we attempt to explain the action of squills and other stimulating expectorants.

Dose. Gr. x. to gr. xx. in pills.

Of the *Mist. Ammoniaci* ℥ss. to ℥jss.

Prep. *Empl. Ammoniac*,—*Empl. Ammoniac*, c. *Hydrarg.*,—*Mist. Ammoniaci*,—*Pil. Scillæ Comp.*

AMMONIÆ HYDROCHLORAS.

Hydrochlorate of Ammonia, also named Muriate of Ammonia, *Sal Ammoniac*.

This salt was originally brought from Egypt, having been procured from the soot of camels' dung, which is there used as fuel. It is not imported from thence at the present time.

Now it is made abundantly in England from refuse animal matter, soot, or gas liquors. By destructive distillation of animal matter, such as pieces of horn, hoofs, &c. a large quantity of carbonate of ammonia is generated, and condenses in the apparatus. This

is collected and mixed with water and sulphate of lime; an exchange of acids takes place, and we have sulphate of ammonia in solution, and carbonate of lime at the bottom. This solution is then removed and treated with common salt, and the products are sulphate of soda and hydrochlorate of ammonia, which is first separated by crystallization and afterwards sublimed.

In a somewhat similar manner, this salt is procured from gas liquors, which absorb from the gas sulphate and carbonate of ammonia. A sulphate of ammonia is procured by adding to the liquid sulphuric acid, or sulphate of lime, and the rest of the process is like the former.

By lixiviating soot, the same carbonate and sulphate of ammonia are procured.

Hydrochlorate of ammonia is soluble in three times its weight of cold water, and in its own weight of boiling water, causing much cold during its solution. By high temperatures it is volatilized.

<i>Composition.</i> —1 hydrochloric acid,	=	37
1 ammonia,	=	17
		<hr/>

Atomic number, 54

It slightly reddens litmus paper; affords no precipitate with the chloride of barium, shewing the absence of sulphuric acid. When potash or lime are added to its solution, ammonia is disengaged.

Medical Properties. It is scarcely ever prescribed for internal use, in this country, although often employed as an external application. In Germany it is considered to be an irritating stimulant and alterative, and to have the power of improving the secretions of glandular organs, mucous and serous membranes. It is given there in catarrhal and rheumatic fevers, pneumonia, bronchitis, and other inflammations after their violence is abated.

It is used externally to produce cold, in the form

of lotions, in the quantity of half an ounce to an ounce in ten ounces of water, with the addition of an ounce of rectified spirit. It is likewise supposed to act locally as a stimulus, and with this object is applied to indolent tumours, chilblains, gangrenous parts, &c.

Dose. Gr. v. to gr. xx.

Prep. Ammoniae Sesquicarbonas,—Liquor Ammoniae,—Sp. Ammoniae,—Sp. Ammoniae, aromaticus, et foetidus.

AMYGDALA AMARA ET DULCIS

The Kernel of the AMYGDALUS COMMUNIS, of which one variety affords the Bitter, another the Sweet Almonds.

The tree which bears them is a native of Persia and Africa, now extensively cultivated in the South of Europe, especially Spain. The almond tree grows to a height of fifteen to twenty feet; its fruit is of the peach kind, containing within it the kernel or almond. Each kernel consists of two white cotyledons, enclosed in a thin yellowish brown bitter skin, which is easily separated after immersion in boiling water. The sweet and bitter almonds are obtained from varieties of the same species of tree.

Sweet almonds are imported from several places, and are variously designated in the markets as Valencia, Barbary, Jordan, &c. Bouillay analyzed them, and found in 100 parts,

Pellicle,	-	-	-	5
Fixed oil,	-	-	-	54
Albumen,	-	-	-	24
Sugar, uncrystallizable,	-	-	-	6
Gum,	-	-	-	3
Fibrous matter,	-	-	-	4
Water,	-	-	-	3.5
Acetic acid and loss,	-	-	-	0.5

100

The fixed oil is obtained by expression, is of a yellow colour and bland, and agreeable to the taste. Almonds, triturated with water, form a milky liquid, called almond emulsion, the insoluble matter being suspended by the gum and saccharine matter.

Bitter almonds are generally smaller than the sweet, and rather flatter. They have a taste like peach kernels, and, although inodorous in their natural state, when triturated with water, they have the fragrance of the peach blossom. They contain a fixed oil, which they yield by pressure, and which resembles that from the other variety; from the residue, by distillation in water, we procure a volatile oil and hydrocyanic acid. This oil and acid do not seem to exist ready formed in the almond, but to be educts of the distillation in water; that cyanogen is present, may be shewn by forming bicyanide of mercury, when the peroxide of that metal is added. The volatile oil deposits, after a little time, some benzoic acid, which appears to be formed by the action of the air. The azotized substance that is presumed to afford the oil and acid just mentioned, has been named by some chemists, Amygdalin. It is considered to reside also in the cherry-laurel, bird-cherry, and other vegetables which have the reputation of containing hydrocyanic acid.

Medical Properties. Sweet almonds are used commonly in the form of emulsion, as a demulcent in coughs, irritation of the bowels or urinary passage. This emulsion is also used as a vehicle for other substances, as gum resins or balsams. The fixed oil will form a milky liquid, with a little liquor potassæ and distilled water, and is frequently employed as a substitute for the *mistura amygdalæ*. The oil also enters into the composition of some ointments.

The oil of bitter almonds has been given in cases which are benefited by the use of hydrocyanic acid, and some give it preference to the acid, as it is easily preserved for several years, and remains of uniform

strength. It is chiefly prescribed to allay coughs, and tranquillize the system generally. As it is very potent, it requires to be administered with great caution.

Dose. Of the *Mistura Amygdalæ*, ad libitum.
Of the Essential Oil of Bitter Almonds,
 $\frac{1}{4}$ minim to 2 minims.

Prep. Confect. *Amygdalæ*.—*Mistura Amygdalæ*,
—*Oleum Amygdalarum*.

AMYLUM.

Starch, a *fæcula*, from the seeds of the *TRITICUM HYBERNUM*.—*Common Wheat*.

Starch is contained in many seeds, especially of the natural order Gramina; also in peas, beans, chesnuts, acorns, and in the tubers of some plants, as the potato, in the arrow-root plant, and very many others.

It is procured in several ways. From wheat, it may be obtained by steeping the wheat to soften it; then squeezing out the soft substance into water: the gluten undergoes decomposition whilst the starch remains, which, by evaporation of the water, is procured in a solid form. On a small scale it may be procured by putting into some linen a portion of wheat flour, and let water run over it; in passing, the water will mechanically dislodge the starch, and the gluten will remain behind; the turbid liquid being collected and allowed to stand, the starch gradually subsides.

Starch is insoluble in cold water, ether, and alcohol. It unites with boiling water, and forms a thick paste, which may be considered to be a hydrate of starch. Subacetate of lead precipitates it, and iodine forms with it a beautiful blue colour, and is a most delicate test of its presence.

Starch is the basis, and indeed the sole principle in

many substances employed to convey nourishment in a mild form, such as arrow-root, sago, and tapioca.

Composition of starch, in 100 parts, according to Berzelius :

Hydrogen,	-	-	6.674
Carbon,	-	-	44.250
Oxygen,	-	-	49.076

Medical Properties. Nutritive and demulcent. It is seldom given as a medicine. The most frequent use of it is as an emollient enema, to allay irritation in the rectum, and of the bladder by contiguity, and as a vehicle for other substances. The powder of it is sometimes sprinkled over ulcers and excoriations, to absorb acrid secretions.

Prep.—Pulv. Tragacanthæ Comp.

ANETHUM,

The Fruit or Seeds of the ANETHUM GRAVEOLENS.
—*Dill.*

This is an annual plant, a native of Spain, Portugal, and the South of France, and is cultivated in most European countries. The seeds which are imported are most powerful.

These seeds contain a volatile oil, on which solely their virtues depend. It is of a yellow colour. Sp. Gr. .881. The bruised seeds impart their qualities to alcohol and boiling water.

Medical Properties. Aromatic, stimulant, and carminative, most frequently given to children to correct griping in the bowels, in the form of Aqua Anethi. Carminatives appear not only to expel flatus, but also to check the extrication of gas, and to render the nervous filaments less sensible to the effects of distention.

Dose. For an adult, of the bruised seeds, gr. x. to gr. xxx. For a child, a tea-spoonful or two of the water.

Prep. Aq. Anethi.

ANISUM.

The Fruit of the PIMPINELLA ANISUM.—*Anise.*

This plant is a native of Egypt, and now abundantly cultivated in the South of Europe. The seeds, called fruit in the Pharmacopœia, are imported from the South of France and Spain.

They have a fragrant odour, which is increased by friction; and a sweetish, warm, aromatic taste. These properties depending on a volatile oil, are imparted sparingly to water, but freely to alcohol. This oil exists in the envelope of the seeds. The internal substance contains a bland fixed oil, which may be separated by pressure.

There is another variety of Aniseed occasionally met with, called the Star Aniseed. It is the fruit of the *Illicium Anisatum*, an evergreen tree, which grows in China, Japan, and Tartary. The volatile oil from it, is even superior to that of common Aniseed, and is much used in France to flavour liqueurs. The oil is imported from the East Indies; this variety is often sold for the other oil of Aniseed, has the property of readily becoming solid at low temperatures, and acquires somewhat a crystalline appearance.

Medical Properties. Much the same as of the Dill. In addition it is said to increase the secretion of milk, and was formerly a favorite in Catarrh and Influenza. It is chiefly employed to prevent griping, in the form of Aqua, or Spiritus Anisi.

Dose. Of the powdered seeds, gr. x to gr. xxx, a tea-spoonful or two of the water may be given to infants.

ANTHEMIS.

The Flowers of the Anthemis Nobilis.—*Common Chamomile.*

This plant is indigenous, and is now extensively cultivated for medical use in many parts of England, especially at Mitcham, in Surrey. The single are preferred to the double flowers, as they contain more of the active ingredients: those which are the whitest are best, for they have been more carefully dried than those of a darker colour.

They impart their flavour both to water and alcohol. Boiling water will extract one-fourth of their weight. They have not been carefully analyzed, but are known to contain

A volatile oil,
Bitter extractive,
Resinous matter,
Some tannin.

To these may be added a crystallizable substance, named Piperine, which is most readily extracted from black pepper. It bears some analogy to a resin, and produces so little sensible effect upon the body, that it requires a stretch of imagination to suppose that it is the active substance of any drug containing it.

Medical Properties. Tonic, stomachic, and the warm infusion is emetic. It is given in dyspepsia, in chlorosis, and amenorrhœa, to give appetite and improve the general health. The infusion is a very good vehicle for some salts. The extract, in the same manner, is useful in forming pills, which contain some mineral tonic. The warm infusion may alone occasion vomiting, but is most useful in keeping up and encouraging the vomiting, which may have been induced by more powerful substances. This drug is said to have been found useful in intermittent fevers,

and its good effects have been referred by some authors to the Piperine, which is found in it.

Dose. Of the extract, gr. x to gr. xv.

Of the infusion, 2 to 4 ounces.

Prep. Extract. Anthemidis, — Infusum Anthemidis, — Oleum Anthemidis.

ANTIMONII SESQUISULPHURETUM.

Sesquisulphuret, or Sulphuret of Antimony.—*Crude Antimony.*

This substance is obtained from the native sulphuret, which is by far the most abundant form in which Antimony is found. The sulphuret of the shops is obtained from the native ore, by fusing it, to separate impurities. To effect this, the ore is broken to pieces, then put into pots with perforated bottoms, resting upon others; some fuel is applied around them, then ignited, and the melted sulphuret runs into the pots underneath, where it becomes solid.

It is chiefly imported from France and Germany; generally containing a small quantity of lead, iron, or arsenic.

<i>Composition.</i>	$1\frac{1}{2}$ sulphur,	= 24
	1 antimony,	= 65
		—
		89

In a medical point of view it is of little or no service; some consider it to be alterative and diaphoretic. It is employed pharmaceutically in making Antimonii Oxysulphuretum, Antimonii Potassio-tartras, Pulvis Antimonii Compositus, and Vitrum Antimonii.

The preparation of Antimony, which is most powerful, and supersedes all the others in its efficiency, is the Potassio-tartrate of Antimony, commonly called Tartar Emetic, which may be procured according to the formula of the London Pharmacopœia.

Medical Properties of Tartar Emetic. It is expectorant, diaphoretic, purgative, emetic, and sedative. Its general action is relaxing and depressing, therefore it is suited for the treatment of inflammatory diseases, but is injurious in those of an opposite character. If this substance be given in doses of about half a grain repeatedly, we see most of the effects which it produces on the body; it brings on nausea, and attending this we find perspiration, increased secretion from the bronchial tubes, and, indeed, an increased secretion on most other surfaces and organs; the heart, at the same time, beats more feebly; the pulse is weaker, the muscles feel relaxed, and there is a general sense of prostration. These are the symptoms produced by a sedative, and they arise without any previous marked excitement. If the dose be larger there will be free vomiting and purging, followed by excessive prostration, so great as to destroy life in persons much weakened by disease. If the remedy be continued for several days, it will sometimes occasion ulceration of the bowels. This may be accounted for by supposing that tartar emetic destroys the vitality of the tissues in certain parts, and that the ulcerative process is an effort of nature to throw off the dying or dead substance. The same explanation may be given of the effects of tartar emetic on the surface of the body, upon which it will occasion a pustular eruption, very like small-pox. This opinion is somewhat at variance with the notions usually entertained on the subject; in a practical view, it will not interfere with the use generally made of the drug: the object is only to render its operation more intelligible and less contradictory, so that we should look upon it as a sedative, antiphlogistic remedy, directly opposed to inflammatory action; and in no degree view it as a primary stimulant.

The diseases in which it is most decidedly beneficial, are inflammation of the lungs, pleura, bronchial tubes,

and croup; it is of great service in most other inflammatory affections, in jaundice, mania, acute rheumatism, and hydrocephalus. In whatever inflammatory disease it is prescribed, we shall find that the higher the inflammation runs, the larger the dose of tartar emetic can be tolerated, and that in proportion as the disease abates, we must also reduce the dose. The maximum dose of it, should not exceed from one to two grains every second or third hour. The practice of giving it in Italy, during the last ten years, in tremendous doses, is very much misrepresented. Tommasini scarcely ever exceeds one-grain doses, Rasori did the same for several years. Unfortunately, translators have repeatedly mistaken the quantity administered in twenty-four hours, for a single dose to be frequently repeated.

In inflammatory diseases it acts beneficially by lowering the pulse, relaxing the exhalants and capillaries, determining blood to other parts, and equallizing the circulation. Its action is almost equal to that of Calomel, in arresting the secretion of lymph; and it is also thought, that when nausea is induced, absorption is carried on more vigorously. In consequence of its relaxing effect, it is often employed to assist the efforts to reduce dislocations.

As an expectorant, it should be given in inflammatory diseases, and acts by relaxing the exhalant vessels, causing them to throw out more fluid and of a thinner character. For this purpose, doses of $\frac{1}{8}$ th of a grain are sufficient, to be frequently repeated.

The dose, as a diaphoretic, should be a quarter to half a grain, repeated three or four times a day. As a purgative, tartaremetic seldom operates much alone, although it powerfully increases the action of other purgatives, particularly sulphate of magnesia, jalap, &c. The dose, for this object, is half a grain. As an emetic, the dose is from one to three grains, best administered with some pulvis ipecacuanhæ. It should

be recollected that this is a nauseating, depressing emetic, well fitted for the commencement of fevers, and ill suited in cases of poisoning, as by opium, other vegetable narcotics, or mineral substances. In poisoning, it is objectionable, because it acts slowly, because it induces nausea, and with that nausea the poison appears to be more rapidly absorbed; and after the operation of the emetic, too much prostration ensues.

Externally, it is applied to the body to produce a pustular eruption, which will shew itself in two or three days. In this way it is viewed as a counter-irritant, and is employed in the treatment of deep-seated chronic and painful affections, such as chronic bronchitis or pleuritis, hooping cough, chronic hepatitis, pains about the joints, and many others. Care should be taken not to apply it to persons much emaciated and reduced by disease, for in such it is likely to cause sloughing.

It is used externally in the form of ointment or liniments, or sprinkled upon plasters, to the surface of which it is made to adhere, whilst still warm. The quantity of the salt to an ounce of lard, or common ointment, may be one to two drachms.

Poisonous Effects. In very large doses tartar emetic may prove fatal; the symptoms occasioned by it are, an austere metallic taste, nausea, pain at the stomach, vomiting, fainting, frequent stools, colicky pains in the bowels, a small contracted pulse, clammy skin, changing from hot to cold, difficult respiration, convulsions, cramps in the legs, prostration, and even death may ensue. Vomiting and purging do not always come on, for the poison may so depress the powers of the stomach as to render it insensible to impressions. The treatment consists in promoting, or encouraging vomiting, and giving vegetable substances, which contain tannin to decompose the poison, and render it inert. Oak-bark, which contains much

tannin, does not, however, decompose this substance. To check excessive vomiting and purging, opium and demulcents should be given; and afterwards, antiphlogistic medicines, to combat the inflammatory action which follows.

There are many tests for antimonial salts; the most important are hydrosulphuric acid, or the hydrosulphates, which will throw down an orange-red precipitate, and thus will distinguish antimony from all other metals which we are likely to meet with.

Prep. Vin. Ant. Potassio-tartratis.
Ung. Ant. Potassio-tartratis.

ARGENTUM.

Silver. This metal is found rather sparingly in a pure state, more abundantly in the form of a sulphuret, or combined with other metals, as arsenic, antimony, mercury, lead, copper, and occasionally as a chloride. The ore, which affords the greatest supply, is the sulphuret, mixed in our country with the sulphuret of lead; and the name given to it is, Argentiferous Galena. The most productive mines are in Mexico and Peru; the richest in Europe are those of Königsberg, in Norway; in Hungary and Transylvania. About one-twelfth of the silver annually extracted from the earth, is obtained in Europe.

The processes by which silver is procured from its ores, are cupellation and amalgamation. At Freiburg, in Saxony, the ore, chiefly the sulphuret, is mixed with chloride of sodium, and then roasted. By the heat, the sulphur and sodium are oxidized, and sulphate of soda and chloride of silver are formed; the roasted mass is then powdered and mixed with mercury, some water and some iron, in flat pieces, and submitted to agitation in barrels for several hours. The consequence

of this is, the chlorine combines with the iron, forming a soluble chloride, and the silver forms an amalgum with the mercury. This is then pressed in leathern bags to express any excess of mercury; then is subjected to distillation, by which the mercury is volatilized and pure silver remains.

Silver is procured from argentiferous galena, simply by the action of heat and air; the lead melts, remains on the surface, and is gradually removed in the form of oxide; the silver, not being oxidizable, remains.

Silver does not oxidize when exposed to the air, but is soon tarnished by the contact of sulphur, which unites with and gives it a brownish black appearance. It combines, by chemical means, with oxygen, in one proportion only, consisting of

1 silver,	=	108
1 oxygen,	=	8
		<hr/>
Atomic number,		116

It has a dark brown colour, and in pharmacy enters into the composition of nitrate of silver.

Nitrate of Silver. For preparation, vide Lond. Pharmacopœia.

Medical Properties. Tonic and antispasmodic. It is given in the treatment of Chorea, Epilepsy, Angina Pectoris, some forms of Dyspepsia, and some spasmodic affections. It requires to be administered cautiously in consequence of its active nature; but generally, its use must be continued for some time to produce its good effects. It is best given in the form of pill, which should be made by first reducing the nitrate to a fine powder, then making it into a mass by some conserve, or thick mucilage; for, the bread crumb, usually employed is objectionable, on account of some common salt existing in it. When it is taken, common salt in its various compounds should be avoided, as it effectually destroys the action of the nitrate, by the chlorine

forming with the silver an insoluble chloride. This being the case, it is not improbable that in the instances mentioned of persons taking twenty grains for a dose, either that some salt had been taken a short time before, or that the stomach secreted an unusual proportion of hydrochloric acid. An objection to the long administration of this salt is, that the surface of the body is liable to be discoloured; assuming an unhealthy livid, bluish appearance, somewhat resembling the *Morbus Cæruleus*. The theory of its occurrence is, that nitrate of silver is decomposed in the blood, by meeting with hydrochloric acid, and that chloride of silver is formed; that this is deposited in the rete mucosum, and by the exposure to light assumes a dark colour. Some say that the chloride is formed in the alimentary canal. To produce the dark colour, this chloride must be decomposed, and converted either into oxide of silver or metallic silver. To prevent this discoloration, it is suggested to keep the patient whilst taking the nitrate, in a darkened room, to administer an excess of nitric acid to prevent the rapid decomposition of the salt, and when discoloration has shewn itself, to have recourse to a steady course of cream-of-tartar. There is very little to support either of the above recommendations; whoever takes this medicine should be warned of the possible consequence, which, in a female in particular, may be destructive to her happiness.

Externally, nitrate of silver is used for several purposes as a stimulant, or escharotic. It is employed as a wash for the mouth, in ulcerations from mercury or salivation; in aphtha or spongy gums; to stimulate indolent ulcers; as an injection in fistulous sores, in Leucorrhœa or Gonorrhœa. A weak solution of it is a good application in ophthalmia to remove specks on the cornea, and to drop into the external meatus of the ear in case of copious discharge from it. As an escharotic, a drachm may be dissolved in an ounce of

distilled water, and applied by a camel's hair pencil; or the solid nitrate may be used for warts, fungous excrescences, incipient chancres, and to destroy the surface of unhealthy ulcers.

If nitrate of silver be taken accidentally in a very large dose, it will act as a powerful corrosive poison. The antidote for it is common salt, which should be given freely, to form an inert insoluble chloride; then demulcents may be administered, and subsequently antiphlogistics, to combat the inflammatory symptoms which may follow.

The tests for this substance in solution, are the following:

It stains the body or substances generally.

A soluble chloride, or hydrochloric acid, produces a white precipitate, the chloride of silver, insoluble in nitric acid, soluble in ammonia, and which turns black by exposure to light.

Hydrocyanic acid throws down a white cyanide of silver, insoluble in cold nitric acid, soluble in ammonia, and by heat is decomposed: Cyanogen gas escapes, and the metallic silver remains.

Oxalic acid occasions a white precipitate of the oxalate of silver, which, when dried and heated, fulminates violently.

Hydrosulphuric acid affords a black sulphuret of silver, which, by reduction, leaves metallic silver, to be recognized by its light brilliant appearance, its softness and ductility, and not being oxidized by the action of the blow-pipe.

There are many other tests, but the above are amply sufficient.

Dose. Gr. $\frac{1}{8}$ gradually increased to two or three grains, three times a-day.

For external use.

As a mouth wash, 1 grain to an ounce of water.

As an injection, from 1 to 5 grains to an ounce of water may be used according to its sensible effects.

In Ophthalmia.

1 to 2 grains in an ounce of water are usually sufficient, but if the disease has the purulent form, a stronger solution may be dropped in, with as much as 5 grains, and, according to some, 10 grains in an ounce of water.

Prep. Liq. Argenti Nitr.—Argenti Cyanidum.

ARMORACIA.

The fresh Root of COLCHLEARIA ARMORACIA.—*Horse Radish.*

This plant is a native of Western Europe, and now grows so freely in this country as to make it considered by some to be indigenous. The root is perennial, and is the only part of the plant which is officinal. When scraped or bruised it has a strong pungent odour, and a powerfully hot biting taste; it imparts its qualities to water and alcohol. Its properties depend on a volatile oily principle, which is lost by drying, and the root becomes comparatively inert. It also loses its acrimony by boiling in water. The oil may be procured separate by distillation. It is of a pale yellow colour, heavier than water, and has the properties of the root in a concentrated form. In addition to this principle, chemists have found in the root:

A little bitter resin.

Sugar.

Extractive.

Gum.

Starch.

Albumen.

Acetic acid.

Acetate and sulphate of lime.

Lignin.

Water.

Medical Properties. Stimulant, not only to the stomach but to many of the secretions, and rubefacient

externally. It may be used in dyspepsia, in old gouty people, when the stomach requires a stimulus. It is thought to act as a diuretic, and to be a purifier of the blood, and with this idea is taken as a condiment by many. The infusion or tincture may be prescribed in low states of the system, as a general stimulant. The recent root scraped and applied to the skin is rubefacient, and sometimes occasions vesication.

Dose. Of the scraped root, gr. xx. to gr. xxx.

Of the Inf. Armoraciæ comp. \bar{z} iss.

Of the tinct. 3j. to \bar{z} ij.

Prep. Inf. Arm. Comp.,—Tinc. Armor.

ASARUM.

The leaves of ASARUM EUROPEUM.—*Asarabacca*.

This plant is indigenous, and likewise found in most European countries. It has a perennial root, and sends up annually leaves, which are usually only two in number; and are kidney-shaped. The leaves are officinal with us. On the Continent the root also is used. The leaves are almost inodorous, but have a somewhat aromatic, bitter, acrid taste, affording a yellowish green powder. They lose their virtues by keeping. Their virtues are imparted to water and alcohol; but are lost by boiling. According to Feneuille and Lassaigne they contain:

A volatile oil.

An acrid fixed oil.

A yellow substance resembling cytisin.

Starch.

Albumen.

Mucilage.

Citric acid.

Some saline substances.

Medical Properties. This plant is cathartic and emetic; but as it irritates considerably during its operation, its employment is discontinued for such pur-

poses. The only use now made of it is an errhine, and that very seldom. Two or three grains may be snuffed up the nose, and will produce much sneezing, and a discharge of mucus, which continues for some days. This may be practised in chronic ophthalmia, headaches, and neuralgic pains about the face.

Dose, as a purgative and emetic, ʒj. to ʒj.

Prep. Pulv. Asari. compositus.

ASPIDIUM.

The root of the ASPIDIUM FILIX MAS. *Male Fern.*

This is an indigenous perennial plant, common in all parts of England, and in most temperate climates. The root of it is officinal. It should be collected during the summer, being most active at that period. It is deteriorated by keeping, so much so, some assert, that it is quite inert after being preserved for two years. It has a feeble odour, and a sweetish, bitter, astringent, rather nauseous taste. Mr. Morin, on analysis, found it to contain :

- A volatile oil.
- Fixed oil.
- Gallic and acetic acids.
- Uncrystallizable sugar.
- Tannin.
- Starch.
- Gelatinous matter, insoluble in water and alcohol.
- Lignin.
- Some earthy and saline substances.

Mr. Peschier found in it adipocire, an aromatic volatile and fixed oil, brown resin, a green colouring principle, extractive, acetic acid, and muriate of potash. The active principle is soluble in ether.

Medical Properties. Possibly tonic, and astringent, chiefly employed as an anthelmintic. For the latter purpose it is spoken of by most of the ancient authors, and obtained great celebrity about sixty years ago, in

the practice of a Madame Nouffer, at Paris. She successfully treated worm cases, and was paid very extravagantly by government to divulge her secret remedy. This was the *aspidium filix mas*. Since that period it has lost its high character, possibly from the negligence in the mode of collecting and preparing it. It has been most effectual in the removal of tape-worm, which it has the power of destroying somewhat like the bark of the pomegranate root. It may be given in substance night and morning, in doses of one to three drachms. Some imagine that it has merely a mechanical action, to which opinion I cannot entirely subscribe. An ethereal extract has been made from the root, and given in doses from 15 to 30 grains. This is reported to be the most effectual mode of using it, and if the evidence of many most respectable men can be depended upon, it is still deserving of a trial, since the remedy we most use, the *oleum terebinthinæ* is particularly unpleasant to our patients, and is sometimes dangerous, and occasionally fatal in its operation. Whilst taking a course of this drug, it would be well to give a brisk purgative every third morning.

ASSAFŒTIDA.

The gum-resin of the *FERULA ASSAFŒTIDA*.

This plant is a native of Persia, from which country we obtain our supply of the drug. Its root is perennial, and attains a considerable size, as much as four or five inches in diameter; annually it sends up numerous leaves, and a stem which is often two inches in thickness, and eight or nine feet high. To obtain the assa-fœtida, the stem is cut off at its junction with the root, and from this surface the gum-resin exudes, and is scraped; another slice is then removed to allow further exudation, and this process is repeated till the root is exhausted. The substance is then mixed up in

large quantities, and by keeping, acquires considerable hardness. It comes over in large masses in mats, cases, or casks, and occasionally is met with in the form of tears, as if it had exuded from numerous punctures on the plant. Its odour characterizes this drug; it is said to be infinitely more powerful when first collected, and gradually becomes fainter, so that, if exposed to the air, the smell of it is ultimately imperceptible. It is also known by a singular property of changing its colour. If a piece be broken it has a whitish appearance; but in a few hours turns to a beautiful pink: in a day or two this goes off, and the surface turns to a yellowish brown. A similar change is observed if assafœtida be triturated with water and allowed to stand. It yields its virtues entirely to alcohol, and forms a transparent yellowish solution. With water it forms a milky solution, owing to the suspension of the resin, which is undissolved. It has been analyzed by Pelletier and Brandes. The former found it to contain in 100 parts:

Resin	65
Gum	19.44
Bassorin	11.66
Volatile oil, with traces of superma- late of lime	3.60

The analysis of Brandes gives a vast number of other unimportant constituents. The oil and the resin are the active principles.

Medical Properties. Assafœtida is a stimulant, expectorant, antispasmodic, in a less certain degree anthelmintic and emmenagogue. It is also somewhat laxative; not fitted for diseases where there is active inflammation, but well adapted for chronic affections in which the nervous system requires a stimulus. It is consequently beneficial in chronic catarrh, bronchitis, and asthma, in hysteria, in dyspepsia of old people, accompanied with borborygmi; in spasms of the bowels,

in flatulent convulsions of children; in whooping-cough, where there is debility without evident inflammation. it is used likewise as an injection in typhoid fevers and nervous apoplexy, to rouse the nervous system.

In Persia it is used as a condiment, and even in this country, by habit, persons acquire a great penchant for it, and rub it upon a hot plate, which is to receive their food. They prefer it far above onions or garlic. The great objection to its use, is the horrible fetor which is perceptible in the breath for many hours afterwards.

Dose. Gr. v. to x., in the form of pill.

Of the Mistura Assafoetidæ, from ʒvi. to ʒiss. may be taken.

Of the tincture ʒj. to ʒij.

For an injection ʒij. may be triturated with warm water.

Prep. Mist. Assafoetidæ.—Pil. Galb. comp.—Spir. Amm. Fœtidus.—Tinct. Assafoetidæ.

AVENA.

The seeds of the AVENA SATIVA. *Common Oat.*

This plant is cultivated in most civilized countries; its original locality is not known. It grows wild in Sicily.

The grain is most extensively used for horses, and is very nourishing. The inhabitants of many countries consume it largely, as in Scotland and the North of Ireland. Deprived of the husk, the seeds are called groats or grits, and are generally kept in a bruised state. When reduced to powder they form oatmeal.

According to Vogel oatmeal contains in 100 parts:

Starch	-	-	-	-	-	59
A substance like coagulated albumen						4.30
Sugar, and a bitter principle	-					8.25
Gum	-	-	-	-	-	2.50
Fixed oil	-	-	-	-	-	2
Fibrous matter, including loss	-					23.95

It has little odour; is slightly bitter, and yields most of its nutritive matter to boiling water. The liquid so prepared is called gruel. It affords nourishment in a very mild form, is at the same time demulcent, and has a slight laxative action. It is a nice drink taken after purgatives, to assist their operation, and is an excellent vehicle in enemata for other substances. Gruel may be made by boiling one ounce of the oatmeal in three pints of water, down to two, then straining it, and flavouring it with sugar, salt, lemon juice, or raisins, according to the taste of the patient.

AURANTIUM.

AURANTII CORTEX.—AURANTII FLORES.—AURANTII OLEUM.

Flowers and oil of the flowers, and the fruit of the *CITRUS AURANTIUM*, and the peel of the fruit of the *CITRUS VULGARIS*.

The orange tree is a native of warm climates, most probably India and China. It now grows freely in the south of Europe, from whence our supplies are chiefly derived. The orange may be distinguished from the lemon tree by the petioles which are winged in the former, naked in the latter; and also by the character of the fruit. It is the citrus aurantium which affords the oranges so commonly used at table. Many parts of this variety of orange are employed. The fresh flowers, distilled with water, afford a fragrant perfume, which is considered by some to be also antispasmodic. An oil is distilled from the flowers, named in France *Oleum Neroli*, which is one of the ingredients of *Eau de Cologne*. Small, unripe, abortive oranges, previously dried, are kept under the name of orange berries, and after turning in a lathe are used in issues, as a substitute for common peas, to which they are preferred, on account of their pleasant odour. They

also afford a fragrant volatile oil, which is much used in perfumery. The juice of the common orange contains some citric and malic acids, some acid citrate of lime, mucilage, albumen, sugar and water. For medical purposes the rind of the fruit of the *citrus vulgaris*, Seville orange, is commonly employed.

Medical Properties. It is a mild tonic, and at the same time has an aromatic flavour. It suits convalescents when they begin to tire of taking medicine. To make it more palatable, some syrup and tincture of orange peel may be added. It is often given with other bitters which are less pleasant to the taste.

Dose. ℥j. to ℥ij. of the infusion.

Prep. Inf. Aurantii. comp.,—Inf. Gent. comp.,—Conf. Aurantii,—Tinct. Aurantii,—Syr. Aurantii,—Tinct. Cinch. comp.,—Tinct. gent. comp.

BALSAMUM PERUVIANUM.

The liquid balsam procured from the MYROXYLON PERUIFERUM.

The tree which affords this is a native of Peru and New Grenada. The wood is employed in building, and is very durable. By incision the tree yields a balsamic juice, which may be kept in a liquid state for some years, and is named *white liquid balsam*. When this is deposited in mats or calabashes, it concretes, and is called dry white balsam, or *Balsam of Tolu*. By boiling the bark in water, a blackish liquid is procured, named *Peruvian Balsam*. It is also said to be obtained by boiling the twigs in water.

Peruvian balsam is a viscid liquid, of a deep reddish brown colour, possessing a fragrant odour, a warm taste, and causing a sense of burning in the throat. Alcohol dissolves it entirely.

From 1000 parts Stolze procured

Brown sparingly soluble resin	-	24
Easily soluble resin	- - -	207
A peculiar oil	- - - -	690
Benzoic acid	- - -	64
Extractive matter	- - -	6
Some water		

Medical Properties. Tonic and stimulating expectorant. It is likely to be of most service in chronic inflammations of mucous membranes, such as chronic catarrh or bronchitis, gleet, leucorrhœa; and is said to be useful in amenorrhœa, chronic rheumatism, and palsy. It is a mild stimulant to ulcers, and, for this purpose, is mixed with some mild ointment. The best way to administer it, is to rub it with mucilage, or the yolk of an egg, before water is added to it.

Dose. Gr. x. to ʒi.

BALSAMUM TOLUTANUM.

The concrete juice of the MYROXYLON PERUIFERUM. Its locality is the same as the former, and the mode of procuring it has just been described.

When first imported it has a soft and tenacious consistence; but, by exposure to the air, becomes hard and brittle. It is shining, translucent, and of a reddish brown colour. When darkest-coloured it is least esteemed. Its odour is fragrant; its taste warm, and somewhat pungent; it is entirely soluble in alcohol, and imparts its odour and benzoic acid to water. By distillation with water it affords a small quantity of volatile oil. Tromsdorff found its constituents in 100 parts to be:

Resin,	- - -	88
Benzoic acid,	- - -	12
Volatile oil,	- - -	0.2

Medical Properties. Tolu is a more elegant than useful medicine. Its flavour is agreeable to most persons, on account of which it is employed in the form of syrup, the tincture, or in lozenges. Its real properties are like those of Peruvian Balsam, that is, it is a stimulating expectorant, and anti-spasmodic, unfit for use during the existence of acute inflammatory diathesis. When the tincture is administered, it should be carefully triturated with mucilage, before water is added to it, as it is insoluble in that liquid.

Dose. Gr. x. to gr. xxx.

Of the tincture ʒj. to ʒij.

Prep. Syrupus Tolutanus,—Tinct. Tolut.,—Tinct. Benzoini comp.

BARYTÆ CARBONAS.

This substance is not used medicinally, and indeed its insolubility would be an obstacle to it. It is employed in pharmacy, for preparing the chloride of Barium. It is found largely in this country, especially Lancashire and Cumberland; and also in Sweden. It effervesces when acids are added to it, and is distinguished from other carbonates by its great specific gravity. It is known amongst mineralogists, by the name of Witherite.

BELLADONNA,

The Leaves of the ATROPA BELLADONNA.—*Deadly Nightshade.*

This plant is indigenous, and is also found in most other European countries. It is readily known, by the livid suspicious appearance of its flowers and the character of its leaves, which always come off in pairs; of which one is much larger than the other. The leaves only are officinal. The plant derives its generic

name from Atropos, one of the Fates, and its specific name from the Italian language, signifying a beautiful woman. This is said to be owing to its utility as a face pigment, but I should rather suppose from being used to dilate the pupils, a practice still had recourse to by some Parisian women, and which is thought to make them additionally bewitching.

The dried leaves have a dull green colour, a faint narcotic odour, and a sweetish subacid, rather nauseous taste. Brandes, a German chemist, found in them an alkaloid, which he named Atropia, combined with malic acid; and in addition to this,

Two azotized principles,
Chlorophylle,
Wax,
Gum,
Starch,
Albumen,
Lignin,
Some saline substances.

He procured Atropia by bruising the leaves and digesting them with water, acidulated with sulphuric acid; then filtering and decomposing the sulphate of Atropia with potash, forming a soluble sulphate of potash, and throwing down Atropia in the form of a precipitate. To purify it, he again added acid, then potash, and ultimately dissolved out the Atropia with hot alcohol; which, on cooling and distillation, afforded distinct crystals.

Another chemist, who has carefully procured it, prefers magnesia to remove the malic acid, and cause the Atropia to be thrown down. It is then dissolved in alcohol and purified in the usual manner. Atropia, according to Brandes, is insipid; insoluble in cold water, ether, and oil of turpentine; sparingly, in boiling water; freely soluble in hot alcohol, and easily volatilized by heat: it combines with acids, forming neutral salts, and its neutralizing power is greater than that of other alkaloids.

Medical Properties. Belladonna is a very powerful narcotic, and capable of affording much greater alleviation of our sufferings than many persons imagine. It acts chiefly by diminishing the sensibility of the nervous systems, and thus relieving very severe and distressing pains. For this object it has been used in cancer, both topically and internally. It is given in whooping-cough, frequently with good effect, but requires caution. The dose of the extract should be, for a child, one-eighth of a grain, three or four times a day, and gradually increased, till some dilatation of the pupil is produced. After that, it becomes dangerous. It is of great service in neuralgic affections, chorea, epilepsy, chronic rheumatism, gout, and most diseases which have their principal seat in the nervous system. It has had the reputation of being a prophylactic in epidemics of scarlet fever, taken in small doses several times in a day. I have seen it give great relief in the sore throat of scarlatina, and in sore throats unconnected with that disease. The method of using it is, to make a pill with a quarter or half a grain of the extract, and two or three grains of extract of Henbane, and let this be dissolved in the mouth, that the solution may come freely in contact with the tonsils. The pain and tenderness is much relieved, and the remedy may even tranquillize the system.

Belladonna has the power of dilating the pupil in a remarkable manner, either rubbed on the eyelids in the state of extract, or a little of its solution dropped into the eye, or even when taken internally. On this account it is used in partial cataract, to admit light laterally, if there be opacity only in the centre of the lens, also preparatory to the operations for cataract; and in Iritis, to prevent or even to endeavour to break down adhesions between the posterior surface of the iris and the coverings of the lens. It acts on the iris by paralyzing the circular fibres, the iris consequently collapsing to the fixed point. Some say

that it stimulates the radiating fibres, which is not very probable, as it has a contrary effect upon all other contractile fibres of the body. By accoucheurs it has been applied to the os uteri, to relax its cervix, in cases of protracted labour depending upon rigidity of that part. It is an excellent application externally in the form of plaster, for which a formula is now introduced into the London Pharmacopœia.

Dose. Of the powdered leaves or extract, gr. $\frac{1}{4}$ to gr. j.; and sometimes may be extended to gr. ij.

If Belladonna be taken in over-doses by mistake, it causes the following symptoms: heat and dryness of the fauces, uneasiness at the stomach, nausea, ineffectual efforts to vomit, pain in the bowels, vertigo, delirium, a feeble pulse, cold clammy perspiration, subsultus tendinum, convulsions, and sometimes death. It paralyzes, in a great degree, the nervous system, rendering the body insensible to the usual impressions. The treatment to be pursued, is first to empty the stomach, either by the stomach-pump or emetics, which latter must be of the stimulating kind, such as sesquicarbonate of ammonia or mustard. Then a purgative should be administered, and stimulants as ammonia or brandy, in proportion to the degree of prostration. In the intestinal canal it leaves traces of inflammation, although its action is more that of a narcotic than of an acrid poison.

Prep. Extr. Belladonnæ,—Empl. Belladonnæ.

BENZOINUM.

An exudation from the STYRAX BENZOINUM.

This tree, a native of Sumatra and Java, grows rapidly and attains a considerable size. When about six years old, the stem of it is wounded, and the juice flowing out becomes hardened, and forms the Benzoin

of commerce. The best Benzoin exhibits a mixture of white masses, somewhat like tears imbedded in a rather browner substance. The darkest coloured is most impure.

Benzoin, improperly named Gum-benjamin, (as there is no gum in it,) is a brittle solid, with a pleasantly fragrant odour, but little taste, leaving a sensation of heat and irritation about the fauces. It is entirely soluble in alcohol, from which water will cause its separation, with a milky appearance. To boiling water it imparts Benzoic acid, which amounts to about 13 per cent.; the rest of it is chiefly resin, with a trace of volatile oil and extractive matter.

Medical Properties. Stimulating expectorant, but very rarely used, except to procure Benzoic acid. It is occasionally burnt in rooms, on account of its agreeable odour. It is an ingredient in the Tinct. Benzoini Comp.

Dose. Gr. x. to gr. xx.

Prep. Acidum Benzoicum,—P. Benzoini Comp.

BERGAMII OLEUM.

Oil of Bergamot, distilled from the rind of the Fruit of CITRUS LIMETTA BERGAMIUM.

This variety of Citrus is a native of Asia, and now cultivated in Italy, and some other parts of South Europe. The rind of the fruit only is valued. It contains a volatile oil, of a strong agreeable odour, which is extracted either by distillation or pressure. It is of a light yellow colour, and has a warm aromatic taste, and is known, commercially, by the name of Essence of Bergamot.

It is not given internally as a medicine. It is rarely used but to give its odour to disagreeable external applications, such as sulphur ointment and some others.

Prep. Ung. Sulphuris,—Ung. Sulph. Comp.

BISMUTHUM.

Bismuth is generally found in the metallic state, sometimes as a sulphuret, and very rarely oxidized. It is obtained most abundantly in Saxony, Bohemia, and Transylvania, and sparingly in Cornwall. As it fuses at a temperature of 497° by heat, it is easily removed from its impurities. It combines with oxygen in only one proportion. Metallic Bismuth, by being melted and allowed to cool, gradually forms most beautiful cubic crystals. It is not given by itself as a medicine, but is employed to procure the subnitrate. For preparation of Trisnitrate, see Pharmac. Lond.

Medical Properties of the Trisnitrate.—Tonic, antispasmodic, and sedative, useful in pyrosis, gastrodynia, cardialgia, and some spasmodic diseases. Its action is more like that of a sedative than a stimulant, for it does most service when there is an excess of vascular action than the contrary. At all events it checks irritability of the stomach, and diminishes the sensibility of the nerves. As a tonic, it operates by bringing the vessels to their healthy and natural standard. It may be given in pills, or suspended in liquids by mucilage. It is liable to make the evacuations very black.

It is employed as a cosmetic, under the name of Pearl-white.

Dose. Gr. iij., gradually increased to \mathfrak{v} j.

If it is taken in very large doses, it lowers the vitality of parts of the stomach, reaction and inflammation ensue, sometimes to a highly dangerous extent. There is no treatment peculiar for poisoning by this substance. It must be managed by emetics, purgatives, and demulcents.

BORAX.*The Biborate of Soda.*

Borax is procured from the impure salt, which is imported under the name of Tincal; it occurs in small quantities in Europe, most abundantly in Persia and Thibet, in lakes, from which it is separated by evaporation. The impure Borax concretes on the margins of these lakes, and is dug up in lumps. It is then in masses generally greenish, or rather yellow, covered with an earthy coating, greasy to the touch, and with an odour like soap. This greasiness is owing to fatty matter, combined with the soda. Another variety of Borax is imported from China, in a more purified state.

In France, borax has been made by adding the acid to soda. The acid is procured in Italy, where it exists in some lakes, especially in Tuscany. This liquid is heated with carbonate of soda in excess, and the solution on evaporation yields crystals of borax.

It is a white salt, generally crystallized in hexahedral prisms, terminating in triangular pyramids. It has a sweetish, feebly alkaline taste, and has an alkaline action on test papers, soluble in twelve times its weight of cold, and in twice its weight of boiling water.

It has the property of rendering bitartrate of potash very soluble, forming a combination with it, named soluble cream of tartar, used much in some countries as a medicine. This compound is soluble in its own weight of cold, and in half its weight of boiling water.

Borax consists of

2 boracic acid	$2 \times 24 = 48$
1 soda	$= 32$
	<hr/>
	80
10 water	$10 \times 9 = 90$
	<hr/>
Atomic number when crystallized	170

It is consequently a biborate, and might be expected to possess an acid reaction; this is not the case, in consequence of the feeble nature of boracic acid, which is unable to overcome the alkaline nature of soda.

Medical Uses. It is not given much internally. It has been recommended in nephritic or calculous affections, in which there is an excess of uric acid, in doses of half a drachm to a drachm. It is said to be diuretic, and even emmenagogue. We now employ it in aphthæ, as what is called a detergent, in the form of mel boracis. It has a cooling effect upon parts to which it is applied, and when swallowed by children, is likely to do them more good than when only allowed to touch the parts of the mouth. Nurses have a foolish way of using it: they dip one of their huge fingers into the solution, then put it into the child's mouth and rub it briskly, fancying that if they detach the patches of vesicles the child is relieved. I should say it does good, by neutralizing acid, and diminishing the acrimony of the fluid in the primæ viæ.

Dose. ʒi. to ʒiij.

Prep. Mel Boracis.

BROMINIUM.

Bromine is an elementary substance, found in sea-water, and in many saline springs in various parts of the world. It is commonly associated with magnesium, sodium, or potassium.

It is procured generally from bittern, which is the residue of sea-water, after removing muriate of soda, and the sulphate of magnesia. If chlorine be passed into this, it decomposes the bromide of magnesium, uniting with the magnesium and setting free the bromine which may be taken up by ether, or distilled over

into a cool receiver. Another plan is to add to bittern sulphuric acid and peroxide of manganese, in which case, part of the oxygen of the manganese combines with the magnesium to form magnesia, the bromine is liberated and distilled over into cold water in which it sinks, and we have sulphates of manganese, and magnesia in the retort.

Bromine is a liquid of a deep reddish-brown colour. It is much heavier than water, in which it is usually kept to prevent its rapid vaporization. It has a strong smell and taste, boils at 117° , its vapour very much resembles nitrous acid gas, it is sparingly soluble in water, more so in alcohol, most in ether; with starch it forms a yellow compound; it corrodes the skin, and gives to it a yellow stain. In its compounds, there is great analogy between it and iodine.

Medical Uses. Up to the present time, it has not been extensively tried for medical purposes. It appears to be very like iodine in its effects upon the body, chiefly acting on the lymphatic and glandular system; one reason, perhaps, for not employing it, is its great price, and the non-necessity of another remedy, which promises the same effects as iodine, but at the same time less manageable. A salt of it is now ordered in the London Pharmacopœia, the *Bromide of Potassium*. This crystallizes in cubes, and closely resembles the iodide of potassium. It may be given in about the same doses, that is, the moderate doses employed by many, not such quantities as half a drachm to two drachms. Its compounds with mercury have been given on the continent. They are powerful remedies, and demand almost as much caution as the bichloride of mercury. When taken in excess, albumen furnishes the best antidote.

Dose of the Bromide of Potassium,

Gr. ij. to gr. x.

The quantity of a quarter of a grain, to 1 grain of bromine, may be taken dissolved in ether.

CAJUPUTI.

The oil distilled from the leaves of the *MELALEUCA MINOR*.

This is a small tree, growing in the Molucca islands. The oil is chiefly prepared in Amboyna and Borneo, and is exported from the East Indies, in glass bottles. As it is much esteemed in the East, and the supply of it is not very great, the price of it is necessarily high.

Qualities. Very fluid, transparent, with a bluish green colour, a strong camphorous odour, and a warm taste. It is very volatile, Sp. Gr. .978, and it burns without leaving any residue. The green colour, has erroneously been attributed to the copper vessels in which it has been distilled. No trace of copper can be discovered by tests. The colour depends on the presence of chlorophylle. This oil is occasionally adulterated with oil of rosemary or turpentine, impregnated with camphor.

Medical Properties. Highly stimulating, producing a sensation of warmth internally, and increased fulness and power in the heart and arteries. It has been given in cholera pretty freely, and may be used in colic, in chronic rheumatism, spasms of the stomach and bowels in the absence of inflammation, and is an elegant adjunct to embrocations. Medicinally, it is most consumed in the East Indies.

Dose. ℥. j. to ℥. v. suspended in a draught by mucilage, or taken on a lump of sugar.

CALAMINA,

Calamine, the impure *Carbonate of Zinc*. The term calamine is also applied to the silicate of zinc; but the carbonate only is officinal. It is found at Carinthia, Hungary, and very abundantly in England. It is found in compact or earthy masses, sometimes

crystallized, variable in colour, either greyish, or greyish yellow or brown. When crystallized it is a compound of

1 carbonic acid	= 22
1 oxide of zinc	= 42
	—
	64

In the compact state, it is combined with water, and some impurities. By being heated, some carbonic acid is evolved; and by elutriation the calamine is obtained in the form of an impalpable powder, consisting of oxide of zinc with a little carbonate, and a small portion of the impurities.

Calamine is only used externally in the treatment of ulcers. It is sprinkled on them as an exsiccant or absorbent, or in the form of an ointment, known as Turner's Cerate. This ointment is of use during the granulation of large ulcerations from burns, appearing to stimulate very gently the vessels to a healthy action.

Prep. Ceratum Calaminæ.

CALCIS HYDRAS.

Hydrate of Lime, or lime recently slaked by water.

Lime has a great attraction for water; when water is added to it, it combines with the lime and becomes solid, the lime at the same time crumbling, and a vast quantity of heat is disengaged, more than sufficient to boil water, and which is made available sometimes for purposes of cookery. During this action, a white cloud rises; this is watery vapour or steam, carrying up with it some particles of lime. This hydrate soon attracts carbonic acid from the air, and is converted into chalk. Hydrated lime is chiefly used for pharmaceutical purposes.

CALX.

Lime fresh burnt.

Lime does not exist in a pure state, but is found associated with carbonic and sulphuric acid; with the former it forms limestone, chalk, and marble; with the latter, alabaster and gypsum, which, by burning, constitute plaster of Paris. When the carbonates are exposed to a white heat, the carbonic acid is expelled, and the oxide of calcium remains. It is obtained most pure from white marble: that from common limestone often contains some alumina, silica, oxide of iron, occasionally magnesia and oxide of manganese. The lime from shells, contains a portion of magnesia, phosphate of lime, and a trace of oxide of iron.

It is soluble in about 700 times its volume of water at 60°; and, contrary to a general law, is more soluble in cold than in hot water.

<i>Composition:</i>	1 oxygen	=	8
	1 calcium	=	20
			—
			28

Medical Properties. Escharotic, and antacid. It is very little used by itself. Internally it is given in the form of lime-water, in dyspepsia; it is also said to be good in worm cases, by dissolving and removing the mucus from the intestines; it is given in some calculous diseases, in rickets or mollities ossium, and in scrofula.

Prep. Liq. Calcis,—Potassa cum Calce.

CALUMBA.

The sliced root of the COCCULUS PALMATUS.

This plant is a native of Mozambique, on the eastern coast of Africa, where it grows spontaneously in great abundance. Its root is perennial. The stem is annual and climbing, bearing large palmated leaves. The root is dug up in the dry weather, and the fusiform offsets are selected which are less fibrous and woody than the larger primary root. These are cut into

slices and carefully dried in the shade. The drug is imported from India, whither it is carried by the Portuguese. It derives its name either from having been supposed to be a native of Colombo in Ceylon, or from Calumb, said to be the Mozambique name for the root.

Qualities. It is usually in flat circular pieces, of a yellowish colour internally, brown externally. They are thinnest in the centre, and are marked with concentric circles, and radiating lines. The brightest pieces are preferred, which are compact and uniform, and not worm-eaten. The odour is slightly aromatic; the taste very bitter, and more so the cortical part. It is brittle, and easily pulverized; it absorbs moisture from the air, and is apt to undergo decomposition.

By analysis M. Blanche found in it :

An azotized substance.

A bitter principle (Colombin) not precipitated by metallic salts.

Two-thirds of its weight of starch.

A small portion of volatile oil.

Salts of lime and potash.

Oxide of iron.

Silica.

The virtues of the root are extracted by boiling water and alcohol. The infusion undergoes decomposition very speedily in hot weather, and should, therefore, be made fresh every day.

Some years ago, Calumba root, being very dear, was much adulterated. This is not the case at present, as the adulterating substances are very easily detected, both by the external appearance and the aid of chemistry. The roots were those of Bryony, Costus Indicus, and Fraxina Waltheri. Real Calumba is readily distinguished by the effect of Tincture of Iodine upon it, producing a blue-black colour, and not affording any precipitate with the protosulphate of iron.

Medical Properties. Calumba is a very mild tonic, and may be given in stages of diseases when other tonics are inadmissible. It allays irritation of the stomach and bowels, partly, perhaps, by the starch in it; hence it is useful in checking vomiting, in the diarrhœas of infants, in cholera and dysentery. As a tonic, whilst the stomach is still weak, it is useful after fevers, for, it acts without stimulating or constipating the bowels. Its infusion is a good vehicle for the salts of iron.

Dose of the powder. Gr. x to ʒss.

Infusion, ʒjss. ter die.

Prep. Infusum et Tinctura Calumbæ.

CAMBOGIA.

Gamboge is the gum resin obtained from the *STAGMITIS CAMBOGIOIDES*.

This tree grows in Siam and Cochin-China. The drug is obtained by breaking off the leaves and young shoots, from which the juice issues in drops, and gradually thickens and becomes solid. When it has attained to a necessary consistence it is rolled into cylinders, and wrapped up in leaves. Sometimes the juice is received into the hollow of the bamboo, and becomes cylindrical, and, as it contracts by drying, it has a hollow left in its centre. It is imported from Canton and Calcutta.

Gamboge is brittle, with a smooth conchoidal fracture; its powder has a bright yellow colour. It has no smell, and little taste, but leaves a sensation of burning heat in the fauces. In 100 parts Braconnet found:

Gum,	-	-	-	19.5
Impurities,	-	-	-	0.5
Resin, with colouring matter,	80			
				<hr/>
				100

Unlike most other gum-resins, it contains no essential oil. Triturated with water, it forms a bright yellow liquid, from which the resin will gradually be deposited. It is entirely soluble in alcohol; and is taken up also by alkaline solutions, from which it is partially precipitated by acids.

Medical Properties. Drastic and hydragogue cathartic and somewhat diuretic. In large doses it is apt to disagree with the stomach, and cause vomiting. It is sometimes given in worm cases, mostly for *Tænia*; and, in the treatment of dropsies, in combination with jalap or bitartrate of potash. From its ready solubility it operates freely upon the small intestines, and hence is an excellent substance to combine with aloes, which acts principally on the larger bowels: besides this, they appear to modify the action of each other. The compound gamboge pill of the Pharmacopœia is particularly mild and agreeable in its operation.

Dose. Gr. iij. to gr. vj., and gradually may be increased to ten or fifteen grains.

Preparation. Pil. Cambogiæ Composita.

CAMPHORA,

Camphor, a substance obtained from the *LAURUS CAMPHORA*.

The tree which is mentioned, as affording Camphor, is not the only one, as it is also procured from the *Dryobalanops Camphora*. It is likewise found in the root of the *Laurus Cinnamomum*, in the *Sassafras*, and in the oils of most of the *Labiatae*, yet in so small a quantity that it would not recompense for the trouble of extraction. The *Laurus Camphora* is a large handsome tree, growing freely in China and Japan, and other parts of eastern Asia. Through all parts of it, Camphor is diffused, and is obtained by sublimation from the trunk, root, and branches. All these parts are cut into chips, then placed with a little

water in iron vessels, surmounted by earthen capitals, furnished with a lining of rice-straw. A moderate heat is applied, and the Camphor rises and is condensed upon the straw.

The Dryobalanops Camphora is a very large tree, growing sometimes as high as 100 feet. It is found in Sumatra and Borneo. Camphor is found in its trunk, in masses sometimes as thick as a man's arm, but this is comparatively rare; the quantity obtained from a very large tree, after much labour, very seldom exceeds twenty pounds in weight. The old trees contain the greatest proportion; the young trees, by incision, yield a volatile camphorous liquid, named in the East, Oil of Camphor, and much esteemed; very little camphor of commerce proceeds from this tree.

Camphor is brought to this country from Calcutta, Batavia, and Canton; most of it being derived from China and Japan. In the crude state as imported, it is in granular masses of a dirty white colour, and mixed with extraneous matters. For medical use, it requires to be refined. For this purpose, it is mixed with quicklime and exposed, in a glass or earthenware vessel, in a sand-bath to a gradually increased heat, by which it is melted and afterwards passes in vapour into receivers, where it condenses. Thus refined it is in large hemispherical cakes, one or two inches thick, perforated in the centre.

Qualities. Its odour, appearance, and volatility, are well known to every one. It is pulverized with difficulty, unless a small portion of rectified spirit be added, which greatly facilitates it. Sp. gr. .985. Water dissolves a very small quantity of it, scarcely a grain in an ounce. Its solubility in this liquid is increased by the addition of a little sugar or magnesia. Alcohol dissolves about 75 per cent. of its weight, which is precipitated on the addition of water. It is also soluble in ether, fixed and volatile oils, strong acetic, and the dilute mineral acids. It is now

described as a compound of oxygen, with an hydrocarbon, named Camphine.

Medical Properties. Stimulant, antispasmodic, diaphoretic, and possibly antiseptic. As a stimulant, it shews its effects more on the nervous than vascular system, causing exhilaration of spirits, whilst the pulse is only rendered fuller, but not harder or more frequent. When there is excessive irritation from protracted excitement, or abuse of stimulants, Camphor appears to have a soothing, sedative, tranquillizing action. As a general rule, it is more beneficial when there is debility of body than when there is plethora or inflammatory action, with locked-up secretions. The diseases in which it is best given, are the latter stages of typhoid fevers, confluent small-pox, remittent fevers of hot climates, rheumatism, dysmenorrhœa, some forms of mania, delirium tremens, and irritation of the urinary passages, especially such as attends the use of cantharides.

If Camphor be given in too large doses, it produces dangerous symptoms, part of them such as arise from irritant poisons. These symptoms are nausea, vomiting, anxiety, faintness, vertigo, delirium, insensibility, coma, convulsions, sometimes death. The remedies recommended are copious demulcents, with a pretty free use of opium.

Camphor is used with other medicines, with the intension of increasing or modifying their action. It helps to prevent the unpleasant headach consequent upon taking opiates. It makes senna act more pleasantly, and some say more powerfully. The *modus operandi* of Camphor, in increasing the power of other remedies, is not very clear. Some say that it stimulates the absorbents to take up more of the active principle; others, that it relaxes the exhalants, which allow more fluid to escape; others refer its operation to its stimulating action on the capillary and exhalant vessels. It is said to promote the absorption of

mercury, when rubbed on the surface; and this is also referred to excitation of the absorbents. Externally used, it is a local anodyne, dissolved in spirit or oil, and combined with laudanum. In this form, it relieves in gout, rheumatism, and chordee; and, in the form of enema, it allays tenesmus in cases of worms or dysentery.

To obtain the full effects of Camphor, it may be given in pill or in solution. The pill is not so eligible, as sometime may elapse before all the Camphor is brought in contact with the coats of the stomach. A better plan is, to triturate the Camphor with a few drops of spirit, then with mucilage, and afterwards water; or some Camphor may be dissolved in Almond oil, aided by heat; and a proper quantity of it, triturated with mucilage or the yolk of an egg, may be held in suspension and in a minutely divided state; so that when taken, the whole of it immediately exerts its action upon a large portion of the stomach. Camphor mixture is very weak, and is only used as a vehicle for other remedies. When it is wished that Camphor should determine to the skin, it is better to combine with it tartar emetic, ipecacuanha, or nitre.

Dose. Gr. v. to gr. x. or xv.

Of the Camphor Mixture, ʒiss. to ʒij.

Prep. Lin. Camph.,—Lin. Camph. Comp.,—Lin. Hyd. Comp.,—Lin. Saponis.,—Lin. Terebinthinæ,—Mist. Camphoræ,—Tinct. Camphoræ,—F. Camph. Comp.

CANELLA.

The bark of the CANELLA ALBA.

This is a tree which grows naturally in Jamaica and other West Indian Islands, easily distinguished from other forest trees, by the light colour of its bark. The drug, is the bark of the branches deprived of epidermis, and carefully dried in the shade. It is in pieces of

variable thickness and length, generally quilled, has an aromatic odour, somewhat like cloves, and a warm pungent taste. Boiling water extracts one-fourth of its weight, but does not take up the warm aromatic principle. It yields its virtues to alcohol, which is rendered milky by the addition of water. Its constituents are

Volatile oil.
 Sweet substance resembling mannite.
 Bitter extractive.
 Resin.
 Gum.
 Starch.
 Albumen.
 Saline substances in small quantity.

The bark of the *Drymis winteri*, or *Wintera aromatica*, is sometimes mixed with and mistaken for canella. Winter's bark contains tannin and a little oxide of iron, which are not found in canella.

Medical Properties. A warm aromatic, seldom or never prescribed alone. It is given most in combination with aloes, to render it more palatable and pleasant in its operation.

Dose. Gr. x. to gr. xv.

Prep. Vin. Aloes.

CANTHARIS.

CANTHARIS VESICATORIA. Class, Insecta. Order, Coleopteræ. Family, Trachelides. Tribe, Cantharideæ. Latreille. *Spanish Fly*.

This insect is about eight to ten lines in length, by two or three in breadth, and of a brilliant green colour. When alive, these insects have a powerful odour, by which swarms of them can be known even at some distance. They frequent some trees in preference, as the white poplar, privet, ash, elder, and lilac, upon the leaves of which they feed. They are found in

Spain, south of Italy, and western part of Asia. They make their appearance in May and June, at which time they are generally collected, and are said to be most active at the period of copulation. The plan of collecting them is to shake the tree in the morning, from which the insects fall, having been benumbed by the cold of the night. They are then thrown into vinegar and water or hot water, to be killed, and subsequently dried either in stoves or by the heat of the sun. They are sometimes killed by burning sulphur under the trees to suffocate them.

Cantharides come from Spain, Italy, and other parts of the Mediterranean. Now they are brought in considerable quantities from St. Petersburg, derived originally from the southern parts of Russia, and, on the authority of Dr. Thomson, they are brought most largely from Astracan, mixed with another fly, the *Melolontha vitis*, which does not blister, and must be carefully removed from the blistering fly.

Qualities. Spanish flies, when dried, preserve considerably their unpleasant odour, and have an acrid, burning urinous taste. If kept perfectly dry, they may retain their virtues for some time. Exposed to moisture, they soon putrefy, and this most readily occurs when they are in a state of powder. Even with care, they are apt to be attacked by mites, which consume the softer interior parts, leaving the harder external portion uninjured. Some have erroneously supposed that they removed only the inert portion. It has been proved that, although the part left has vesicating qualities, it is not near so active as the sound fly. Camphor does not effectually preserve them. They are said to be protected more by having been immersed in strong pyroligneous acid.

Robiquet found in cantharides

A green oil; *inert*.

Black matter, soluble in water; *inert*.

Yellow viscid matter, soluble in water and alcohol; *inert*.

Cantharidin, the active substance.

Fat insoluble in alcohol.

Phosphates of lime and magnesia.

Acetic acid, and in the fresh flies, uric acid.

A volatile principle, procurable by distillation.

Cantharidin is a white substance, in scales of a micaceous appearance, insoluble in water and cold alcohol, but soluble in ether, oils, and hot alcohol. The yellow matter in the fly, however, appears to render cantharidin soluble in water or cold alcohol, as we find a decoction, or tincture, very active in exciting vesication. Cantharidin, is procured by making first a watery extract from the fly; then treating it with hot alcohol to take up the cantharidin with the yellow matter. The yellow matter is subsequently removed by washing with cold alcohol.

Medical Properties. As an internal remedy, Spanish flies are stimulant and diuretic. Their action is particularly exerted upon the urinary organs, beneficially in some cases, and dangerously when exhibited in excessive doses. This remedy is prescribed in dropsies where there is debility, to increase the secretion of urine, in gleet, leucorrhœa, and amenorrhœa, incontinence of urine depending on debility or partial paralysis of the neck of the bladder. If the dose given be excessive, it will cause inflammation of the mucous coat of the intestinal canal, and a similar state of the urinary passages, attended with bloody urine and strangury, great excitation of the genital organs, priapism, &c. To combat such symptoms, copious diluents, with camphor and opium, are found most useful, followed by cooling saline remedies to subdue the inflammation. Cases of this kind are occasionally met with from an iniquitous administration of this drug, under an impression that it excites sensual feelings, and many a life has been sacrificed to such brutality. Some medical men are in the habit of using the tincture of cantharides internally in hooping-

cough, but on what principle is not clearly stated. It possibly acts by revulsion, that is, irritating the mucous surface of the intestinal canal, and diverting the current of blood from the lungs to that part.

The chief use of cantharides is in the form of the blister plaster, as an external application. Thus employed, it acts as a stimulant, rubefacient, and vesicant. There are many motives for its use, and several modes by which it relieves. As a general rule, blisters are not to be employed in the height of inflammatory action, nor until the system has been somewhat reduced by depletion. The most frequent object in using them is to divert the current of blood from an adjacent part, and to direct the nervous energy to another part, where the inflammatory process is less injurious. The irritation producible by them can be controlled according to our wishes, either just so far as to redden the surface, or to produce an effusion of serum, and even by protracted irritation to establish a suppurating surface. The vesication is effected by serous fluid being thrown out under the epidermis from the vessels of the cutis vera, to protect it from the further influence of the irritant. The time requisite for vesication varies with age, sex, constitution, and the stage of the disease. In general, blistering plasters may be kept on adults for twelve hours, but if there is a low state of the vital powers, they will have scarcely any action, even in 24 hours, hence a vulgar opinion that if vesication does not occur in severe diseases, the patient is beyond recovery. In children and delicate females, they act very speedily, often in the course of two hours, and in children particularly, they require to be carefully watched, when used after some severe and depressing diseases, such as measles, or scarlatina, &c.; for, if left on too long, they will often occasion sloughing of the parts. A great objection to the use of this remedy is the tendency in some constitutions to occasion inflammation of the urinary organs. To obviate this, the patient should drink, previously, copious

demulcents, such as almond emulsion, linseed tea, or gruel, and the blistering plaster itself may have a little camphor and opium rubbed on it, or gauze or tissue paper may be interposed between it and the skin. Should, however, bloody urine and strangury come on, the remedies are, copious demulcent drinks with camphor and opium, an emollient poultice applied over the blistered surface, the use of the warm bath, and an enema of starch, with some camphor and opium. In young children, the plaster should be removed as soon as the skin is reddened, and replaced with a mild poultice, which will generally ensure vesication.

The diseases in which blisters are employed are too numerous to mention individually. They are useful in typhoid diseases, to stimulate and rouse the system, and sometimes to act as counter-irritants. They have been employed in remittent and intermittent fevers, to subvert morbid associations. By revulsion, they benefit in cynanche, in the inflammatory diseases of the pulmonary and abdominal viscera, and are most efficacious in chronic affections, in which it is probable that, by drawing the blood to the surface, the subjacent weakened and overdistended vessels have an opportunity of recovering their natural calibre, and returning to their healthy functions.

Dose. Of the tincture xv. to xxx. minims, of the powdered fly, gr. $\frac{1}{4}$ to gr. j.

Prep. Acetum Cantharidis,—Ceratum Canth.,—Empl. Canth.,—Tinct. Canth.,—Ung. Canth.

CAPSICUM.

The berries of the CAPSICUM ANNUUM.

This variety of capsicum is an annual herbaceous plant, a native of Asia and America, where it grows in the greatest luxuriance. The capsicum baccatum and

frutescens are the species which afford the Cayenne pepper. The berries, which are officinal, are generally grown at present in our country, and are also much employed in the form of pickle.

The odour of capsicum berries is peculiar and somewhat aromatic, stronger in the fresh than the dried state. The taste is acrid and burning, causing an intense heat in the mouth, which lasts for some time. The acrimony, according to the analysis of Braconnot, depends upon an oily or resinous substance, which he named *capsicin*, and which he extracted chiefly by the agency of ether. He describes it as an oil or soft resin, of a reddish-brown colour, with an insupportably hot and pungent taste. It is slightly soluble in vinegar and water, most so in alcohol, ether, and oil of turpentine. In addition to capsicin, Braconnot found in the berries

Colouring matter.

An azotized substance.

Gum.

Pectic acid.

Saline matters.

The cayenne pepper, used as a condiment, has sometimes been adulterated with the common litharge. The fraud may easily be discovered, by putting some of the pepper into vinegar, and heating it, and then applying to the solution the ordinary tests for lead, which will instantly detect it.

Medical Properties. Capsicum is a powerful local stimulant, and, in a less degree, excites the system generally. It is usually given to stimulate the stomach to healthy action, as in some forms of dyspepsia and atonic gout; and it is combined with quinia, in intermittents, when there is torpor of the system. It is considered to be useful with a vegetable diet, in preventing flatulent distension of the intestines.

The most common use made of it with us is in the form of gargle, in atonic states of sore throat, as in

scarlatina, or in a relaxed condition of the uvula. The gargle may consist of from one to two drachms of the tincture, to twelve ounces of rose-water, or may be made by infusing half a drachm of the powder in a pint of water.

Dose. Gr. v. to gr. x.
Of the tincture ʒss. to ʒi.

Prep. Tinctura Capsici.

CARBO ANIMALIS.

Animal Charcoal, prepared from flesh and bones.

This substance is made by exposing bones and other animal substances to a great heat, such as is able to effect destructive distillation. A quantity of ammonia and carbonic acid will pass off, and a black carbonaceous matter remains, which, when bones are used, is also associated with a large portion of earthy matter. This earthy substance can be removed by the action of hydrochloric acid, which will produce soluble chloride of calcium and soluble superphosphate of lime. By continued washing, these are removed, and the purified charcoal remains.

Animal charcoal is not employed as a medicine; it is much used in pharmacy to decolourize various substances.

CARBO LIGNI.

Wood Charcoal.

This substance is commonly obtained by the slow combustion of wood, and is managed in the following manner. Billets of wood are piled up in heaps, and then covered over with turf, excepting an aperture left at the top, and another at the bottom, to allow a current

of air at the time that the wood is first ignited. When ignition has taken place, the top is covered over, and the combustion proceeds slowly and imperfectly. The gaseous products escape, and there remains a black, light porous mass, which we call charcoal.

Another plan for procuring it is to submit wood in iron cylinders to destructive distillation, by which we obtain not only very good charcoal, but at the same time the impure pyroligneous acid; charcoal procured by either of the above processes contains several impurities, chiefly some salts of lime and potash; to remove these, it may be treated with dilute hydrochloric acid, and frequent washing with water.

Medical Properties. It is said to be antiseptic, absorbent, and mildly aperient. It may be of service in dyspepsia, where there are fetid eructations, or in dysentery, to correct the fetor of the stools. It is applied to fetid offensive sores, as an antiseptic, and to remove the disagreeable smell.

The most common use made of it is as a tooth-powder, for which it is decidedly well adapted.

Dose. Gr. x. to ʒss.

As an aperient, ʒij. to ʒss.

CARDAMINE.

The flowers of the CARDAMINE PRATENSIS,—*Cuckow Flower.*

This is a small herbaceous annual plant, common in our meadows, flowering very early in the spring. It has pink cruciform flowers, pinnate leaves, and grows from nine to twelve inches high.

The leaves have a bitterish sour taste, and, on this account, are eaten in some countries as a salad. They are reputed to be anti-scorbutic. The flowers have a very similar flavour, and form the part of the plant

officinally used. When dried, they are inodorous and almost insipid.

Medical Properties. They are said to be diuretic and antispasmodic, given in nervous affections and asthma. They are mild in their operation, and of very little efficacy, and could easily be spared from the list of remedies.

Dose. Gr. xx. to 3ss.

CARDAMOMUM.

The seeds of *ALPINIA CARDAMOMUM*.

This plant is a native of the mountainous regions of Malabar, where it grows spontaneously in great abundance. It begins to yield fruit about the fourth year of its growth. It has a tuberous horizontal root, or rhizome, which sends up numerous perennial stems. The scapes or flower-stalks proceed from the base of the stem, and lie close upon the ground, with flowers arranged in the form of a panicle. The fruit is a three-celled capsule, containing numerous seeds. When ripe, they are gathered and dried over a gentle fire, and by rubbing in the hand are separated from the stalks.

The seeds have a fragrant odour, and a warm pungent, highly aromatic taste. These properties are extracted by water and alcohol, but most powerfully by the latter. They depend upon a volatile oil, which rises by distillation to the amount of 4.6 per cent. Alcohol extracts from them 12.5 per cent. of an acrid burning resin and extractive matter. The seeds should not be kept in a state of powder, for the qualities are best preserved whilst they are in their capsules.

Medical Properties. An agreeable warm aromatic and stimulant, much used as an adjunct to cordial, tonic, and purgative medicines. In the East Indies they are used as a condiment, and almost looked upon as one of the necessities of life.

Dose. Gr. v. to gr. x.

Prep. Conf. Aromatica, — Dec. Aloes Comp., — Extr. Coloc. Comp., — Pulv. Cinnamomi Comp., — Tinct. Cardamomi, — Tinct. Card. Comp., — Tinct. Cinnamomi Comp., — Tinct. Conii, — Tinct. Gent. Comp., — T. Sennæ Comp.

CARUI.

The seeds of CARUM CARUI.

This umbellate plant is biennial and a native of the south of Europe. The seeds of the second years' growth are the best. They are chiefly imported from Germany, but are also grown in considerable quantity in our own country. The root in some parts is eaten, bearing a great resemblance in its qualities to parsnip.

These seeds have a pleasant aromatic smell, and a sweetish, warm, spicy taste. These properties depend on an essential oil, which they afford largely by distillation. The residue is insipid. Water and alcohol extract their virtues.

Medical Properties. Stomachic and carminative, used in flatulent colic, and as an adjuvant or corrective to other medicines. The seeds are often used in cakes, and are thought to stimulate the digestive organs.

Dose. Gr. x. to gr. xx.

Of the oil, four or five drops.

Prep. Aqua Carui, — Conf. Opii, — Conf. Rutæ, — Oleum Carui, — Spiritus Carui, — Sp. Juniperi Comp., — Tinct. Sennæ Comp., — Pil. Aloes Comp., — Pil. Rhei Comp.

CARYOPHYLLUS.

The dried unexpanded flowers of the CARYOPHYLLUS AROMATICUS.

This tree, a native of the Moluccas, is an evergreen,

and flowers throughout the whole year. The flowers are disposed in terminal corymbose panicles, and give out a strong penetrating fragrant odour. The unexpanded flower-buds only are officinal; they are first gathered when the tree is about six years old. They are picked by the hand, or separated from the tree by long reeds, and then quickly dried. In the Moluccas they are said to be sometimes immersed in boiling water, and afterwards exposed to smoke and artificial heat, before being dried in the sun. In Cayenne and the West Indies, they are simply dried by the solar heat.

Properties. Cloves have externally a deep-brown colour, internally reddish; an odour strong and fragrant; and a hot pungent aromatic permanent taste. The best are large, heavy, brittle, and when pressed give out a little oil. When light, soft, wrinkled, or pale, and of a feeble taste and odour, they are inferior. In 1000 parts Tromsdorff discovered

Volatile oil,	-	-	-	180
Astringent extractive matter,				170
Gum,	-	-	-	180
Resin,	-	-	-	60
Vegetable fibre,		-	-	280
Water,	-	-	-	180

M. Lodibert discovered, subsequently, a fixed oil of a greenish colour, and a white resinous substance without taste or smell, soluble in ether and boiling alcohol. This substance, named by Bonastre *caryophyllin*, was found in the cloves of the Moluccas, Bourbon, and Barbadoes; but not in those of Cayenne. Berzelius considers it to be stearoptene.

Water extracts the odour of cloves, but little of their taste. All their sensible qualities are imparted to alcohol. By distillation, cloves afford a volatile oil in considerable quantity, amounting to about one-sixth of their weight.

Medical Properties. Stimulant and aromatic, useful in colicky pains, some cases of dyspepsia, and to correct the griping effects of some other remedies. They are seldom used uncombined. The oil of cloves dropped into a carious tooth, will oftentimes relieve toothach.

Dose. Gr. v. to gr. x.

Prep. Inf. Caryophyllorum,—Conf. Aromatica,—Conf. Scammonii,—Inf. Aurant. Comp.,—Sp. Ammoniae Arom.,—Vinum Opii.

CASCARILLA.

The bark of the CROTON CASCARILLA.

This is a small tree or shrub, which grows in the Bahamas, in Hayti, Peru, and Paraguay. The bark of it only is officinal.

Cascarilla has an aromatic odour, and a warm spicy bitter taste. It is brittle and breaks with a short fracture. When burning it emits a pleasant odour, which distinguishes it readily from other barks, and on which account it is an ingredient in pastils, and is occasionally mixed with tobacco to improve the odour of its smoke. Tromsdorff found in 100 parts of it,

Greenish yellow volatile oil,	-	1.6
Brown, soft, rather bitter resin,	-	15.1
Bitter extractive, with gum and	}	18.7
traces of muriate of potash,		
Lignin,	- - - - -	65.6

Either water or alcohol partially extracts its virtues, which are best taken up by diluted alcohol.

Medical Properties. It is a tonic and aromatic, and has been recommended as a substitute for cinchona in intermittents, but affords a very inefficient one. It is given in dyspepsia, as a tonic after long fevers, chronic diarrhoea, or dysentery. It is considered by many to be an elegant tonic, for which reason

principally it is prescribed. As it contains no tannin or gallic acid, the infusion might be employed as a vehicle for the salts of iron.

Dose. Gr. x. to gr. xx. in powder.

Of the Infusion, \bar{z} iss.

Tincture, \bar{z} i. to \bar{z} ij.

Prep. Infusum et Tinct. Cascarillæ,—Mistura Cascarillæ Comp.

CASSIA.

The Pulp of the Legumes of the CASSIA FISTULA.

This tree obtains a considerable size and is found in most tropical climates in Asia, Africa, and America. Our supplies are chiefly from the East and West Indies. The fruit which is the officinal portion, is a long cylindrical, woody, dark-brown, pendulous pod, internally divided into numerous cells, by thin transverse plates, which are covered with a soft black pulp. Each cell contains a single, oval, shining seed. The pulp is extracted from the pods by bruising them, and then boiling them in water, which dissolves the pulp; and this is procured sufficiently inspissated by evaporation.

Medical Uses. Mildly laxative, seldom prescribed except for children, or as an ingredient in the confectio of senna. If given in doses sufficient to purge, it is apt to cause nausea, griping, and flatulence.

Dose. \bar{z} ss. to \bar{z} j.

for a child, \bar{z} j. to \bar{z} ij.

Prep. Conf. Cassiæ,—Conf. Sennæ.

CASTOREUM.

A concretion found in the follicles of the prepuce of the Castor Fiber, Common Beaver.

In the beaver, between the anus and external genitals of both sexes, there exist two pairs of glandular follicles; the lower of which are larger, and contain a highly odorous viscid substance, secreted by glands placed near these follicles. The substance contained is called Castor. After the death of the animal, these bags are removed, and dried either by smoke or in the sun.

Castor is described as coming from Russia and Canada, but it appears that at present our supply is exclusively derived from the latter locality.

Properties. It has a strong peculiar odour, a bitter, acrid, and nauseous taste, and a reddish brown colour. It varies in consistence, according as it has been dried. When quite dry, it is hard, brittle, and of a resinous fracture. Brande analyzed and found in it

Volatile oil,
Resinous matter,
Albumen,
Osmazome,
Mucus,
Urate, carbonate, benzoate, phosphate, and sulphate
of lime,
Acetate and muriate of soda,
Muriate, sulphate, and benzoate of potash,
Carbonate of ammonia,
Membranous matter,
Castorin.

Castorin is supposed to be the peculiar active principle. It crystallizes in diaphanous fasciculated prisms; has strongly the smell of castor, with a taste as of copper. It is insoluble in water and cold alcohol, soluble in hot alcohol and essential oils. It is pro-

cured by treating castor with hot alcohol, filtering the solution, and allowing it to cool, when the castorin is thrown down. Water takes up the virtues of castor very imperfectly; alcohol and sulphuric ether more effectually.

Medical Properties. This drug is of very little actual service. It is stimulant and antispasmodic, and is given in nervous affections, especially hysteria; also in low nervous fevers, in epilepsy, and, in some other ambiguous nervous diseases: it is thought by some to be emmenagogue. It is often prescribed in absurdly small quantities, as if serious consequences were to result from over-doses.

Dose. Gr. x. to gr. xx.

Of the Tincture, ʒj. to ʒij.

Prep. Tinctura Castorei.

CATECHU.

The extract from the wood of the ACACIA CATECHU. This tree is a native of Hindostan; it does not grow to any considerable height, seldom exceeding twelve feet. The wood of the tree is cut into pieces and boiled in water, and the solution is evaporated to the consistence of an extract. This is then exposed to artificial heat, or that of the sun, and becomes perfectly dry and hard, forming the drug known as Catechu.

There are three forms of it commonly met with; either it is in large irregular masses, or in squares of rather more than an inch in diameter, or in flattened rounded cakes. In addition to these, there are several other varieties less common, which are described in some works of Materia Medica. Catechu is commercially distinguished as Bombay and Bengal, and they present some difference in composition. The Bengal catechu is procured from the province of Bahar, and is

shipped from Calcutta. The Bombay variety is prepared in Canara, and sent direct from Bombay.

Catechu is inodorous, with an astringent, slightly bitter taste, followed by a sense of sweetness. It is brittle, and in some pieces breaks with a shining resinous fracture. The darker varieties are best. Several impurities are often mixed up with it. The chief constituents are tannin, extractive matter, and mucilage. In two hundred parts of the Bengal and Bombay catechu, Sir Humphrey Davy found

		Bengal.	Bombay.
Tannin,	- -	97	- 109
Extractive,	- -	73	- 68
Mucilage,	- -	16	- 13
Insoluble, residue,		14	- 10

Catechu is almost entirely soluble in large quantities of water, only a small quantity of earthy matter and impurities remaining behind.

Medical Properties. Catechu is astringent, and somewhat tonic. It is a very useful remedy in diarrhoeas and some forms of hæmorrhage. It is used for relaxed velum and uvula, in the form of a gargle, or a small portion may be masticated. It may also be employed as an injection in gleet and leucorrhœa. Alkalies diminish its astringent qualities, and therefore should not be prescribed with it.

Dose. Gr. x. to gr. xxx.

Of the Tincture, $\mathfrak{z}\text{i}$. to $\mathfrak{z}\text{ij}$.

Infusion, $\mathfrak{z}\text{i}$. to $\mathfrak{z}\text{ij}$.

Prep. Infusum Cat.,—Tinctura Catechu.

CENTAURIUM.

The tops of ERYTHRÆA CENTAURIUM.—*Common Centaury.*

This is a small herbaceous annual plant, common in many parts of this country; it bears pretty pink

flowers, in the form of a dichotomous panicle. The whole plant, excepting the root, is officinal. The greenest parts, most especially, have a strong bitter taste, something like gentian, which is imparted to water and alcohol.

Medical Properties. It is a tonic, and may be employed in the same cases as gentian, but with less effect. It is an unnecessary addition to the lists of *Materia Medica*.

Dose. Gr. xx. to ʒj.

CERA FLAVA ET ALBA.

Wax. A concretion prepared by the bee.

This substance is a product of the common bee, the *Apis Mellifica*: the elements which form it are collected from plants, but it is elaborated and excreted from the body of the insect. Its use is to form the cells in which honey and the larvæ are deposited.

Yellow wax is obtained by slicing the honey-comb, then draining away and pressing out the honey, and melting the residue in boiling water, and keeping it hot for some time to separate impurities. When the liquid cools, the wax concretes, and being removed is again melted in boiling water; then strained and poured into suitable vessels. It is brought to the markets in thick round flat cakes. In addition to what is procured in our own country; some is imported from the European continent and Africa.

Wax is resolved by chemists into two principles; viz. cerin, soluble in alcohol, and myricin, insoluble in that menstruum.

White Wax, *Cera dealbata*, is procured from the common wax by discharging its colour: this is effected by exposing it with an extended surface to the agency of air, light, and moisture. For this object, the wax previously melted may be made to fall on a revolving

cylinder, kept constantly wet; on this it forms then ribbon-shaped layers. These are then removed and spread on linen cloths, and exposed to air and light, being occasionally watered and turned. In a few days, and by a repetition of the process, the wax becomes quite white; it is then melted and formed into thin flattened circular pieces.

White wax, being more expensive, is occasionally adulterated with white lead and tallow. These are easily detected by melting the wax in water: white lead rapidly sinks, and the tallow evolves a very unpleasant odour, and gives a dull opaque appearance to the water. If starch has been mixed with it, it will be detected by being left undissolved by oil of turpentine.

Medical Properties. Wax is chiefly used as an ingredient in cerates, ointments, and plasters. It is said to be a demulcent and emollient, if taken internally; and has been recommended to sheath the bowels in diarrhœa and dysentery. If so employed, the best method of using it would be to melt some of it with almond oil, and, whilst warm and liquid, triturate it with the yolk of an egg, or suspend it in some mucilaginous fluid. The dose might be 3ss. to 3j; two or three times a day.

Prep. Various cerates, ointments, and plasters.

CEREVISIÆ FERMENTUM.

Yeast is the frothy substance which rises to the surface of beer during fermentation; also during the fermentation of most other saccharine liquids.

It is frothy, viscid, semifluid, of a dirty yellowish colour, has a sour resinous odour and a bitter taste. At 60 or 70, in a close vessel or damp atmosphere, it soon putrefies. Exposed to heat, it becomes dry and brittle, and preserves its qualities for a long space of

time. It is insoluble in water or alcohol. Westrumb analyzed it, and found, in 15142 parts,

Potash,	-	-	13
Carbonic acid,	-	-	15
Acetic acid,	-	-	10
Malic acid,	-	-	45
Lime,	-	-	69
Alcohol,	-	-	240
Extractive,	-	-	120
Mucilage,	-	-	240
Saccharine matter,			315
Gluten,	-	-	480
Water,	-	-	13595

and a bitter principle, supposed to be derived from the hops. It is chiefly valued for the power it possesses of exciting vinous fermentation, and the panary fermentation in farinaceous substances. This property depends most upon the presence of gluten, for, if gluten be removed, the fermenting effect is lost.

Medical Properties. It is thought to be antiseptic, and has been given in typhoid fevers, in half-ounce and ounce doses. It is most used as a poultice for fetid, ill-conditioned, or gangrenous sores, which it relieves from their feter, and often appears to stimulate to a more healthy action.

Prep. Cataplasma Fermenti.

CETACEUM.

Spermaceti.—A concretion, found in cells of the head of the PHYSETER MACRO-CEPHALUS.

This species of whale is often from sixty to eighty feet in length, with an enormous head, constituting in length one-third of its body. In the upper part of the head there are large cavities separated by cartilaginous partitions, containing an oily liquid, which, after death, concretes into a whitish spongy mass, consisting

of spermaceti, mixed with oil. This is removed and the oil is separated by draining. The quantity of spermaceti obtained from a whale, on an average, is said to be sufficient to fill twelve large barrels. It is further purified by washing with hot water, melting, and straining; and, finally, treating with a weak, hot ley of potash.

Spermaceti melts at 112. Its sp. gr. is 943; it is insoluble in water; partially soluble in alcohol, ether, and oil of turpentine; easily soluble in the fixed oils. By chemists it is considered to be a distinct principle, named *Cetin*.

Medical Properties. It is seldom prescribed for internal use, although it is supposed to be demulcent, and capable of sheathing and soothing the mucous membrane of the alimentary canal, and was once thought efficacious in relieving the genital parts of the female after labour. A very nice spermaceti mixture may be made by rubbing two or three drachms of it to powder, with the aid of a few drops of rectified spirit; then adding sugar and the yolk of an egg, and subsequently eight ounces of rose-water. The spermaceti is suspended, and the mixture is very agreeable in coughs or sore throats. The chief use, however, of this substance, is in making cerates and ointments.

Prep. Cerat. Cetacei,—Ung. Cetacei.

CETRARIA.

CETRARIA ISLANDICA.—*Iceland Moss.*

This plant belongs to the natural order Lichenes. It is found in the northern latitudes of Europe, Asia, and America; and is named Islandica, from the abundance of it found in Iceland. When dried it is of various colours, greyish-white, brown-red in parts, and somewhat green. It is inodorous, and has a

bitter mucilaginous taste; boiling water extracts all its soluble principles. The decoction thickens on cooling, and acquires a gelatinous consistence. The substance producing this effect considerably resembles starch, but differs from it in producing no effect upon iodine. Berzelius analyzed this moss, and found in 100 parts,

Uncrystallizable sugar,	-	-	3.6
Bitartrate of potash, with tartrate and phosphate of lime,	-	-	1.9
Green wax,	-	-	1.6
A peculiar bitter principle,	-	-	3.0
Colouring extractive matter,	-	-	7.0
Substance resembling starch,	-	-	44.6
Insoluble matter,	-	-	36.6
Gum,	-	-	3.7

The bitter principle is, when pure, pulverulent; of a light yellow colour, inodorous, intensely bitter; slightly soluble in water, more so in alcohol, and freely in the liquid alkalies.

In Iceland and Lapland this vegetable is eaten as food, after the bitter substance is removed by maceration in water for some hours, or in water to which a little potash has been added.

Medical Properties. Tonic, nutritious, and demulcent. At one time it was celebrated as a remedy for consumption, but at the present time such a notion is abandoned, although in that disease it may have a palliative soothing effect. It is useful in coughs and in ulceration, and inflammation of the mucous membrane of the intestinal canal; giving some tone to the stomach, and at the same time sheathing and lubricating the mucous membrane. It is generally given in the form of a decoction, and may be taken ad libitum.

Prep. Decoctum Cetrariæ.

CINCHONA CORDIFOLIA.**CINCHONA LANCIFOLIA.****CINCHONA OBLONGIFOLIA.**

The bark of each of these varieties of cinchona is the officinal portion; that from the first is named *yellow-bark*, from the second *quilled* or *pale-bark*, and from the third *red-bark*.

Cinchona was introduced into Europe about the year 1640, and was known to Europeans only three years before that time. The first account given of the tree was by La Condamine, one of the French academicians, and upon the authority of Linnæus it was first named *Cinchona Officinalis*, in honour of the Duchess de Cinchon, who first took it in Europe; during succeeding years several varieties of Cinchona were discovered in other countries by naturalists, so that the number became very large, and great confusion existed on the subject. Decandolle, who has skilfully investigated the botanical characters of these trees, has divided them into eight genera, viz., Cinchona, Buena, Remigia, Exostemma, Pinckneya, Hymenodyction, Luculia, and Danais.

The true Cinchona exists principally in Peru, New Granada, and Bolivia.

The Cinchona tree is of some size, growing from thirty to forty feet high, widely diffused, extending from Buenos Ayres as far as Santa Martha on the northern coast. It is commonly found at an elevation of four or five thousand feet above the level of the sea, where the temperature is much lower than that of the tropical climates where it is found.

Even the genus Cinchona contains a large number of species, amounting, according to Ruiz and Parron, to thirteen; on Lambert's authority, to sixteen; and even

more according to some naturalists. In this matter there is great uncertainty, as it appears that the character of the leaves and bark will vary with locality, temperature, and elevation, so that it is even possible that the three officinal barks may be the produce of the same tree, only growing under different circumstances. Baron Humboldt paid little attention to the species, and summed up by saying that the *Cinchonas* alone were febrifuge which had a tomentose flower.

The specific names adopted in the Pharmacopœia are taken upon the authority of Lambert, although the majority of authorities of the present time refer the yellow bark to the *Cinchona Condaminea*, and the red bark is said certainly not to be produced by the *C. Oblongifolia*. The precise source of it is unknown.

Cinchona bark is collected in South America by men who go out in parties, and are called *Cascarilleros*. They are persons who have had much experience, and are able to discriminate between the good and bad barks. The dry season selected for the collection of it is from September to November.

The plan they pursue is to cut into the bark, and on removing a small portion, ascertain whether it turns red on the inside in a few minutes by exposure to the air. This is a test of its goodness. They then proceed to peel it off by the blunt edge of an instrument, and by exposure to the sun it dries and assumes a quilled appearance. This applies only to thin bark; for we sometimes receive it in large pieces, flattened and of some thickness. The bark so collected is carried to depôts, where it is sorted and packed up in boxes named *serons*, and covered with the hides of the ox or buffalo. The best bark is heavy, of moderate thickness, of a splintery fracture, and should not be in quills of a spiral form. It has been classified under seven heads as to the external colour, known as, 1, blackish—2, curled—3, dark leopard-grey—4, bright leopard-grey—5, lizard coloured—6, very white—7, ash coloured. Another

classification of Cinchonas has been made according to the countries from which they are exported. This is attended with great difficulty, inasmuch as similar barks are exported from different places, and these will be found to vary at times. In a medical point of view such an inquiry is not of great value, particularly as so much doubt exists upon the natural history of this drug. We distinguish the three medical varieties by their colour, into *pale*, *yellow*, and *red*.

Pale Bark has received its name from the colour of the powder which it produces, and grey from the colour of its epidermis; the bulk of it is quilled, and the finest kind of it is said to be no larger than a goose-quill. Its taste is moderately bitter, subastringent, and not nauseous. It has a feeble, somewhat aromatic odour. It is exported from Loxa and Huanuco, and is presumed to be the product of *Cinchona Condaminea*, *Scrobiculata*, and *Lancifolia*. It is known as Loxa Bark, and the finest specimens form the Crown-bark of Loxa.

This variety contains on an average 2 per cent. of cinchonia, and nearly 0.5 per cent. of quinia.

Yellow Bark is named in Bolivia, Calisaya bark. It comes over quilled, and in large flat pieces; when broken it presents numerous shining points, and minute spiculæ, which will perforate the skin and occasion much annoyance. The taste is less astringent, but more bitter and more nauseous, which would distinguish it from the pale, although the quills have some resemblance. The flat pieces are less active than the quills. It contains from 2 to 3 per cent. of quinia, and a very small quantity of cinchonia.

The *red bark*, the produce of unknown species is generally in large flattened pieces, sometimes quilled, always rather thick, with occasionally an uneven warty surface. The taste is bitter and astringent; the odour very like that of the other barks. It is chemically distinguished by containing a large proportion of quinia and cinchonia, amounting to from 3 to 4 per cent.

Chemical Qualities. The three cinchonas contain several proximate principles, which are nearly the same in each, excepting the relative proportions;—thus we find in them the following substances :

<i>In Pale Bark.</i>	<i>Yellow.</i>	<i>Red.</i>
Fatty matter of Laubert	Ditto.	Ditto.
Red colouring matter	Ditto.	Ditto.
Yellow colouring matter precipitated by acetate of lead	Ditto.	Very copious.
Tannin	Ditto.	Ditto.
Gum		
Starch	Ditto.	Ditto.
Lignin	Ditto.	Ditto.
Kinate of lime	Ditto.	Ditto.
Kinate of cinchonia	Very little.	} Both in considerable proportion.
Kinate of quinia only a trace	Perkinate of quinia in large proportion.	

Gum is the only proximate principle which is not found in all three.

The *fatty matter* is of a greenish colour from the pale bark, orange yellow from the yellow bark: insoluble in water, sparingly soluble in alcohol, very soluble in ether, and capable of forming soaps with alkalies.

The *red colouring matter*, *red cinchonic* of Reuss, is reddish brown, insipid, inodorous, very soluble in alcohol, almost insoluble in ether and water, although the latter dissolves a little at boiling heat. Acids promote its solubility in water. It precipitates tartar emetic, but not gelatine. It is precipitated by acetate of lead; is most abundant in the red bark, least so in the pale.

The *yellow colouring matter* has little taste, is soluble in water, ether or alcohol, precipitates neither tannin nor tartar emetic, but is precipitated by sub-acetate of lead.

The *tannin* or *soluble red colouring matter* of Pelletier and Caventon has all the properties peculiar to this principle. It has a brownish colour, an austere taste, is soluble in water and alcohol, precipitates me-

gallic oxides, and forms precipitates with the salts of iron, varying with the barks, being deep green with the pale, blackish-brown with the yellow, and reddish-brown with the red.

The most interesting constituents of the Cinchonas are the cinchonia and quinia, and the acid with which they are associated.

Cinchonia is a white crystalline substance, soluble in 2500 parts of boiling water, almost insoluble in cold water, very soluble in boiling alcohol, slightly soluble in ether. Its bitter taste is at first not very obvious. Its solutions have it more so. It has a strong alkaline reaction, neutralizing acids, forming compounds with sulphuric, nitric, hydrochloric, phosphoric and acetic acids, very soluble in water, but less soluble compounds with tartaric, oxalic, and gallic acids. It may be procured by boiling the pale bark in very dilute sulphuric acid, then adding lime to supersaturation, collecting the precipitate, and digesting it in boiling alcohol; on cooling and evaporation the cinchonia will be left. It is considered to be a compound of

Carbon, -	20	-	$20 \times 6 =$	120
Hydrogen, -	11	-	$11 \times 1 =$	11
Oxygen, -	1		$=$	8
Nitrogen, -	1		$=$	14

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Brande, a German chemist, does not admit any oxygen in its composition.

It forms two compounds with sulphuric acid, viz. a disulphate, and neutral sulphate.

Quinia is whitish, flocculent in its appearance, and does not crystallize like cinchonia; with care it appears that it may be procured in pearly silky needles. It is fusible like resins, and becomes brittle on cooling; it is more bitter than cinchonia, almost insoluble in water, but very soluble in alcohol, and also in ether. It unites with acids readily, forming compounds similar to those of

cinchonia. It is unalterable in the air. Its composition, according to Pelletier and Dumas, is the following :

Carbon, -	-	20	-	20×6	$= 120$
Hydrogen, -	-	12	-	12×1	$= 12$
Oxygen, -	-	2	-	2×8	$= 16$
Nitrogen,		1			$= 14$

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It may be procured from the disulphate by precipitating it with an alkali; or from the bark by a process like that for procuring cinchonia.

Kinic acid is obtained by treating a watery extract of cinchona with alcohol, which leaves a viscid mass, consisting of kinate of lime. This is dissolved in water, and is treated with oxalic acid, which unites with the lime and falls, leaving the acid in solution, which by evaporation can be procured in crystals. It is very soluble in water, has a sour taste and acid reaction, unites with alkalies, forming very soluble compounds. It is composed of 15 carbon, 10 hydrogen, and 10 oxygen.

In speaking of incompatibles with cinchonas, many things are mentioned which no one ever thinks of prescribing with them. We should particularly avoid compounds containing tartaric, oxalic, gallic or tannic acids, tartar emetic, and metallic salts generally.

Medical Properties. Cinchona has long been, and still is, found to be a most valuable remedy. It is tonic, febrifuge as regards intermittent fevers, generally astringent, although in some persons it has a purgative action. Its operation is more that of a stimulant than sedative, and consequently it is not adapted to acute inflammatory diseases.

When cinchona is taken into the stomach it excites a sense of warmth in the epigastrium, which diffuses itself over the chest and abdomen: sometimes this is attended with gastric and intestinal irritation, amounting to vomiting, and even purging. After some time

the pulse is accelerated, and there is a feeling of excitement in the whole body. Its action on the nervous system is evinced sometimes by a sense of pain or tension about the head, singing in the ears and even deafness, which are very distressing to some individuals.

The most remarkable effect of this bark is its influence upon periodical diseases, the morbid chain of which it appears to break, independent of any sensible impression to which we can refer its operation; for which reason the term anti-intermittent would be applied to it with propriety. It may generally be used where we wish to produce a permanent corroborant effect, and when the stomach is in a condition to admit of its administration. It is contraindicated in high inflammations, or in plethora, determination of the blood to the head, in irritation of the stomach, or where the secretions are locked up. It is valuable in low typhoid states of disease, in which the inflammation has been subdued by proper measures, or the suppurative process has commenced somewhere: thus it is serviceable in low typhoid fevers, scarlatina maligna, smallpox, erysipelas, carbuncle, and most diseases in which there are copious purulent discharges, and a tendency of the disease towards recovery. As a tonic it is prescribed in most diseases of debility and of a chronic nature, such as scrofula, passive hemorrhages, some forms of dyspepsia, obstinate skin affections, chorea, hysteria, and chronic rheumatism.

In intermittent fever, cinchona is our best remedy and main dependence. It may be administered in various forms according to the age and constitution of the patient. The disulphate of quinine has superseded all others on account of the facility of administering it, and the greater certainty of its action. In agues, it should be given soon after the paroxysm is terminated, and repeated several times during the intermission. In a quotidian, the dose might be two or three grains

every second hour : in the tertian and quartan ague, as there is a longer interval, it need not be repeated so often. Some prefer giving a single large dose, as ten to twenty grains of the disulphate, a short time before the paroxysm. There are favorable reports of each method. It should always be provided that the stomach and abdominal viscera have received due attention, for, if the liver is in a congested state, and the secretion in it is not properly performed, all remedies will be unavailing; but, as soon as they are treated in a proper manner, the quinine will often act like a charm. If the powdered bark be preferred, it may be given in repeated doses of from one to three drachms during the intermission, so that the quantity taken in that time may amount to one ounce and a half to two ounces.

The estimated relative strength of disulphate of quinine to powdered bark, is one grain and a half to one drachm. The powder is most agreeably taken in a quantity of milk.

Cinchona does not benefit intermittent fevers alone, but also other diseases having an intermittent or remittent nature, especially if neuralgic; as hemicrania, neuralgia of the eye, face, and other parts of the body, some cases of epilepsy, dysentery, and remittent fevers after depletion.

The variety of bark, most likely to benefit, is not agreed upon by all. The quilled bark enters into several preparations of the Pharmacopœia, but the sulphate of cinchonine procurable from it is scarcely ever prescribed. This, I believe, does not arise from a supposed inefficiency of it, but, from use having established the grand virtues of the salts of quinia, the other has been neglected, and would be a more expensive remedy. In the form of powder, the red bark is certainly best, as it contains most active matter. The pale bark appears to be least offensive to the stomach, and less irritant to the bowels. How does cinchona act as a purgative? this question is not easily solved. When given in powder, it has been imagined that the

minute particles mechanically irritate the mucous membrane, and cause it to throw out more fluid; yet the disulphate of quinia in solution will do the same. When it purges, it is generally in persons of a lax delicate fibre: in such, probably, it operates by giving tone to the muscular coat, increasing peristaltic action, and giving energy to the vascular and secreting systems.

The forms in which bark is administered are numerous, consisting, in addition to the powder and disulphate of quinia, of the infusion, decoction, extract, and tinctures; and it has even been proposed to bring the system under its influence, by introducing it by an abraded surface, or applying it to the whole body in the form of baths. It has also been woven in substance into garments, to be worn next to the skin.

The powder is generally most efficacious, when we wish to make a speedy and powerful impression, and should be tried in intermittents, if the disulphate of quinine fails.

The disulphate of quinia is the most valuable form, and may be given for almost every case, in which cinchona appears to be indicated, and possesses the advantage of being condensable into the small form of a pill.

The infusion or decoction may be given to persons of weak stomach, in convalescence after long diseases: with them we often combine dilute sulphuric acid.

The extracts are generally not good forms for administering cinchona, and they are very little prescribed.

The tinctures are seldom used alone, but as adjuncts to tonic infusions.

Should any of the preparations have a tendency to run off by the bowels, we should combine them with oak-bark or other astringents, and sometimes opium.

Doses. Of the powder, ʒss. to ʒiij.
Infusion or decoction, ʒj. to ʒij.
Extracts, gr. x. to gr. xv.
Of the tinctures, ʒj. to ʒiij.

Prep. Quinæ Disulphas,—Decocta Cinchonæ

Cordif. Lancifol. et oblongifoliæ,—Extracta Cinch.
Cord.,—Lancif., —oblong., —Inf. Cinch. Lancif.,—
Tinct. Cinchonæ,—Tinct. Cinch. Comp.

CHIMAPHILA.

The leaves of CHIMAPHILA CORYMBOSA.—*Winter Green.*

This plant is named by some authors *Pyrola umbellata*. It is an evergreen, with a perennial creeping yellowish root, from which spring several stems, from four to eight inches high, woody at their base. The leaves and stems are the parts commonly used and found in shops. It is a native of northern latitudes, and is scattered over the northern parts of Europe, Asia, and America.

This plant, named in America *Pipsissewa*, when fresh and bruised, exhales a peculiar odour. The taste of the leaves is bitter, astringent, and sweetish: the stems have a similar taste, with more pungency. Boiling water and alcohol extract the active qualities. The chief constituents are bitter extractive, tannin, resin, gum, lignin, and saline matters.

Medical Properties. Diuretic, tonic, and astringent. It is recommended in dropsies, in cases attended with disordered digestion and debility, also in nephritic and calculous affections; and in the same cases, as those in *uva ursi*, is generally prescribed. It is said also to be useful in scrofula, both before and after ulceration; and it has proved highly efficacious in some obstinate ill-conditioned ulcers and eruptions, connected with a strumous diathesis, used both internally and as a wash.

Dose. Of the watery extract, Gr. xx. to gr. xxx.

Of the decoction, lb. ss. to lb. j., in the course of twenty-four hours.

Prep. Decoctum Chimaphilæ.

CINNAMOMI CORTEX ET OLEUM.

The bark and oil of the *LAURUS CINNAMOMUM*.

The cinnamon tree grows to the height of twenty to thirty feet, with a trunk from twelve to nineteen inches in diameter. It has numerous branches, strong, horizontal, and declining. From the root spring numerous suckers, which form a bush about the tree. It is a native of Ceylon, and is cultivated in many other parts of Asia. The tree emits no perceptible odour at any distance. The bark of the root has the odour of cinnamon with the pungency of camphor, which it yields by distillation. The leaves have a spicy odour, and a hot taste. The petiole has the flavour of cinnamon. It is the prepared bark which is so highly valued as a drug.

Cultivation. In Ceylon, the seeds are planted in a prepared soil at a certain distance, and the plants usually grow in clusters like the hazel bush. They attain a height of five or six feet in six or seven years, and a healthy bush will then afford two or three shoots fit for peeling; and every second year will continue to produce about five to seven shoots. The shoots which are selected for decortication are one to two inches in diameter. The bark of them is cut with longitudinal incisions, made opposite to each other, and removed by suitable instruments. The pieces are then collected into bundles, and allowed to remain some time, during which a fermentation ensues, that facilitates the removal of the cuticle. The epidermis and green matter under it, are removed by scraping it upon a convex piece of wood. The bark now dries and assumes a quilled appearance. These cylinders are then packed one within another, and collected into bundles, in which form, the drug is usually imported. Some of the inferior bark is exported to the continent of India, or employed for procuring the volatile oil.

Ceylon cinnamon is in long quilled pieces, the larger enclosing smaller ones. It is of a light brownish yellow colour, very thin, smooth, shining, with a splintery fracture when broken. It has a fragrant odour, a warm, aromatic, pungent, and agreeable taste. By distillation it affords a very fragrant volatile oil.

Its constituents are—

Essential oil.
Tannin.
Mucilage.
Colouring matter.
Acid.
Lignin.

Medical Properties. A warm stimulant aromatic; useful in cases which require such remedies. It is also astringent. It is seldom, however, prescribed, except in combination with other aromatics, or as a corrective.

Prep. Conf. Aromat.,—Inf. Catechu comp.,—Pulv. Cinnamomi c.,—Pulv. Cretæ c.,—Pulv. Kino comp.,—Sp. Ammon. Arom.,—Spir. Cinnamomi.,—Tinct. Cinnam. c.,—Tinct. Catechu,—Tinct. Lav. c.,—Vin. Opii.

COCCI.

Cochineal. COCCUS CACTI; the cochineal insect belongs to the genus of Hemipterous Insects, having the snout, or rostrum, in the breast, the antennæ filiform, and the posterior part of the abdomen, furnished with bristles. The male has two erect wings, the female is wingless. The coccus cacti is known by its depressed downy transversely wrinkled body, its purplish abdomen, short black legs, and subulate antennæ, about one-third the length of the body. This insect is found abundantly in Mexico and neighbouring country, where it feeds and propagates upon a species of cactus. The female insects only are used: they are detached from the plants by a blunt knife,

and are destroyed either by dipping them into boiling water, or by heating them in a stove. These insects are collected three times in a year, being the produce of three distinct generations. There are two varieties of cochineal in the shops, known as *silver grain* and *black grain*; the former obtains the highest price. Cochineal has a faint odour, and a bitter, rather acidulous, taste; its powder is of a carmine colour, and tinges the saliva intensely red. According to Pelletier and Caventon, it yields on analysis,

A colouring principle, named *carmine*.

A peculiar animal matter.

Fatty matter.

An odorous fatty acid.

Various salts.

The colouring principle has been named by John, *Cochinilin*.

Carmine is soluble in water, cold and hot alcohol, insoluble in ether: the watery solution of carmine is brightened by acids, and deepened by the alkalies. The salts of tin, especially the nitrate and muriate, precipitate this colouring matter of a brilliant scarlet, forming the basis of those scarlet and crimson dyes which have rendered cochineal so valuable in the arts. With alumina it forms the pigment, called *lake*; the pigment, named *carmine*, is the colouring matter of cochineal, precipitated from the decoction by acids, the salts of tin, or animal gelatin.

Medical Properties. Cochineal has been reputed to be anodyne and antispasmodic; but such qualities do not belong to it. It is only of service in pharmacy as a colouring matter. The chief disease in which it is prescribed in the present time is whooping cough, in combination with subcarbonate of potash. The latter probably alone does good, by attenuating the mucus, and causing it to be brought up with greater ease.

Prep. Tinct. Card. comp.,—Tinct. Cinch. comp.

COLCHICI CORMUS ET SEMINA.

The Cormus and Seeds of COLCHICUM AUTUMNALE.
—*Meadow Saffron.*

This plant is indigenous, and likewise grows in many other European countries. It was known to the Greeks, and named *Hermadactylus*. Its growth is very peculiar. A bulb is formed during the summer; from this a flower shoots up in the autumn, and is followed in the ensuing spring by the leaves and the seed-vessel. The same bulb, or cormus, is able to produce flowers during two seasons. The parts of the plant which are active are the flowers, seeds, and cormus; the two latter only are officinal. The seeds are ripe and fit for collecting in June and July, and at about the same time the cormus should be dug up: in fact, at that period the decaying leaves and dry capsule serve to indicate the locality of the cormus. The cormus cannot be preserved very long in a moist state, but carefully dried and prepared it preserves its virtues for some time. To do this, it should be cut into slices of the thickness of half-a-crown, placed separately on paper, and be dried with a gentle heat. If cut transversely, they should not have a depression in two parts of the circumference, as that indicates bulbs of two years' growth, which are less active as medicinal agents. The seeds require no particular care, as they preserve their virtues without any preparation for some years. The active principle resides in the coverings, and is extracted without the necessity of bruising them; such a preparation is more transparent and elegant, and equally efficacious. *Colchicum* varies considerably in its strength according to localities and climates; for it is said, that, in Carniola, the peasants use it as food with impunity.

Its constituents, according to Pelletier, are—

Veratria, combined with gallic acid.

Fatty matter.

Yellow colouring matter.

Gum.

Starch.

Inulin, in large quantity.

Lignin.

The active principle, named above Veratria, is now considered to be a distinct alkaloid, and is called by some German chemists, Colchicia.

Medical Properties.—Colchicum is purgative, diuretic, sedative, and sometimes diaphoretic. The diseases in which it is most useful are gout and rheumatism, which it has the power of relieving in a most marked manner. Considerable difference of opinion exists about the *modus operandi* of this substance. Some contend that it never does good till it purges, and acts freely on the kidneys; and they are not satisfied till the alvine evacuations assume an appearance resembling pea-soup. Others consider that it has a specific action, independent of such effects. Some say that it acts by causing revulsion, that is, by irritating and determining a large quantity of blood to the mucous membrane of the intestines, and relieving the loaded vessels of the inflamed parts: others assign to it a chemical operation on the principles of the humoral pathologists; they find that it causes a considerable excretion of uric acid, which was previously deficient in the urine, and present (where it should not be) in the blood; and in proportion as this remedy acts, the uric acid disappears in the blood, and becomes more plentiful in the urine.

From my own observation and experience, I am convinced that colchicum possesses a sedative influence, and some specific action, which tranquillizes the nervous system, allays pain and lowers the pulse, independent of its purgative and diuretic qualities; and,

to prevent purging, I have sometimes combined it with astringents, and with the best effects. There is no doubt that when it purges the pain will be less felt, because its operation is much more violent, which, in some cases, may be necessary from the urgency of the symptoms. In large doses it causes nausea, and sometimes vomiting; in the duodenum, it appears to occasion a more free discharge from the ductus communis choledochus: it increases also the secretion of mucus and serum in the intestinal canal; and if the dose be unwarrantably large, bloody evacuations will result. To check these, hydrocyanic acid is very efficacious, or opium with camphor, followed by mucilaginous drinks. Besides gout and rheumatism, it is given advantageously in many inflammatory diseases, especially when occurring in a rheumatic habit. It is also serviceable in orchitis and gonorrhœa.

Dose. Of the powdered cormus, gr. iv., to gr. vj.

Vinum, ℥. xx., to 3ss. ter die.

Sp. Colchici Amm., 3ss.

Acetum Colchici, 3ij. to 3iij.

Extr. Colch. Acet. gr. j. to gr. iij.

Prep. Acetum Colch., — Extr. Colch. Cormi, — Extr. Colch. Acet., — Tinct. Colchici, — Tinct. Colchici, — Vin. Colchici.

COLOCYNTHIS.

The dried pulp of the Pepoes of CUCUMIS COLCYNTHIS.—*Bitter Cucumber.*

This plant is an annual, having a considerable resemblance to the common cucumber, excepting the fruit, which immediately distinguishes it. It is a globular berry, or pepo, of the size of an orange, yellow, and smooth when ripe; and contains, within a hard coriaceous rind, a white spongy matter, surrounding numerous ovate compressed seeds.

It is a native of Turkey, and abounds in the islands

of the Archipelago. It grows also in several parts of Africa and Asia. At the Cape of Good Hope the young fruit, in which the bitter principle is not yet developed, is said to be much used in the form of a pickle. The drug is chiefly imported from the Levant.

The seeds of colocynth, which form nearly three-quarters of the weight of the dried pepo, are devoid of active properties, and are even used as food in some parts of Africa. The pulpy or medullary matter only is used. This has a feeble odour, but a nauseous intensely bitter taste. The bitter principle has been separated, and named Colocynthin. According to Meissner, 100 parts contain—

Colocynthin	-	-	-	-	-	14.4
Extractive	-	-	-	-	-	10.
Fixed oil	-	-	-	-	-	4.2
Resinous substance, insoluble in ether,						13.2
Gum	-	-	-	-	-	9.5
Pectic acid	-	-	-	-	-	3.5
Gummy extract	-	-	-	-	-	17.6
Phosphate of lime	-	-	-	-	-	2.7
———— of magnesia	-	-	-	-	-	3.
Lignin	-	-	-	-	-	19.
Water	-	-	-	-	-	3.4

The active matter of colocynth is taken up by boiling water, which, on evaporation, affords the extractum colocynthidis.

Medical Properties. A powerful drastic purgative. It is too violent in its action to be given alone, for it is likely to produce vomiting, bloody discharges, and inflammation of the bowels. Combined with other purgatives, it is a very useful remedy. The form in which it is most used is the compound extract of colocynth, which, with calomel, forms one of our most common purging pills. To prevent the griping which may be produced by it, some aromatic oil may be added, or about five grains of extract of henbane,

which will prevent the griping without diminishing the purgative operation.

Dose. Of colocynth, in powder, gr. ij., to gr. v.
Of the extr. coloc. comp., gr. x., to gr. xv.

Prep. Extr. Col., — Extr. Colocynth. comp., —
Enema Colocynthidis.

CONII FOLIA ET FRUCTUS.

The leaves and fruit of the CONIUM MACULATUM.
—*Spotted Hemlock.*

This herbaceous plant is a native of Europe, growing very freely in most parts of this country. It is characterized by its spotted stem, tripinnate leaves, an involucre, consisting of from five to seven leaflets, the involucrella of three, placed on one side, and the fruit having five ridges, with crenated margins. The leaves and fruit are officinal.

Much of the activity of this plant depends upon soil and climate. In northern latitudes it is very mild, so that in some parts of Russia it is eaten freely with impunity; whereas in Italy, Greece, and Spain it is poisonous, in comparatively small quantities. The leaves should be gathered just about the time that it begins to flower; they should be separated from the petiole, and carefully dried with a gentle heat, and then be preserved in vessels, from which moisture, air, and light are excluded.

Properties. The dried leaves have a strong, heavy, narcotic odour, and a nauseous, rather bitter, taste: their powder has a fine green colour. Water distilled from them possesses their odour, and has a nauseous taste, but no narcotic qualities. The decoction has little taste, and the extract afforded by evaporation is almost inert. Alcohol and ether take up the narcotic properties of the leaves; and an ethereal extract prepared from them is exceedingly powerful. The analysis

of this plant is rather imperfect. Schröder found in it

Resin.

Extractive.

Gum.

Albumen.

A green fecula.

Various saline substances.

Besides these, Brande discovered a very odorous oil, and an alkaline principle, possessing a strong narcotic smell and a nauseous taste, insoluble in water, and in doses of half a grain producing dangerous symptoms. This is named *conia* or *conein*. Geizer has obtained an alkaline principle in the form of a volatile liquid, which is of a yellowish colour, has a strong nauseous taste, and an odour somewhat resembling hemlock and tobacco; it is soluble in water, and has a strong alkaline reaction, neutralizing acids, uncombined, in the form of salts: it is actively poisonous.

Medical Properties. It is anodyne and narcotic, without any decided sedative or stimulant action. If given in sufficient doses, it shews its effects in about half an hour after being taken. It appears to act by diminishing the sensibility of the nervous system, and by allaying irritation in various parts of the body suffering from disease. Hence it is serviceable in most inflammatory pulmonary diseases, especially of a chronic nature, such as asthma, bronchitis, whooping-cough, phthisis, chronic enlargement of the liver, and other abdominal viscera; painful scrofulous tumours and ulcers, some diseases of the skin; secondary syphilis, rheumatism and gout, and had formerly much reputation in the treatment of cancer, in which now it is believed to be only a palliative remedy.

The effects of it in large doses are, vertigo, dimness of sight, nausea, faintness, and general muscular debility. In still larger doses, it occasions dilated pupil, difficulty of speech, delirium or stupor, tremors, paralysis, convulsions, and sometimes death. The curative treatment in such cases would consist of the adminis-

tration of tonic emetics, diffusible stimulants, and nervous excitants. It is administered in the form of powder, which is best; also in tincture and extract.

The dose requires to be increased more rapidly than with most other narcotics, although at first it is given with moderation; and it is desirable that the remedy should not be procured from different places or persons, as it varies much in its strength.

Dose. Of the powder, gr. ij. gradually increased to xv. or xx.

Of the extract, gr. iv. to gr. xv.

CONTRAJERVA.

The root of *DORSTENIA CONTRAJERVA*.

This plant has a perennial root, with annual stems and leaves. It grows in Mexico, West Indies, and many parts of South America. The name of the plant signifies a counter-poison, a property which is not thought to be due to it at present.

The root, which alone is officinal, is in pieces about an inch or two long, somewhat fusiform, with a number of rootlets attached to it. The odour is aromatic. The taste warm, slightly bitter, and pungent. The sensible properties are extracted by water and alcohol. The decoction is of a dark brownish red colour, and highly mucilaginous. The root has not been carefully analyzed.

Medical Properties. Stimulant, tonic, and diaphoretic, and has been given in low states of fever, malignant eruptive diseases, some forms of dysentery and diarrhoea, and other diseases requiring gentle stimulation. It is rarely or never prescribed except in the form of pulvis contrajervæ compositus, which is given to children suffering from diarrhoea and debility during dentition, and is then often given when it ought to be omitted.

Dose. For an adult, ℥j. to 3ss.

Prep. Pulv. Contrajervæ comp.

COPAIBA.

The liquid resin of the *COPAIFERA LANGSDORFII*.

The tree which affords this substance is not agreed upon by writers on *Materia Medica*; it was considered to be the *C. Officinalis* in the former *Pharmacopœia*. The balsam is most abundantly collected in the province of Para, in Brazil, and is exported from the port of Para in small casks or barrels. It is obtained by making deep incisions into the stems of the trees; and the operation is repeated several times during the season. When it flows out, it is clear, colourless, and very thin; but soon acquires a thicker consistence and a yellowish tinge.

Properties. It is a clear, transparent liquid, of the consistence of olive oil, of a yellowish colour, a peculiar not very unpleasant odour, and a bitterish, not nauseous taste. It is insoluble in water; but entirely soluble in alcohol, ether, fixed and volatile oils. With the alkalies it forms saponaceous compounds, soluble in water. It consists chiefly of volatile oil and resin with a minute proportion of acid, which resembles acetic, and has been named copaivic acid. The volatile oil, which forms about a third, may be separated by distillation. It is first almost colourless, but the latter portion has a greenish blue colour. By redistillation it may be obtained almost colourless. It appears to contain no oxygen, as potassium can be kept in it. The remaining resinous mass is brittle, of a greenish brown colour, and almost devoid of smell and taste. This is capable of being separated into two substances, distinct from each other.

Copaiba on exposure to the air acquires a thicker consistence and deeper colour, partly from the volatility of the oil, partly from the essential oil being oxidized. When triturated with about one-sixteenth of its weight of magnesia, and set aside, it gradually

assumes a solid consistence, by which it can readily be given in the form of pills. Copaiba is said to be sometimes adulterated with the fixed oils, castor oil especially, and oil of turpentine. The latter can be known readily by its smell; the others by boiling the liquid in water, which, on evaporation, if the copaiba be pure, will leave a solid residue, instead of a soft unctuous substance; also strong liquor ammoniæ will scarcely make copaiba turbid; but would give it a milky appearance if oils be mixed with it.

Medical Properties. Gently stimulant, diuretic, and sometimes actively purgative. It produces a warm sensation in the fauces and stomach, and its irritant effect extends not only through the alimentary canal, but likewise to the urinary passages, and in a less degree to the other mucous membranes, on which it appears to possess a peculiar action. It gives an unpleasant odour to the breath, and also to the urine. As a remedy it is most efficacious in chronic affections of mucous membranes, as in gleet, leucorrhœa, chronic dysentery, painful hæmorrhoidal affections, chronic catarrh, and bronchitis. Gonorrhœa is the disease in which it is most used, and by some in every stage of it: the periods after the active inflammation has subsided are most fitted for its use. In some persons it occasions painful irritation of the urinary passages, inflammation of the testicles, and occasionally an unsightly papular eruption over the whole body.

There are various modes of giving it; such as, dropped on a piece of sugar; by the French pharmaciens it is now enclosed in capsules made of gum, and thus conveniently swallowed, without being tasted. It may be made into a species of emulsion, by triturating it with some powdered gum acacia, or the yolk of egg, with syrup of tolu added, and subsequently water; thus suspended it is swallowed readily. The oil may be taken in a similar manner. The resin is almost inert and useless.

A quack preparation of copaiba has, during the last year or two been pushed before the public. The proprietor, of course, only knows how he makes it, but something very like it is made by triturating balsam of copaiba with magnesia, then dissolving it in alcohol mixed with some nitric ether. In this state it becomes miscible with water, which is its chief virtue. It is less unpleasant to the taste than the common balsam, and perhaps disagrees rather less with the stomach.

Dose. 3ss. to 3ij.

Of the oil, ℥. x. to ℥. xxx.

The *modus operandi* of this and similar remedies is not quite clear. It may stimulate the mucous membrane, and cause a change in the action of its vessels, by actual contact of part of its constituents, through the medium of the blood; or the vessels of the membranes, which it does not touch, may be affected by sympathy with those to which the copaiba is actually applied; this is rendered probable by the fact, that when the medicine is most beneficial there is a peculiar sensation of warmth felt in the lower part of the intestinal canal. Others imagine that it acts by revulsion, that is, by determining blood to other surfaces or parts of the body.

CORIANDRUM.

The fruit of *CORIANDRUM SATIVUM*.

This plant is an annual, a native of Italy, but now growing freely in most parts of Europe. The fruit, which is officinal, consists of two concave hemispherical seeds.

The seeds have an aromatic smell and taste, depending on a volatile oil, which can be separated by distillation. The virtues are imparted to alcohol; less perfectly to water.

Medical Properties. These seeds are aromatic and carminative, useful, like others of their class, as an adjunct and corrective of other substances. They have no particular virtues to recommend them.

Dose. Gr. xx. to gr. xxx.

Prep. Conf. Sennæ.

CORNU.

The horn of the CERVUS ELAPHUS. *Stag or Hart.*

This substance is usually kept in the form of shavings, known as Hartshorn Shavings. They are without smell or taste, pliable, and of a white colour. They contain in 100 parts :

Gelatine,	-	-	-	27
Phosphate of lime,	-	-	-	57.5
Carbonate of lime,	-	-	-	1.0
Water and loss,	-	-	-	14.5

Boiling water extracts the gelatine, which on cooling forms a transparent colourless jelly, that may be rendered palatable by lemon juice, wine, &c. There is, however, commonly, rather an unpleasant odour combined with it, which is the cause of its being little used for that purpose. By destructive distillation these shavings yield an impure solution of carbonate of ammonia, named *spirit of hartshorn*, which name is also given to a similar liquid obtained from other sources. When burnt, the residue is principally phosphate of lime.

Medical Properties. The jelly may be taken as nutritive and demulcent. The chief use of the substance is in Pharmacy, in making pulvis antimonii compositus.

Prep. Pulv. Ant. comp.

CREASOTON.

CREASOTE, prepared from pyroxylic spirit.

Creasote, when pure, is a colourless liquid, of a thin, oily consistence, possessing a strong odour, and powerful pungent taste. Its odour is likened to wood smoke, or smoked meat. It boils at 397. F. Its specific gravity is 1.037. Water dissolves about one part in 80. It is very soluble in alcohol, ether, naphtha, and acetic acid; has no acid or alkaline reaction, but combines with both acids and alkalies. It forms compounds with soda, potash, and lime, soluble in water; and may be separated from them by very feeble acids. It is decomposed by nitric and sulphuric acids. It coagulates albumen readily, and in a very diluted state. It acts powerfully on living beings, destroying them if brought in contact with it, even in a very diluted form. It is composed of oxygen, hydrogen, and carbon, but in proportions which are not agreed upon. Its name explains a remarkable property which it possesses, viz. its antiseptic power upon flesh. The word is derived from the Greek, being formed of *κρεας*, *flesh*, and *σωζω*, *I preserve*.

Creasote is an ingredient of tar, procured from vegetable and some animal substances; most generally it is obtained from the impure pyroligneous liquid which is evolved by the destructive distillation of wood. In this liquid, in addition to creasote, we find five other principles bearing some relation to it: these are paraffine, eupione, pittacal, picamar, and capnomor. The heaviest tarry liquid is selected for the purpose, and treated with carbonate of potash, and distilled. The oily liquid is then mixed with a strong solution of potash, which combines with the creasote, allows the eupione to collect on the surface, and decomposes other organic matters. It is then decom-

posed by sulphuric acid, which sets free the creasote, and this is collected by distillation. To procure it pure, the above process must be repeated several times. The best method of obtaining this liquid is described minutely in the chemical work of M. Dumas, to which the curious reader is referred.

Medical Properties. The virtues of creasote in the cure of disease are not satisfactorily established. It has often held out great hope and promise, which a short period of trial has completely overthrown. It is a decidedly powerful remedy in toothach, if introduced into a carious tooth; but is it more permanently beneficial than nitric acid used in a similar manner? It appears not. It sometimes checks obstinate vomiting, when all other remedies have failed. Amongst the numerous diseases in which it has been tried, are hæmoptysis, diabetes, burns, itch, and several skin diseases; gangrene of the extremities, scrofulous ulcers of the throat and leg; syphilitic sores, lumbago, aphthæ and rheumatism. For several weeks and even months no cases have been particularly recorded in our periodicals; the inference is, that it has deceived the expectations of its early admirers, and that it is about to share the fate of many other cure-every-thing medicines.

The action of creasote on the system is very mysterious; for it seems to be both a sedative and stimulant, in different cases and doses, and it probably acts in part by its chemical action upon the tissues, to which it is applied. Thus, it checks the bleeding from vessels by the coagulation produced in the blood. From experiments on animals, in large doses, it has been observed to occasion sudden prostration of muscular power, vertigo, oppression of the breathing, vomiting, spasms of the abdominal muscles, tremors, convulsions, and death. On examination after death the tissues possess the odour of creasote, the large vessels about the heart are gorged with blood more coagulated

than usual, there is congestion of the lungs, but little congestion of the vessels of the brain. It is also found to produce an inflammatory appearance of the mucous membrane of the alimentary canal. Creasote may be given in the form of liquid or in pills. The latter is more pleasant, as the taste of creasote is far from agreeable.

Dose. One minim three times a day, which may be gradually increased to eight or ten minims.

As an external application in the form of lotion, two to eight drops of this liquid may be added to each ounce of water.

CRETA.

CARBONAS CALCIS FRIABILIS.—*Common Chalk.*

Carbonate of lime is one of the most abundant minerals, occurring in other forms besides chalk, such as marble, calcareous spar, common and shell limestone, and marl. It also occurs in the animal kingdom, forming the chief part of the shells of animals. Though insoluble in water, it is present in most springs, dissolved by carbonic acid. It can be detected by heating the water to expel carbonic acid, when it is precipitated, or by adding oxalic acid, which immediately forms an insoluble white oxalate of lime. Besides the form of chalk, carbonate of lime is made officinal in Pharmacopœias, as it exists in marble, oyster-shells, crab's claws, and stones, &c. Chalk is a compound of

1 carbonic acid	= 22
1 lime	= 28
	—
	50

For medical purposes chalk requires to be purified and reduced to a very fine powder: this is effected by elutriation. This process consists of powdering the chalk, and rubbing it with a little water, then throwing it into a large quantity of water and stirring them to-

gether briskly. After a few minutes the turbid supernatant liquid is to be poured off into another vessel and allowed to stand, in order that the chalk may fall in a minutely divided state.

Medical Properties. Chalk is antacid and indirectly astringent. It is chiefly used in diarrhœa, in which it appears to act by neutralizing free acid, and thus allaying irritation. It is often employed externally for burns and ulcers as an absorbent. It prevents the discharge coming in contact with the healthy part, and possibly benefits by the action of lime, or by the carbonic acid which may be set free.

Dose. Gr. x. to gr. xxx.

Prep. Acid. Tart.,—Calc. Chloridum,—Creta Præparata,—Hyd. c. Creta,—Mist. Cretæ,—Pulv. Cret. Comp.,—idem cum Opio.

CUPRI SULPHAS.

SULPHATE OF COPPER.—*Blue Vitriol.*

This substance is found native in small quantities, and is prepared artificially for medical use. It may be made by the direct union and action of sulphuric acid upon metallic copper, or by roasting the sulphuret, which by the oxygen of the air forms a sulphate. This is separated by lixiviation, and by evaporation is procured in crystals. Sulphate of copper has a beautiful blue colour; it crystallizes in rhomboidal prisms, which effloresce slightly in the air; it is soluble in four parts of cold and two of boiling water.

It is composed of

1 oxide of copper	-	-	=	40
1 sulphuric acid	-	-	=	40
5 water	-	-	- 5 × 9 =	45
				—
				125

Medical Properties. Tonic, astringent, and emetic;

externally, astringent and escharotic. Internally it is serviceable in diarrhœa, hæmorrhage, chronic dysentery, and to check the excessive discharges in cholera, in chorea, epilepsy, and in intermittent fevers. As an emetic it is prompt in its operation, but is not always freely evacuated, and besides oftentimes causes very unpleasant irritant symptoms, and is better replaced by sulphate of zinc. It is a tonic and direct emetic, that is, acting speedily, and not leaving nausea or depression after its action. The cases most suited for its use are those of poisoning, especially by narcotics.

Externally it is used as a collyrium in the proportion of one to three grains to the ounce of water: most commonly in purulent ophthalmia. It is usefully applied to warty excrescences and fungous granulations, upon which it partly exerts a chemical action, and partly destroys by constricting the vessels of the part, thus cutting off their necessary supply of blood.

Dose. As a tonic, gr. ss. increased gradually to gr. iij.; as an emetic, gr. v. to gr. x.

Prep. Cuprum Ammoniatum.

CURCUMA.

The root-stock of CURCUMA LONGA. *Turmeric plant.*

This plant is a native of the East Indies and Cochin-China, and is cultivated in various parts of Southern Asia, especially Bengal and Java. The Rhizome only is officinal. It is in cylindrical pieces of about the thickness of a finger, and from one to three inches in length, externally yellowish-brown, internally of a deep orange-colour, hard, compact, and breaking with a fracture resembling wax. The odour is peculiar, the taste warm, bitterish, somewhat aromatic. It tinges the saliva yellow, and affords an orange-yellow powder. Pelletier analyzed it and found in it

Lignin.
Starch.
A yellow colouring matter.
Brown colouring matter.
Gum.
An odorous acrid volatile oil.
Muriate of lime.

The peculiar colouring principle is reddish-brown in a concrete state, yellow when minutely divided, slightly soluble in water, very soluble in ether, alcohol, and oils. The alkalies immediately convert it to a red-brown colour, and paper coloured with it is used as a test of them. It is used in yellow dyes, but the colour is not permanent.

Medical Properties. It is stimulant and aromatic, and might be used in the same cases as ginger. It is much used in India as a condiment, and is a constant ingredient in the Curry powder. With us it is employed chiefly as a test of alkalies, or as a colouring matter in ointments and other preparations.

CROCI STIGMATA.

The stigmas of the CROCUS SATIVUS.—*Saffron.*

This crocus is a bulbous perennial plant, sending up its flowers in September and October. The flowers are of a lilac or bluish-purple colour. The pistil is surmounted by a stigma which is three-cleft; the segments of a beautiful rich orange colour, hanging down over the petals of the corolla. The stigma is the officinal portion. This plant is a native of Greece and Asia Minor, but is now cultivated in Spain, Sicily, France and England, and indeed in other parts of Europe. The stigmas are carefully collected and dried, and are compressed sometimes into a flattened mass, forming the cake saffron. The dried stigmas form the crocus in Fœno or hay-saffron; one pound of dried saffron is obtained from five of the moist. The substances used to adulterate this drug are the Carthamus Tinctorius, the Calendula Officinalis, or Common Marigold, and fibres

of dried beef. These are easily detected, by exposing the drug to the action of the hot water, when the different form of the impurities will be easily detected. The cake saffron is generally very impure.

Properties. It has a sweetish aromatic odour, and a warm pungent bitter taste, and colours the saliva deeply. It contains an extractive matter, named Polychroite, odorous volatile oil, wax, gum, albumen, some saline matter, and vegetable fibre.

Medical Properties. Saffron is of no essential service as a medicine. It would act as a stimulant in large and inconvenient doses. We use it on account of the colour which it gives to many preparations. It is a popular practice to give saffron to children in the inflammatory exanthemata, with the idea of throwing out the eruption. If given in very small quantities, it can be of no use, and if given largely it may produce mischief.

Prep. It enters into several tinctures, powders, and pills.

CYMINUM.

The fruit or seeds of CUMINUM CYMINUM.

The plant affording these seeds grows about six or eight inches high, is a native of Egypt, but cultivated for its seeds in Sicily, Malta, and other parts of South Europe.

They have a strong unpleasant odour, particularly when rubbed: this depends upon an essential oil of a yellowish colour, and lighter than water.

Medical Properties. Similar to those of the seeds of other aromatic umbelliferous plants, but rather more stimulating. They have been introduced into plasters.

Prep. Empl. Cymini.

CUSPARIA.

The bark of the *GALIPEA CUSPARIA*.

It is said also to be from the *Cusparia Febrifuga*, or *Bonplandia Trifoliata*, and is likewise known by the term *Angustura bark*.

This tree grows in the mountains of Carony, and attains an elevation of from ten to twenty feet. The bark of it only is officinal. It is commonly imported from the West Indies.

It is in pieces of various lengths, some quilled, others rather flat, with thin edges, as if removed by a sharp instrument. Its outside is grey, with a pale wrinkled epidermis. It is brittle, but softens in water, so as to admit of cutting with much ease. Its taste is bitter, and slightly aromatic. The proximate principles are chiefly

Volatile oil.
 Bitter extractive.
 Hard bitter resin.
 Soft resin.
 Gum.
 Lignin.
 Various salts.

It imparts its virtues to water and alcohol.

A false *Cusparia* is spoken of by writers on *materia medica*, as necessary to be distinguished from the true species. This drug, known some years since in Europe, has almost entirely disappeared, for a specimen can scarcely now be found in any shop in this country, and probably in any part of Europe; neither has the tree been known from which it was procured. It is said to be distinguished by its dark rusty brown rugous surface, dark colour inside, splintery fracture, not softening by water, want of odour, and intensely bitter taste; by nitric acid dropped upon it, causing deep blood-red spots, and emerald green upon the epidermis. In true *cusparia*,

this acid causes a dull red colour on either surface. The bitterness was found to depend upon the presence of Brucia. The tree has been named by some *Cusparia ferruginea*.

Medical Properties. It is a stimulating tonic, and in large doses somewhat aperient. In the West Indies it is most used, and is prescribed in bilious remittent fevers, diarrhoeas, and dysenteries, and might be given in many cases in which tonics are indicated.

Dose. Of the powder, v. to xv. grains.
Of the infusion, ʒiss. ter die.

Prep. Inf. Cuspariæ.—Tinct. Cinch. Comp.

CYDONIA.

The seeds of the CYDONIA VULGARIS. *Quince Tree*.

This tree is probably a native of Crete, but grows wild in some parts of Austria. It is cultivated in most European countries. The fruit is large, resembling a pear, of a delightful fragrant odour, making a pleasant confection. The seeds only are used officinally. The coriaceous envelope of the seeds abounds in mucilage, which boiling water extracts. Two drachms will make a pint of water thick and ropy. This is the sole principle for which they are valuable.

Medical Properties. The mucilage of these seeds is useful in coughs as a demulcent, and has been sometimes applied to the eyes in inflammation of the conjunctiva.

Dose. Ad libitum.

Prep. Decoctum Cydoniæ.

DAUCI FRUCTUS ET RADIX.

The fruit and root of *DAUCUS CAROTA*. *Common Carrot.*

This plant may be called indigenous, and is also found in most other European countries. It grows wild very freely. By cultivation, the root is considerably altered in its appearance and flavour. It is not indicated in the Pharmacopœia whether the cultivated plant should be used or not; but as the wild plant possesses stronger properties, that one is probably intended. The carrot plant has a biennial fusiform root, and an annual herbaceous stem. The fruit and root are officinal.

The fruit, commonly called seeds, are of a light brownish colour, presenting on their convex surface four ridges, to which stiff whitish hairs or bristles are attached. They have an aromatic odour, and a warm pungent, bitterish taste. By distillation they yield a little volatile oil, on which their virtues chiefly depend. The active properties are taken up by boiling water.

Medical Properties. Moderately excitant and diuretic, and are employed in chronic nephritic affections and dropsy; well adapted where the stomach is in an enfeebled state. The dose is from 3ss. to 3j. of the bruised seeds; or a pint of infusion, containing half an ounce of the seeds, may be taken in the day.

Carrot Root, in the wild state, is whitish, hard, coriaceous, branched, of a strong smell, and an acrid disagreeable taste. The cultivated root is too well known to need description, tastes pleasantly sweet, and mucilaginous. The constituents of the root, according to the analysis of Braconnot, are

Crystallizable and uncrystallizable sugar.

A little starch.

Extractive.

Gluten.

Albumen
Volatile oil.
Vegetable jelly. (Pectin.)
Malic acid.
Saline matter.
Lignin.

A crystallizable colouring principle named carotin.

Pectin is a very interesting vegetable principle, for a description of which, I shall refer readers to chemical works.

Medical Properties. The wild root possesses much the same properties as the seeds, and may be used for the same purposes. The cultivated root has obtained some reputation as an external application to phagedenic sloughing ulcers, the fetor of which it corrects, and changes the morbid action. It is used in the form of scrapings, if it is wished to stimulate mildly. The boiled root, beaten into a pulp, is the more common form, and becomes a very nice emollient cataplasm.

DIGITALIS FOLIA ET SEMINA.

The leaves and seeds of DIGITALIS PURPUREA.
Common Foxglove.

This is a very common plant in our country, found likewise in most other parts of Europe. It flowers in the summer, and the commencement of flowering is the best period for gathering the leaves. These are considered most active in the plants which grow wild, and those that have attained their full growth. They are to be stripped from the stem; and the petioles and midrib should be removed, and the green part only carefully dried by a gentle heat. To preserve them, light and moisture should be excluded by inclosing them in tin cases. The seeds are officinal in the London Pharmacopœia, but are seldom used.

Properties. In the fresh state, foxglove leaves have no odour, but have a faint narcotic smell when dried.

Their taste is bitter and nauseous. The colour of the powder is a fine deep green. The virtues are yielded to water and alcohol. Rein and Haase analysed the dried leaves, and found in 100 parts

A green, soft, viscid resin, possessing the properties of a mixture of resin with fixed oil						}	- 5.5
Extractive	-	-	-	-	-		
Gum, with a salt of potash	-	-	-	-	-		
Superoxalate of potash	-	-	-	-	-	-	2.0
Lignin	-	-	-	-	-	-	52.0
Water	-	-	-	-	-	-	5.5
Loss	-	-	-	-	-	-	5.0

The discovery of an alkaline principle has been announced and subsequently disproved. The activity is supposed chiefly to depend on the resinous matter.

Medical Properties. Digitalis is sedative, diuretic, and narcotic. When taken in quantities sufficient to powerfully affect the system, it occasions pain in the head, vertigo, dimness of sight, and confusion of thought. It sometimes excites nausea and even vomiting; and, in addition to these, an increased flow of urine. This occurs both in a person in health as well as in one suffering from disease, although it is more perceptible in the latter; as in cases of dropsy, in which the secretion of urine is generally very much diminished. It may be remarked, that digitalis does not act as a diuretic till it has lowered the pulse, especially in dropsies; and does not appear to be a diuretic through any specific quality existing in the plant. In most cases of excessive vascular action, the natural secretions are diminished; and digitalis, by lowering the circulation to a more healthy standard, may restore the vessels to their usual functions. In dropsical effusions, there is less watery fluid in the blood than there is after it has been taken up into the circulation from the cavities. Now, when the pulse is

comparatively reduced in frequency, absorption is more active, and the separation of the fluid, by secretion, appears to become much more easy.

The most remarkable property of digitalis is its influence upon the heart, the irritability and tone of which it appears evidently to diminish. This takes place from comparatively small repeated doses, varying in time from two to several days. Much depends upon the condition of the drug, the habit of the patient, and the state in which he keeps himself: for it is a curious fact, that if a person be walking about much, digitalis scarcely affects him in even rather large doses. When digitalis has been taken a few days, the patient begins to feel rather weak and faint, which feelings are increased by rising from the recumbent posture. The pulse is found to be much reduced in frequency, in some cases as low as 50, or even 30 beats in a minute; and by getting up suddenly, this pulse rises to 100 or even 150, the heart labouring very much, and the patient feeling faint. It is not very rare that the enfeebled heart is in this way overpowered, and fatal syncope ensues. In consequence of this impression on the pulse, digitalis may be useful in some inflammatory diseases, after blood has been drawn repeatedly, and as long as the system appears able to bear it; the morbid action of the heart may then be somewhat controlled by digitalis. The diseases in which it is most used are, pleuritis, phthisis, mania, epilepsy, and pertussis. By repressing the excited movement of the heart, it is useful in aneurisms, hypertrophy of the heart, and the gouty and rheumatic irritation of the same organ. It may in fact be used in inflammatory diseases generally, as an adjuvant to bloodletting, but cannot be solely relied upon.

Whilst taking it, the patient should be carefully watched, and visited at least once a day, as it is one of those remedies which has an accumulative action; that is, it may appear for some days to have no effect, and

suddenly the patient becomes very low; the heart is rendered feeble, as if the united action of all the doses was operating. Therefore, as a general rule, if in moderate doses it produces no effect in four days, the remedy should be discontinued and a brisk purgative be administered; the day following the digitalis may again be given in rather larger doses.

Should the patient be attacked by the symptoms of its accumulated operation, such as, a feeble pulse, nausea, stupor, cold sweats, prostration of strength, and tendency to fainting; he must be strictly kept in the recumbent posture to prevent the heart being called into too much action, cordials and diffusible stimulants may be given with discretion, and even brandy, in extreme cases. The latter should generally be omitted, as it is a too permanent stimulus, and as digitalis is given to relieve inflammatory or abnormal vascular action; whilst we are benefiting one state, we might be aggravating the other.

Dose. Of the powder, gr. ss. to gr. ij. ter die.
tincture, ℥. x to ℥. xx.
infusion, ℥ij. to ℥iv.

The above doses may appear small when we hear of some giving half an ounce and more of the tincture for a dose, and an infusion containing from two to four drachms of the leaves. Whatever be the causes of the apparent difference, I am convinced that, if the digitalis be good, the above doses will be found sufficient, and even require the usual care recommended.

Prep. Inf. Digitalis.
P. Digitalis.

DIOSMA.

The leaves of *DIOSMA CRENATA*.—*Buchu*.

This is a very pretty shrub, growing about three or four feet high; a native of the Cape of Good Hope. The leaves only are officinal.

Properties. The *Buchu* leaves bear some resemblance to those of *Uva Ursi*, but are generally longer, broader, and thinner: they are notched at their edges, dotted and pale on their under surface. Their odour is strong and somewhat aromatic; the taste bitterish and somewhat resembling that of the mints. Cadet de Gassicourt analyzed them, and discovered, in 1000 parts,

A light brownish volatile oil,	-	6.65
Gum,	- - -	211.7
Extractive,	- - -	51.7
Chlorophylle,	- - -	11
Resin,	- - -	21.51

Water and alcohol extract the active matter, which is chiefly the oil with extractive.

Medical Properties. Gently stimulant, diuretic, and sometimes diaphoretic. The use of them was discovered from the Hottentots, who employ them in several diseases. They are chiefly given in complaints of the urinary organs, such as catarrh of the bladder, in gravel, morbid irritation of the bladder and urethra, and retention or incontinence of urine from a loss of tone in the parts connected with its evacuation. They have also been recommended in chronic rheumatism. They may be given in powder, infusion, or tincture.

Dose. Of the powdered leaves, ℥i. to ʒss.

Prep. Inf. Diosmæ.

DULCAMARA.

The stalk of SOLANUM DULCAMARA.—*Bitter-sweet, or Woody Nightshade.*

This shrub is indigenous, and is very extensively diffused over Europe and North America. The root and stalk chiefly possess medical properties; the latter only is officinal. The berries, commonly reputed to be very poisonous, have very slight noxious qualities. The twigs are gathered in autumn, after the fall of the leaf, and cut into pieces, from one to two inches long. They are, when dried, inodorous; with a taste at first bitter, afterwards sweet. Boiling water extracts all their virtues. These are supposed to depend upon an alkaline substance, named Solania, in combination with malic acid. Solania is procured by adding magnesia to a decoction of the stalks to precipitate the solania, which is taken up by hot alcohol in the usual manner. The bitter-sweet principle has been named *Picroglycion*.

Medical Properties. Alterative, diuretic, and narcotic: for the latter purpose it is never used. It is chiefly given in lepra, psoriasis, and pityriasis; and was warmly recommended by Dr. Bateman. It is said to do good also in chronic rheumatism. In overdoses it occasions nausea, vomiting, fainting, vertigo, and irregular muscular action.

Dose. In powder, gr. x. to gr. xx.
Of the decoction, ℥ij. to ℥iv. ter die.

Prep. Decoct. Dulcamaræ.

ELATERIUM.

The fresh Pods of MOMORDICA ELATERIUM.—
Squirting Cucumber.

This plant is a native of the south of Europe, and now cultivated for medical use in this country. Its stem is herbaceous and the root perennial; its leaves are rough, cordate, and angular. The fruit is oval, about an inch and a half in length, and one inch in breadth, containing much juice and many seeds; when ripe it is separated from its stalk, and at that moment the juice and seeds are emitted with considerable force. The most active part of the fruit is the juice surrounding the seeds, the seeds and body of the fruit being comparatively inert. If this thin juice be allowed to stand some time, it deposits a light grey substance, which may be separated by pouring off the supernatant liquid, then drying it either in the sun or by a gentle heat. This fecula is named Elaterium. In preparing it, little or no pressure should be employed, to prevent mucilage, or other inert matter falling with it. The quantity of good Elaterium procurable is about an eighth of a grain from each pod.

Elaterium is found in thin flat pieces, often presenting on one surface marks of the linen upon which it has been dried, of a greenish-grey colour, with a bitter acrid taste.

If dark-coloured, it is generally weaker. Its activity as a medicine depends on the presence of a peculiar principle, named Elaterin, which has been separated successfully by Mr. Hennell, of London. This, with chlorophylle, forms the Elatin previously described by Dr. Paris. According to the analysis of Mr. Hennell, Elaterium contains in 100 parts,

Crystallizable substance, (Elaterin,)	-	44
Green resin,	-	17
Starch,	-	6
Woody fibre,	-	27
Saline matters,	-	6

Mr. Morries, of Edinburgh, describes Elaterin as forming in small rhomboidal prisms, presenting in mass a silky appearance. It is bitter and styptic to the taste, insoluble in water and alkaline solutions; soluble in alcohol, ether, oils, and sparingly in acids. He obtained it by evaporating an alcoholic solution of Elaterium to an oily consistence, then throwing it into water, when a white precipitate immediately falls. This is Elaterin, which may be purified by dissolving in alcohol, and again introducing it into water. Its strength is ten times greater than that of ordinary Elaterium.

Medical Properties. This substance is a powerful hydragogue and drastic cathartic, and in some degree diuretic. In large doses it often occasions nausea and vomiting, also hypercatharsis and inflammation of the bowels. It is most commonly administered in ascites, hydrothorax, and anasarca, and may be combined with other purgatives when brisk purging is indicated. It acts by irritating the mucous membrane of the intestinal canal, causing the exhalants to throw out much serous fluid, and the mucous follicles to secrete more abundantly: copious stools result, the aggregate amounting, not unfrequently, to a gallon. In consequence of this profuse discharge, a want of fluid is felt in the circulation, and therefore the absorbents are set to work to absorb it from the cavities, to replace it in the blood. Another mode of explaining its operation might be the following. The Elaterium irritates the large mucous surface of the intestinal canal, and causes a considerable flow of blood to it, thus diverting it from the serous membrane for a time, and suspending secretion there. The absorbents acting briskly, take up some fluid and carry it into the circulation, by which the quantity may be greatly diminished. In ovarian dropsy, Elaterium is almost useless, because the fluid is encysted, and the cysts

are not supplied with absorbing vessels; therefore, removal of it in that way cannot be accomplished.

Dose. A quarter of a grain to a grain or more, after repeatedly taking it. It may be given in pill, and repeated every second or third hour, till it operates. The dose of Elaterin is $\frac{1}{16}$ th to $\frac{1}{8}$ th of a grain.

ELEMI.

The resin of the *AMYRIS ELEMI*FERA.

This tree grows in Brazil, and, according to some, in Carolina; the Elemi is obtained by making incisions into the tree, through which the juice flows, and concretes upon the bark. It is of a pale yellow colour, sometimes with a shade of green, in some specimens reddish brown. It bears a close resemblance to *Abietis Resina*. It contains, according to Bonastre,

Resin	-	-	-	-	60 per cent.
Resin soluble in boiling alcohol,					
not in cold,	-	-	-	-	24
Volatile oil	-	-	-	-	12.5
Extractive	-	-	-	-	2
Acids and impurities	-	-	-	-	1.5

Medical Properties. Elemi is not used internally. Externally applied, it acts as a rubefacient and stimulant, and is introduced into ointments and plasters.

Prep. Ung. Elemi.

EUPHORBIIUM.

The Gum-resin of the *EUPHORBIA OFFICINARUM*.

This plant grows in the northern parts of Africa and Cape of Good Hope. The plant resembles a cactus, having leafless, jointed, angular stems, furnished with double prickles at their angles. When wounded they

give out an acrid milky juice, which, when dry, forms the officinal Euphorbium.

Euphorbium is in small masses, of a brown colour, somewhat resembling decayed teeth. They are hollow or perforated; this appearance is occasioned by the breaking off of the prickles, around which the substance exudes and concretes: rubbed with water, it produces a milky liquid, which has a taste at first slight, but soon afterwards acrid and burning. It contains, according to Pelletier,

Resin.
Wax.
Malate of lime and potash.
Lignin.
Bassorine.
Volatile oil.
Water.

Medical Properties and Uses. It is too irritating for internal use. It would act as an emetic and drastic purgative. It has been employed as an errhine, reduced by mixing it with starch or flour. Even used in this way it is liable to occasion inflammation of the mucous membrane and bloody discharges. It is only fit for veterinary practice, to give increased activity to blisters.

ERGOTA.

The morbid grain of SECALE CEREALE.—*Common Rye.*

The precise nature of the substance which we call Ergot of Rye, is not agreed upon by naturalists. Some contend that it is a fungous growth, as Fries, who names it *Acinula Clavus*; Decandolle calls it *Klerotium Clavus*; some consider it to be a diseased ovarium; and others consider it to be a morbid growth produced through a puncture, analogous to the formation of the gall-nut. The drug is imported into this country from France and Germany, and some is said to find its way here from the United States.

Properties. Ergot is in solid, brittle, yet somewhat

flexible grains, from half an inch to an inch in length, curved like a spur, whence its French name; of a violet brown colour externally, yellowish white within, with an unpleasant smell in mass, resembling putrid fish, of a taste at first scarcely perceptible, afterwards disagreeable and slightly acrid. Wiggers, a German chemist, who carefully analyzed it, discovered in 100 parts,

A peculiar fixed oil	-	-	-	-	35.0
White crystallizable soft matter	-	-	-	-	1.04
Cerin	-	-	-	-	0.75
Substance resembling fungin of mushrooms					46.18
A reddish brown substance which he named <i>ergotin</i>	-	-	-	-	1.24
A substance resembling osmazome				-	7.76
A peculiar saccharine matter				-	1.55
Gummy extractive	-	-	-	-	2.32
Albumen	-	-	-	-	1.46

Besides saline and earthy matters in a very minute proportion.

Medical Properties. In small doses ergot of rye produces no sensible effect on the male, but in the female has a strong tendency to the uterus, the contractility of which it is able to augment to a surprising degree. In large doses it is liable to cause nausea and vomiting, and in larger doses headach and fever. The nauseating effects are not requisite for its action on the uterus. When eaten in food, as in rye bread in some countries, it has had a most pernicious influence, producing dry gangrene, typhus fever, and disorder of the nervous system, attended with convulsions.

The most important use of this substance is in aiding parturition. The cases suited for its administration, are protracted labours depending on atony of the uterus, and from the same cause retention of the placenta and hæmorrhage. In protracted labour, the conditions necessary to admit of its use are, a dilated state of the os uteri, a natural presentation, well-formed pelvis, a disposition of the external parts to yield, no presumed

malformation of the child, and rupture of the membranes.

The objections to its use are, the danger of rupturing the uterus, death of the child from too great compression, and laceration of the perineum. It usually acts within a quarter of an hour, and the contractions of the uterus, when excited, are constant, not intermitting as in healthy labour, and they will be felt after the expulsion of the fœtus. Its use is sometimes attended with considerable after-pains, which however can be checked by a full dose of opium.

Not more than four doses should be given, as there is no probability of its acting afterwards, and its long continued use might be attended with mischief. It has also been given with good results in menorrhagia and hæmorrhages generally, and to check other discharges from mucous membranes, as in diarrhœa, gleet, and gonorrhœa. Its action in this way is not fully understood. It would appear to contract the exhalants upon those surfaces, and thus diminish the quantity of fluid which escapes: on a similar principle might be explained its mode of causing gangrene, in which it contracts the capillaries, and diminishes the quantity of blood so much as to be insufficient to afford adequate nutrition and vitality.

Dose. In powder, ʒj. to ʒss.

The best mode of giving it is to have it coarsely powdered, then to put it into a teacup, and pour upon it two or three ounces of boiling water, let it stand till it is cool enough to drink, then add a tea-spoonful of brandy or gin to flavour it, and let the patient drink the infusion and dregs as well. This may be repeated two or three times. The tincture and other liquid preparations do not appear to be so certain in their operation.

FARINA.

Wheat flour, obtained from *TRITICUM HYBERNUM*.—
Common Wheat.

Wheat Flour is inodorous and nearly insipid. Its chief constituents are starch, gluten, saccharine matter, and gum. The proportions of which are liable to variation. Vauquelin obtained as an average product from eight specimens, in 100 parts,

Water	-	-	-	10.25
Gluten	-	-	-	10.80
Starch	-	-	-	68.08
Sugar	-	-	-	5.61
Gum	-	-	-	4.11

The gluten, which is the most nutritious vegetable substance and in greater quantity in wheat than any other grain, is composed of two principles, named by Taddei, gliadine and zymome, and by Einhof, a German chemist, gluten and vegetable albumen. The former only is soluble in alcohol. Both of them contain nitrogen.

Medical Properties. Wheat-flour in its simple state is seldom used in medicine. It is sometimes sprinkled over the skin in erysipelatous inflammation and some cutaneous eruptions, or in cases of burns, in which cases it seems to have a very soothing effect. In the state of bread and toasted and put into water a refreshing drink is made, which is still more palatable if flavoured by lemon juice. Boiled in water or with milk, it forms a common bland poultice. The crum of bread is used as a vehicle or to give bulk to some active medicines in the form of pill, as nitrate of silver. The combination is not very judicious, as bread usually contains some chloride of sodium, which decomposes nitrate of silver and makes it inert.

Prep. Cataplasma Fermenti.

FERRI PERCYANIDUM.

The Percyanide of Iron, commonly known as Prussian Blue.

Prussian blue is said to be generally made in the following manner: animal matter, such as dried blood, hoofs, or horns, is mixed with an equal weight of carbonate of potash and introduced into an iron vessel. This is exposed to a red heat for half an hour to an hour, and when cool is to be treated with water. The solution is filtered and then mixed with a solution of alum and protosulphate of iron; in which case a precipitate falls, at first of a dingy green colour, which by repeated washing with dilute muriatic acid, acquires a fine blue tinge. It may also be formed immediately by adding a solution of ferro cyanuret of potassium to a solution containing peroxide of iron. According to Berzelius it is a compound of

4 Sesquicyanuret of iron.

3 Cyanuret of iron.

or of — 7 Iron $7 \times 28 = 196$

9 Cyanogen $9 \times 26 = 234$

430

Mr. Phillips has named the substance a percyanide of iron, a name which will not be found in chemical works generally.

FERRUM.

The FILINGS of IRON.

Iron is a metal which is more generally diffused over the earth than any other. It occurs native in small quantity, combined with sulphur very abundantly, and is found largely oxidized and united with acids, such as carbonic, sulphuric, phosphoric,

arsenic, and chromic. It is extracted from its ores chiefly by the agency of heat, charcoal, and fluxes.

Iron combines with oxygen in three proportions; forming the protoxide, the black oxide, and peroxide. The first has one equivalent of oxygen, the peroxide one and a half. The black oxide is intermediate, and by chemists generally supposed to consist of one equivalent of protoxide, and two of peroxide. The salts of the protoxide are most energetic as medicines, the peroxides being comparatively inert.

The preparations of Iron considered generally are powerfully tonic, raising the pulse, promoting the secretions, and appearing to increase the colouring matter of the blood, for when given in cases of anæmia and chlorosis, where the blood has a less arterial colour, it is changed to a very bright arterial tinge and gives a healthy complexion to the whole body. The preparations of iron are useful in diseases attended with debility and relaxation of fibre, and a languid circulation, especially when resulting from excessive coloured discharges. The diseases in which they are most serviceable are chlorosis, hysteria, leucorrhœa, gleet, scrofula, rickets, chorea, and passive hæmorrhages, and some neuralgic affections. They are contraindicated in the inflammatory diathesis, and in such cases would occasion heat, thirst, headach, difficulty of breathing, and other symptoms of an excited circulation.

Iron filings are understood to be iron in a comparatively pure form, and in a minute state of subdivision.

Medical Properties. In the metallic form, iron has no action on the body, but in its passage it may become oxidized, as appears to be the case from the black appearance of the evacuations. Iron filings have been considered by some to be tonic, and anthelmintic, but are seldom prescribed, as there is little certainty in their operation. They may be given in doses of \mathfrak{xx} . to \mathfrak{xxx} . grains. They are intended to be used in making some of the preparations of iron.

FICI.

Figs, the dry fruit of *FICUS CARICA*—, *Fig Tree*.

The fig tree is supposed to be a native of the Levant, and is now found in abundance in all the warmer parts of Europe. Our chief supply is from Smyrna. The Fig itself is a fleshy receptacle, containing within it the flowers, and afterwards the seed. When perfectly ripe, figs are dried by the heat of the sun or in ovens. In cold weather they are covered with a whitish saccharine efflorescence, which melts in the summer and makes them moist. Their chief constituents are mucilage and sugar.

Medical Properties. Laxative, nutritious, and demulcent. When eaten largely, they produce flatulence, griping, and diarrhœa, and in some persons will occasion hæmorrhoids. They sometimes are introduced into demulcent decoctions; and, when roasted or boiled, have been employed as a poultice to hasten suppuration.

Dose. Almost ad libitum.

Prep. Conf. Sennæ,—Dec. Hord. comp.

FÆNICULUM.

The fruit of *FÆNICULUM VULGARE*,—*Common Fennel*.

This is an herbaceous annual plant, a native of the south of Europe, and now growing freely in our own country. The fruit only is officinal.

Fennel seeds or fruit have a fragrant odour, and a warm, sweet, agreeably aromatic taste. They impart their virtues partially to water, more freely to alcohol. The essential oil may be separated by distillation.

There is also fixed oil;—from 960 parts of seeds, Neuman procured 20 parts of volatile oil, 120 of the fixed.

Medical Properties. Stimulant and carminative, and as a corrective of the griping qualities of senna and some other purgatives. Fennel water is very useful to allay the griping to which infants are liable.

Dose. For an adult, ℥i. to 3ss.

Prep. Aqua Fœniculi,—Conf. Pip. nigri,—Sp. Juniperi comp.

GALBANUM.

The Gum-resin of GALBANUM OFFICINALE.

This species of Galbanum is of the nature of an under-shrub, growing several feet in height. It is found along the eastern coast of Africa, and is said to be a native of Syria. Galbanum is obtained by making incisions into the stem, or cutting it off at a little distance from the root. A cream-coloured juice exudes, which concretes on exposure to the air. A small quantity exudes spontaneously from the joints, and hardens in the shape of tears. The drug is brought from the Levant.

The odour of galbanum is peculiar and disagreeable. Its taste is bitterish, warm, and acrid. Rubbed with water, it forms rather a milky liquid, from which most of the galbanum is deposited by standing. Alcohol dissolves a large portion of it and forms a tincture, which is rendered turbid by the addition of water. It is most soluble in proof spirit. Pelletier found in 100 parts.

Resin - - - -	66.86
Gum - - - -	19.28
Volatile oil	} 6.34
and loss	
Wood and	} 7.52
impurities	

By distillation at about 250 degrees, the essential oil passes over and has a blue colour which it imparts to alcohol. By distillation with water this oil has a yellow tinge.

Medical Properties. Stimulating expectorant, antispasmodic, and emmenagogue. The diseases in which it is most given, are hysteria, and dyspepsia, in old people, attended with borborygmi, and in chronic asthma. It is used externally as a discutient plaster, but it more frequently accelerates the suppurative process.

Dose. Gr. x. to gr. xx.

Prep. Tinc. Galb. c.,—Pil. Galb. c.,—Empl. Galb. comp.

GALLÆ.

Galls, a morbid deposit, forming the nidus of the CYNIPS QUERCUS FOLII.

The species of oak on which they are found is the Quercus Infectoria, which grows abundantly in various parts of Asia. The Galls are shipped largely from Aleppo and Smyrna. The mode in which they are produced is the following. The insect, a species of fly, makes a perforation in the small twigs and petioles, and deposits an egg; this acting like a foreign body, causes a quantity of matter to be thrown out around it, and constitutes the nut, which becomes a nidus for the insect. These nuts are formed very rapidly, sometimes in as little time as twenty-four hours. After a short period, the egg is converted into a larva, which feeds upon the vegetable matter surrounding it. At length it assumes the form of a fly and eats its way out, leaving a perforation and cavity. The gall-nuts should be collected before the insect has made this perforation, and in that state are named blue, green, or black galls, in contradistinction to others which are perforated and have a lighter colour, and are named white galls.

There are some collected in France and other countries, but not at all equal in quality.

Properties. The best galls are externally of a bluish or lead colour, light brown internally, solid, and brittle, with a small cavity in their centre. They are inodorous, and have a bitter astringent taste. From 800 parts, Sir H. Davy procured 185 parts soluble in water, consisting of

130 tannin.

31 gallic acid.

12 mucilage and matter rendered insoluble by maceration.

12 saline matter and calcareous earth.

Other chemists describe the presence of more tannin and gallic acid, and another acid which they name ellagic, also some volatile oil.

Medical Properties. Gall-nuts are powerfully astringent both internally and externally. They are very seldom used for internal diseases; chronic diarrhœa might be treated with them. They are more employed as an astringent gargle or wash, or an injection. The most common application of them is in the form of an ointment, made with one drachm of gall-nuts in powder to an ounce of ointment, in the treatment of hæmorrhoids. They are used abundantly in the making of ink and other purposes in the arts.

Dose. If given internally, gr. x. to gr. xx.

Prep. Tinct. Gallæ,—Ung. Gallæ, comp.

GENTIANA.

Gentian, the root of GENTIANA LUTEA.

This variety of Gentian has an annual stem which sometimes grows to a height of three or four feet, and a perennial root. It is common about the Alps,

Pyrenees, and Apennines. Its root only is officinal, and is imported principally from Germany.

Gentian root, has a greyish-brown colour externally, yellowish within, and of a spongy texture. It has a feeble odour, and a taste slightly sweet, but very bitter. The powder is of a yellow colour. Messrs. Henry and Caventou discovered in it,

A principle named Gentianin,
A volatile odorous principle,
A substance like bird-lime,
A greenish fixed oil,
A free organic acid,
Uncrystallizable sugar,
Gum,
Yellow colouring matter,
Lignin.

In Switzerland and the Tyrol, gentian root is macerated in water, and undergoes fermentation. From this a spirituous liquid is distilled, which is much relished by the inhabitants.

Gentianin is a yellow crystallizable substance possessing strongly the bitterness of gentian, but has no smell. It is somewhat soluble in water, most so in alcohol and ether. It appears to contain a little nitrogen.

Medical Properties. Gentian is one of the best vegetable tonics. It creates appetite and improves the digestive powers, without occasioning any very decided symptoms of stimulation. It is useful in all diseases requiring such remedies, and is compatible with many substances that cannot be given properly with other vegetable bitters. Alone it may be used with the salts of iron, but not in the form of the Pharmacopœial preparations. It may be given in powder, infusion, extract, or tincture. The extract is an excellent vehicle for pills containing some mineral tonic.

Dose. Of the powder, gr. x. to gr. xx.

Extract, gr. v. to gr. x.

Infusi, Gent. c. ʒiss.

Tinc. Gent. c. ʒj. to ʒiij.

Prep. Inf. Gent. comp.,—Extractum Gentianæ,—
Tinct. Gent. comp.

GLYCYRRHIZA.

The fresh root of GLYCYRRHIZA GLABRA.—
Liquorice Plant.

This plant has a perennial root, and an annual herbaceous stem which grows to a height of three or four feet. The root only is officinal. It is a native of the south of Europe or Syria, and is now cultivated and grows freely in our own country.

By analysis Robiquet found in this root

A sweet yellow transparent principle named
Glycyrrhizin,
A substance resembling Asparagin,
Starch,
Albumen,
A brown acrid resin,
A brown azotized extractive matter,
Lignin,
Some salts of lime and magnesia.

An extract of Liquorice root is imported from Spain and Italy; it is made by boiling the root in water for some time to extract the soluble matter, and the solution after straining is evaporated to a proper consistence. It generally contains some impurities, such as little pieces of leaves or charcoal, sometimes starch, prunes, and even sand.

A very pure and pleasant extract is made at Pontefract in Yorkshire, which is sold very extensively under the name of Pontefract cakes or lozenges.

Medical Properties. Liquorice root is a very good demulcent, useful in catarrh, or irritation and inflammation of the urinary passages or alimentary canal. It is often used with other medicines, to conceal their taste and make them more palatable, as the black draught, which, with the aid of liquorice, can be swallowed much more easily by the fastidious. Before

being used, the root should always be deprived of its epidermis, as it is somewhat acrid, and does not possess the properties of the root generally. By long boiling, the acrid principle is renewed. The powder is much used in pills, when we require a powder to give a certain consistence. It is also put loose into pill-boxes to prevent pills sticking together.

Dose. Ad libitum.

Prep. Extractum Glycyrrhizæ.

GRANATUM.

The rind of the fruit of PUNICA GRANATUM.—
Pomegranate.

The Pomegranate is a small shrubby tree growing abundantly in the south of Europe, Africa, the East and West Indies. The fruit, for which it is chiefly cultivated, varies much in size and flavour. The pulp is red, pleasantly acid, and sweetish, and is used for the same purposes as orange juice. The rind of the fruit only is mentioned in our Pharmacopœias, but in others, the flowers, the bark of the root, and even seeds are ordered.

The rind of the fruit is hard, dry, and brittle, of a yellowish brown colour, without smell, of an astringent, slightly bitter taste. It contains a large proportion of tannin, and in countries where it abounds, is used for tanning skins.

The flowers named sometimes *balaustines* are inodorous, have a bitter strongly astringent taste, and give a violet colour to the saliva. They contain tannin and gallic acid, and were used by the ancients in dyeing.

Bark of the Root. The root is hard, heavy, ligneous, covered with a yellowish grey bark, yellow within. It has no smell, but an astringent taste without bitterness. It contains, according to Mitonart, tannin,

gallic acid, a substance like wax, a sweet substance, part of which is soluble in alcohol, another part in water, resembling mannite. The woody part of the root is inert.

Medical Properties. The rind of pomegranate is powerfully astringent, and in some degree tonic. It is not much used with us. It might be employed as a gargle in relaxation of the uvula, or be given in diarrhoea, dysentery, intermittents, or be used as an injection in leucorrhœa. The bark of the root has much reputation as an anthelmintic, especially for the removal of *Tænia*. For this purpose, it is constantly given by the Mahommedan physicians, and medical practitioners of India. They give it generally in the form of a decoction, which may be made by boiling two ounces of the bark in a quart of water down to a pint; of this one-third may be given for a dose, and repeated every second hour till the worm is expelled. Two or three doses are usually sufficient. It is usual to precede its administration by a purgative given over night, which appears to assist the action of the remedy. The *modus operandi* of this substance in destroying worms is not very obvious. Although next to inert on the human body, it may act as a poison upon the worm, as we observe in *Quassia* upon Insects. By itself it does not purge, nor produce any symptoms beyond a little nausea and vertigo.

The berries, or pulp, are in some countries taken in fevers, as a refrigerant.

Dose of the Rind. Gr. x. to gr. xx.

Prep. Decoctum Granati.

GUAIACI LIGNUM ET RESINA.

The wood and resin of *GUAIACUM OFFICINALE*.

The Guaiacum tree grows in Jamaica and Hayti, and some parts of the neighbouring continent. It is slow in its growth, and attains an elevation of fifty or sixty feet, with a circumference of from three to five feet. All parts of the tree possess medical properties; but the wood and concrete juice only are officinal. The wood is imported in large billets, covered with a greyish bark. It is much used by turners for various instruments and utensils, on account of its hardness, and is commonly known by the name of *lignum vitæ*. The raspings and shavings are kept in the shops for medical purposes.

The alburnum, or sap-wood, is yellow; that of the duramen, or hard wood, greenish brown. It is almost without smell, unless rubbed or heated, when it becomes odorous. In burning, it gives out an aromatic odour. Its taste is somewhat bitter, and pungent after long chewing: it yields its virtues in a very slight degree to water.

The resin is procured as a spontaneous exudation, or by incisions made into the trunk, but chiefly by boring the billets at one end and placing the other end on a fire, by which the resin flows out, and is received in calabashes. A fourth plan is to boil the chips in water, and skim off the substance which rises to the surface. It varies considerably in its appearance in respect to colour, and the impurities contained in it; however, it is essentially of a resinous lustre and fracture. The colour is dark, with brownish edges, which become green on exposure to light and air. The powder also acquires a very green colour. This is said to be owing to the absorption of oxygen. Guaiacum is not a gum-resin, as it is sometimes denominated, nor a

resin, but a substance sui generis; only 9 parts per cent. are soluble in water: alcohol takes up 95 parts in 100, leaving only impurities. The alcoholic solution is of a deep brown colour, is decomposed by water, which precipitates the guaiacum, and affords blue, green, and brown precipitates, with the strong acids. It is also soluble in ether, alkaline solutions, and sulphuric acid. Nitric acid converts it into oxalic acid. It gives a blue colour to gluten, mucilage of acacia, and milk, and it is in this way that it becomes a test of colchicum, which contains gluten, when it is in its most efficient state. The portion which is soluble in water is a species of extractive, the other is not purely a resin, as it differs from resin in several particulars. It contains more carbon; is converted into oxalic acid, instead of artificial tannin, by nitric acid; and by its action passes through various shades of colour, as green, blue, and brown, in this respect resembling indigo. The changes of colour are supposed to depend upon the absorption of various proportions of oxygen.

Medical Properties. The wood and resin possess similar properties, only differing in degree, that is, they are more concentrated in the resin. Guaiacum is considered to be stimulant, alterative, diaphoretic, diuretic, and in large doses purgative. It was at one time supposed to be a valuable antisyphilitic, but at present considered only to be of service in the secondary and chronic forms of it. It is used in skin diseases, chronic gout and rheumatism, amenorrhœa, and scrofulous affections. The only disease in which it can be given with much hope of benefit is chronic rheumatism. The decoction made with the wood is a comparatively useless preparation, as so little of it is soluble in water: it is also almost useless in the compound decoction of sarsaparilla. The best way to give it is to use the resin suspended in liquids by mucilage, or in the form of the tinctures.

Dose. Gr. x. to gr. xx.
Of the Tinct., ʒj. to ʒij.
Of the Mist., ʒj. to ʒij.

Prep. Decoct. Sarzæ comp.,—Mixture Guaiaci,—
Pil. Hyd. Chloridi comp.,—Tinct. Guaiaci,—Tinct.
Guaiaci comp.

HÆMATOXYLUM.

The wood of HÆMATOXYLON CAMPECHIANUM.
Logwood Tree.

This tree is a native of Campeachy and the shores of the bay of Honduras. The wood, which is the officinal portion, is much used in dyeing. It comes over in logs, having a blackish brown colour externally. For medical use it is cut into chips, or rasped into a coarse powder. The wood is of a deep red colour, becoming darker by exposure to air, of a very slight, peculiar odour, and a sweet astringent taste. It imparts its colour to water and alcohol. Amongst its constituents, Chevreul discovered

- A volatile oil.
- An oleaginous resinous matter.
- A brown substance precipitated by gelatine.
- A brown substance soluble in water and ether, but not in alcohol.
- A substance resembling gluten.
- Free acetic acid.
- Some saline matters.
- An azotized colouring principle, named hematin.

By boiling in water a solution is procured, which yields an extract by evaporation.

Medical Properties. Logwood is a mild astringent, acting without irritating or stimulating. Its taste being rather pleasant, it is taken willingly in the diarrhœa attendant upon phthisis, or in any chronic diarrhœa or dysenteric affection. It should be known that it gives a dark blackish colour to the evacuations.

Dose. Of the Decoction, ʒj. to ʒij.

Extract, gr. xx., to gr. xxx.

Prep. Decoct. Hæmat.,—Extr. Hæmatoxyli.

HELLEBORUS.

The root of *HELLEBORUS OFFICINALIS*, formerly named *Helleborus Niger*.

This plant is a native of Greece, having an annual stem and perennial roots. It grows freely in most parts of south Europe, and is cultivated and thrives in our gardens. It is known also by the name of Christmas Rose; by the Greeks it was called *Melampodium*.

Properties. The root is found most commonly in the form of brownish black fibres, which have grown downwards from a horizontal knotted root-stock. They are internally white, or yellowish white, almost without odour, with a bitter nauseous acrid taste. They are much more acrid in the fresh than the dry state. MM. Feneulle and Capron obtained from them—

- A volatile oil.
- An acrid fixed oil.
- A resinous substance.
- Wax.
- A volatile acid.
- Bitter extractive.
- Gum.
- Albumen.
- Gallate of potash.
- Supergallate of lime.
- A salt of ammonia.
- Woody fibre.

Water and alcohol extract the active principles.

Medical Properties. Drastic cathartic, emmenagogue, and anthelmintic. It is probable that the two latter qualities depend upon the purging. At present it is seldom used, but was much employed formerly in amenorrhœa, mania, melancholia, dropsy, epilepsy, some skin diseases, and worm cases. It is still used much in Turkey, on account of its effect upon the liver, which it stimulates to a considerable increase of secretion. This, when evacuated largely, gives a

blackish appearance to the evacuations, and was probably the reason, that in those diseases in which it was found serviceable, the pathology of them was supposed to be locked up black bile: hence the term melancholia. I have heard from persons who have used hellebore rather extensively, that it is an excellent adjunct to scammony and aloes, and that its operation on the liver may often be substituted for that of calomel. At present it is rarely prescribed, except as an emmenagogue.

Dose. Gr. x. to gr. xx; as a brisk purgative, emmenagogue, and anthelmintic.

Gr. ij. to gr. v.; as an alterative.

Of the Tincture, ℥. xx. to ʒj., ter die.

Prep. Tinct. Hellebori.

HIRUDO.

Cl. 1, Annelides. Ord. 3, Abranchiatæ. Fam. 2, Asetigeræ: Cuvier.

The Leech is an aquatic worm, with a flattened body, tapering towards each end, terminated in circular flattened discs, the hinder one being largest; the mouth is placed in the centre of the anterior disc, and is supplied with three cartilaginous lens-shaped jaws. These jaws are lined at their edges with fine sharp teeth, and meet so as to make a triangular incision in the flesh. Respiration is carried on by apertures, ranged along the sides of the under surface. The medicinal leech is characterized by six longitudinal ferruginous stripes, the four lateral ones being interrupted or tessalated with black spots. The colour of the back varies from a blackish to a greyish green: the belly in one variety is yellowish green, with lateral dark stripes; in another, green, bordered, and spotted with black; either may be employed. They are found in the marshes and rivers of many places in Europe.

After the incision is made in the skin, they extract the blood by suction, that is, forming a vacuum, in the same manner as the child extracts milk from the breast. They are said to fall off on account of obstruction to the respiratory pores, not from the circumstance of exhaustion or repletion.

Medical Uses. Leeches are employed when we want to extract blood locally, and when it may be inconvenient to remove it in any other manner. The quantity of blood taken by a leech may, on an average, be considered two drachms, and together with the subsequent bleeding half an ounce. It is generally considered that blood thus extracted, causes greater depression than when removed by usual venesection; great care should be taken in the case of applying leeches to very young children, as death by the after bleeding has been occasioned by a single leech. The methods employed to stop the bleeding are, to press the edges of the orifice together for several minutes between the fingers; to use pressure by lint, piece after piece, and kept in situ by adhesive plaster; sprinkling on the part powdered resin, or plaster of Paris; applying tinctura ferri muriatis; introducing into the orifice the end of a stick of nitrate of silver. In still greater difficulty, a needle with silk may be introduced through the edges, and used as a ligature. Erysipelas is apt to follow the application of leeches, especially about the forehead and eyelids, and this takes place in some irritable constitutions of the body, even in any other part.

HORDEUM.

The seeds of HORDEUM DISTICHON, deprived of their integuments.—*Barley*.

This herbaceous plant is known in most civilized countries. The grain of it only is officinal. It is of

a yellowish colour externally, white within, having a faint odour in a mass, and a mild sweetish taste.

The seeds, according to Proust, contain in 100 parts

Starch	-	-	32
Gluten	-	-	3
Sugar	-	-	5
Gum	-	-	4
A yellow resin			1
Hordein	-		55

Berzelius suggests that the hordein may be an intimate mixture of fibre, gluten, and starch.

Malt consists of the seed, in which germination has commenced, and been arrested. During this change, the hordein partially disappears and is resolved into starch, gum, and sugar. It is very largely consumed in the manufacture of malt liquor.

Hulled barley is merely the grain deprived of its husk, which, according to Einhoff, amounts to 18.75 per cent.

Barley meal is made by grinding the seeds after being deprived of their husk. It has a greyish white colour, and may be made into a coarse, heavy, hard bread, which is used in some countries as food.

Pearl barley, hordeum perlatum, is the seed deprived of its investments, and rounded and polished in a mill. It is in round or oval grains, having the trace of the longitudinal furrow, and of a pearly whiteness. It abounds in starch, with some gluten, sugar, and gum. This is the proper officinal barley.

Medical Properties. Barley is very mild, and one of the least irritating of farinaceous substances. Boiled in water, it forms a decoction, much employed in fevers and inflammatory diseases as a drink, which conveys nourishment in the mildest form, and at the same time, lubricates and soothes the primæ viæ.

Malt affords a liquid of a similar nature, but is rather

more nutritious and stimulating; it is better suited in cases requiring a supporting treatment.

Dose. Ad libitum.

Prep. Decoctum Hordei.
Dec. Hord. Compos.

HYDRARGYRUM.

Mercury exists, in a very small quantity in a metallic state, also combined with chlorine, in the form of an amalgam, but by far the most abundant condition is in combination with sulphur. Its most important mines are at Almaden in Spain, Idria in Austria, and the duchy of Deux Ponts: it exists more sparingly in Mexico, New Granada, Peru, the Philippine Islands, and China.

Extraction. It is obtained from the native sulphuret, also named Cinnabar of commerce, by mixing it with lime, then applying heat, which causes the mercury to pass over into receivers kept cool and containing water. In this process, a fourth part of the sulphur of the mercury decomposes three equivalents of lime, attracting the oxygen to form sulphuric acid, which combines with the undecomposed fourth of lime to form sulphate of lime. Three parts of sulphur, with three of calcium, form three equivalents of sulphuret of calcium, the metallic mercury being set free.

Mercury is usually imported from Spain in iron bottles, weighing from 70 to 100lbs. It comes from Trieste in skins containing each about thirty pounds, and these are put into barrels. Mercury is used to assist in extracting silver and gold from their ores, in preparing vermilion, also for making thermometers and barometers, for silvering looking-glasses, in gilding, and for preparing many powerful and very important pharmaceutical compounds.

Mercury is sometimes adulterated with tin, bismuth, and lead, which still allow it to remain liquid, and

without much altering its appearance. The signs of its impurity are a dull surface, staining a clean plate or paper, not forming in small quantity round portions, but appearing to drag a tail behind it. It may be purified by subliming it from those metals, which are not volatile; washing it with dilute nitric or muriatic acid, which act more readily on the impurities than on the mercury. It may also be pressed through chamois leather, to cleanse it. Mercury combines in two proportions with oxygen, sulphur, chlorine, and iodine, and in one with cyanogen.

Medical Properties and Modus Operandi.

Mercury in its pure state has scarcely any action on the body, although it was formerly considered to be very efficacious in removing obstructions in the intestines, as in Ileus, colic, and hernia, and that it did this mainly by its gravity. Such a use of it is now abandoned. It was also imagined to be capable of clearing the complexion, and was taken in large doses with that intention. When this was the practice, a very lucrative perquisite of servants was being allowed to collect the mercury which escaped from the body at dances or other parties. In combination mercury acts on the system as a peculiar and general stimulant. The general effect of mercurials should be first considered, and the peculiarities of individual preparations under each. Mercury is usually said to be stimulant, alterative, purgative, sialogogue, and diuretic.

When mercurials are first taken into the stomach, especially calomel, the first impression appears to be that of a sedative, which is more evident the larger the dose; this action continues only for a short period, that is from ten minutes to half an hour. The proof of it is, diminished action of the heart, diminished irritability of the stomach and bowels. This condition is followed by reaction, occasioned either by an impression made on the nerves of the stomach, and conveyed by sympathy to other parts, or by the mercury entering

the circulation. The latter explanation is strenuously opposed by some, who contend that mercury never enters the fluids, and supported by others who have found it in the blood, likewise deposited in the tissues, and have observed that it transudes from the skin. This is proved by administering mercurials by the stomach; when the system is saturated with it, gold or silver carried on or near the surface have often been seen tarnished by the mercury forming an amalgam with them. The saliva often does the same, and mercury in a metallic state has been deposited in the bones, when none of it in that form has been swallowed, or even rubbed on the surface.

As a stimulant mercury is supposed to be beneficial in a great many diseases. In syphilis, it has been usual to say, that the medicine sets up a new disease or action in the system, and that the one induced being more powerful, puts a stop to the primary disease, and gives time for the parts to recover their healthy condition. Still no one has ventured to show or prove where the new disease is seated: some refer it to the capillaries, which are supposed to be in a state of erethism, others to the salivary glands, some to the absorbents, others to the large glands of the body. The alterative action of mercury is sometimes exerted, without being attended with any other vital phenomenon than the removal of the disease, whilst at others its effects indicate the agency of a potent stimulant. In the latter case its operation is marked by a quickened circulation, with a frequent jerking pulse; by an increased activity of the secreting functions, especially of the salivary glands and the liver; by exaltation of nervous sensibility; and indeed general excitement of the organic actions of the system. A patient in this state somewhat resembles one labouring under fever. If blood be drawn from the arm, it has a buffed and cupped inflammatory appearance.

As a purgative, mercury acts principally by increas-

ing the action of the liver. The bile becomes the stimulant to the intestines, and it is also probable that the mucous follicles likewise secrete more abundantly. After copious purging by a large dose of calomel, the secretion of the liver and intestines appears to be less for a few days.

When mercury is taken in moderate quantities for several days, its operation is generally felt most on the salivary glands, causing an immoderate flow of saliva. Under these circumstances, to the alterative effects are added those of depletion and revulsion. Sometimes its depleting action is exhibited in an increased secretion of urine, thus constituting it a diuretic.

In functional derangement of the digestive organs, mercurials in small doses operate very beneficially, and often without inducing any sensible effect. In these cases no disturbance of the vital functions takes place, but the alvine discharges, if previously clay-coloured, assume a healthy colour, showing that the secretion of the liver is increased. The decided action of mercury on the hepatic system is more agreed upon than that upon any other, for whether the liver be torpid and obstructed as in jaundice, or pouring out a redundancy of morbid bile as in *melæna*, it is equally useful in unloading that viscus, and restoring its secretion to a healthy state.

In acute and chronic hepatitis in India, it is considered almost a specific, but its use is generally preceded by bloodletting. In inflammations of mucous and serous membrane, mercurials are very valuable, they induce a new action of the exhalants, causing them to throw out a thinner and less objectionable fluid, and when effusion has taken place, they excite the absorbents to remove what has been already deposited. In this manner its action is explained in peritonitis, meningitis, hydrocephalus, bronchitis, pleuritis, pneumonia, croup, iritis, dysentery, rheumatism, hydrothorax, ascites, and anasarca. In syphilitic disease mercury

is very extensively used. Its action here is not clearly understood, but is said to be that it operates by substituting its peculiar action for that of the disease.

For inducing the specific effects of mercury, blue pill or calomel is generally employed; when the bowels are irritable, and the medicine passes off by them, it is necessary to introduce the mercury by inunction, and when a speedy effect is desired, the external and internal use may be simultaneously resorted to.

The first observable effects of mercury in inducing ptyalism are a coppery taste in the mouth, a slight soreness of the gums, and an unpleasant sensation in the sockets of the teeth, when the jaws are pressed together; shortly afterwards, the gums begin to swell, a line of whitish matter is seen along their edges, and the breath has a fetid smell, called mercurial fœtor. The saliva at the same time flows abundantly, and the gums, tongue, throat, and face become much swollen, ulceration attacks the lining membrane of the mouth and fauces; the jaws are very painful; the tongue is coated with a white thick fur, and saliva flows in streams from the mouth. This state sometimes progresses to a dangerous extent, causing ulceration, sloughing and gangrene, which require great skill in combating. The fœtor of the breath has been supposed to depend upon an exhalation of fetid matter, such as sulphuretted hydrogen, &c., which has been carried from the intestines into the circulation, by the powerfully excited absorbents. The best remedies for excessive salivation, are cool air, astringent and detergent gargles, as of acetate of lead in solution, sulphate of copper and zinc, dilute sulphuric acid, leeches applied to the throat, sulphur and saline purgatives, and gargles of chloride of soda or lime diluted with water.

The above are the ordinary effects of mercury, but in some constitutions it produces consequences more terrible than the disease itself. It occasions a small frequent pulse, anxiety about the præcordia, pale and

contracted countenance, great nervous agitation, and alarming general debility. It sometimes causes a peculiar eruption on the skin, which is known by various names, as hydrargyria, eczema mercuriale, and lepra mercurialis.

The preparations of mercury in the London Pharmacopœia are the following:—Empl. Amm. c. Hyd.,—Empl. Hydrarg.,—Hyd. c. Cretâ, —Hyd. Oxyd.,—Hyd. Binoxydum, —Hyd. Nitrico-oxydum, —Hyd. Ammonio-chlor.,—Hyd. Chloridum, —Hyd. Bichloridum, —Liq. Hyd. Bichlor.,—Hyd. Bicyanid.,—Hyd. Iodidum, —Hyd. Biniod.,—Hyd. Bisulph.,—Hyd. Sulph. c. Sulph.,—Pilulæ Hydrarg.,—Pil. Hyd. Chl. comp.,—Pil. Hyd. Iodidi, —Ung. Hyd. Fort.,—Ung. Hydrarg. Mitius, —Ung. Hyd. Nitratis, —Ung. Hyd. Nitrico-oxydi, —Ung. Hyd. Iodidi, —Ung. Hyd. Biniod.,—Ung. Hyd. Amm. Chloridi.

HYOSCYAMI FOLIA ET SEMINA.

The leaves and seeds of *HYOSCYAMUS NIGER*.—*Henbane*.

This plant is indigenous, growing in the fields and road sides. It is well known by the fetid odour which is given out when the plant is handled and pressed. It is biennial, and the leaves of the first year's growth are generally of a deeper green than those of the second, which have a browner hue. The latter are considered to be most active. The seeds as well as leaves are officinal, but are seldom used.

The active principle of this plant is alkaline, and has been named Hyoscyamia. The analysis, however, has been very imperfectly made.

Medical Properties. Henbane acts on the nervous and vascular system, reducing their action, that is, diminishing the sensibility, and lowering the pulse. It has a mild aperient operation, on which account it is often a valuable substitute for opium, and besides, it

tranquillizes without stimulating. This drug is useful in coughs and most pulmonary diseases, and indeed in almost every affection in which it is desirable to mitigate pain without producing excitement. Like belladonna it dilates the pupil of the eye, though in a weaker degree, and may be applied in a similar manner. Some recommend henbane externally in the form of a poultice or fomentation, and vehemently extol the benefits derived from it. Henbane is usually administered in the form of tincture or extract.

Dose. Of the extract, gr. v. to gr. x., of the tincture, ʒss. to ʒj.

Prep. Extr. Hyosc., Tinc. Hyoscyam.

JALAPA.

The root of the *IPOMÆA JALAPA*.

This plant is a native of Mexico, and derives its name from Xalappa, a city in the state of Vera Cruz. The stem is herbaceous, but the tuber or root is perennial, and sometimes attains a considerable size.

Properties. The tuber when small is imported entire, but when large is usually sliced longitudinally, sometimes in transverse circular pieces. It is pear-shaped, and shows marks of incisions which have been made to facilitate the drying. Internally it exhibits strata of a darker substance, which is chiefly the resin. Jalap on analysis affords according to Mr. Cadet de Gassicourt, in 500 parts,

Water	.	24
Resin	.	50
Gummy extract		220
Fecula	.	12.5
Albumen	.	12.5
Lignin	.	145
Saline matter		16.3
Silica	.	2.7
Loss	.	17

The active part of Jalap has been named Jalapin, but this according to late researches, cannot be separately exhibited. The best menstruum for dissolving the active matter of jalap is proof spirit.

Jalap is very apt to be attacked by worms, which, however, only remove the amylaceous and gummy matter, leaving a larger portion of active substance. Hence worm-eaten jalap is the best, and should be used when it is desirable to procure the drug in its most active form.

Adulterations. It is said to be sometimes adulterated with bryony root; this is seldom, if ever practised: occasionally pieces of another variety of *Ipomæa* named Mechoacan have been mixed with it; but they are readily distinguished by a much lighter colour.

Medical Properties.—Jalap is an active cathartic, operating on every part of the intestinal canal, causing severe griping, liquid evacuations, and increased secretion of urine. It acts both on the muscular and mucous coats. It enters into the purgative powders which are usually given to children, combined with calomel, scammony, and some aromatics. It is often administered in dropsies with bitartrate of potash, in the dose of ten to fifteen grains of the former, and two drachms of the latter.

Its activity is much increased by the addition of two or three grains of pulvis *Ipecacuanhæ*.

Dose. xv. to xxv. grains of the powder.
vj. to xij. grains of the extract.

Prep. Extr. Jalapæ,—Pulv. Jalapæ comp.,—Pulv. Scammonii comp.,—Tinct. Jalapæ.

INULA.

The root of **INULA HELENIUM**.—*Elecampane*.

This plant is indigenous, and also found in many parts of Europe. Its root is perennial, but the stem annual. The root should be dug up in autumn, and in the second year of its growth; it is generally cut into longitudinal slices, and carefully dried. The root has a camphorous odour, and when chewed a warm, aromatic, somewhat bitter taste: water or alcohol extract its virtues. On analysis it affords,

Inulin.

Helenin, a concrete substance, partaking of the properties of camphor and volatile oils.

Bitter extractive.

Soft, acrid, bitter resin.

Gum.

Albumen.

Lignin.

Volatile oil, (a trace.)

Wax.

Several salts, chiefly of potash and lime.

The principle, named *Inulin*, closely resembles starch, but differs in not forming a precipitate with Iodine, and in being thrown down unchanged from its solution in boiling water.

Medical Uses. This drug is seldom or never prescribed alone at the present period. It is said to be tonic, stimulant, deobstruent, emmenagogue, and diaphoretic. It was formerly given in dyspepsia, depending on debility, and in chronic diseases of the liver; as also in amenorrhœa. It enters into the preparation, named Ward's Paste.

Dose. Gr. v. to gr. xv. of the powder.

Prep. Conf. Piperis Nigri.

IODINIUM.

Iodine was discovered in 1812 by Mons. Courtois, a soda manufacturer at Paris. Its properties were immediately investigated by Gay Lussac and Sir Humphrey Davy, and its station assigned to it in chemistry.

Natural State and Preparation. Iodine exists in many vegetables, especially the fuci: also in sponge, the oyster, various polypi, and other sea animals: in sea-water, in minute quantity; and in some springs. It exists in combination with some base, more frequently sodium or potassium. It is usually procured from kelp, by several processes. The one most commonly described is the following. Dissolve kelp in water, evaporate, that crystallization may take place, remove the carbonate of soda, and use the residual liquid, which is named Mother-liquors, or Soapmaker's-lees, which contains the Iodine, with sodium and potassium. To this add sulphuric acid and peroxide of manganese; apply heat, and let the disengaged Iodine pass over into a receiver, where it will condense in a solid form. The decomposition, in this process, may be explained in the following manner. An equivalent of oxygen, of the manganese, passes to the sodium or potassium, to form soda or potash, with which the sulphuric acid immediately unites; the rest of the acid combines with the protoxide of manganese, and the Iodine, set free, is driven over by the heat.

Qualities. Iodine is a solid, of a dark steel-grey colour, in thin scales. It is easily volatilized, producing a plum or violet coloured vapour; it has an odour, somewhat like chlorine; stains the fingers, though not permanently; water dissolves it imperfectly, taking up only a seven-thousandth part. An ounce of alcohol will dissolve from about forty to forty-five grains. Its solution in water is promoted by adding

iodide of potassium. Iodine unites with several metals, forming very energetic compounds; they are named Iodides, or Iodurets.

The presence of Iodine, in liquids, is easily detected by starch, which will discover it in 450,000 times its weight of water. The conditions are, that the Iodine be free and the solution cold.

Iodine has been adulterated with black lead, peroxide of manganese and charcoal, which are, however, easily discovered by the application of heat, which will vaporize Iodine, and the impurities will remain.

Medical Properties. Iodine was first used in goître by Dr. Coindet, of Geneva. It acts on the body as a general stimulant, but exerts its action especially on the glandular system. The glands affected by it especially, are the thyroid, the absorbent glands, the mamma, testicle, as also the liver, pancreas, and kidneys. In some few instances it becomes a sialogogue. In over-doses it causes inflammation of the stomach, and becomes an irritant poison. Iodine enters the circulation, and has been detected in many of the tissues and fluids of the body. It has been used very successfully in a great number of diseases; most so in those in which effusions have taken place, and in which there appears to be torpor of the absorbents. The diseases benefited by it are chronic hydrocephalus, enlarged tonsils, ulcerations in the throat, bronchocele, cancer of the breast, early stages of phthisis, chronic hepatitis, enlargement of the spleen, diseased mesenteric glands, ovarian dropsy, enlarged testicle, and most diseases connected with a scrofulous diathesis. There is no remedy which has equal power over scrofulous enlargement or ulceration of the absorbent glands. It has also often proved an excellent emmenagogue. It is sometimes a valuable remedy in hysteria, chorea, paralysis, and deafness, and in many cutaneous diseases.

It should be always borne in mind that Iodine should not be exhibited in a plethoric or inflammatory condition of body; but is most serviceable where there is diminished action and reduced nervous energy. Iodine requires care in its administration; for if given in excess it causes a train of unpleasant symptoms; such as heat and dryness in the throat, with a sense of constriction, pain and heat at the stomach, vomiting, colic, severe pain about the head, hot and dry skin, and a rapid strong pulse; symptoms indicating an inflammatory condition. In such cases the Iodine should be discontinued, and purgatives, with other antiphlogistic remedies should be had recourse to. Occasionally bloodletting is requisite.

In addition to internal administration, Iodine is used externally, either to produce a topical action or an impression on the system generally. It may be applied as an ointment made with gr. x. of Iodine, with 3ss. to 3j. of Iodide of Potassium to an ounce of lard. This has a mahogany colour, and may be rubbed on a part night and morning. The Iodide, or Biniodide of Mercury, may be used in a similar manner in the quantity of 3ss. of the Iodide to an ounce of lard.

Iodine, with Iodide of Potassium, is also used by Lugol as a lotion in ophthalmia, ozæna, and scrofulous ulcers.

A rubefacient solution may be made by dissolving half an ounce of Iodine with an ounce of Iodide of Potassium in six ounces of distilled water. The same substance, with less water, forms the Iodine caustic, which has been successfully employed in stimulating and destroying soft and fungous granulations.

Iodine has also been made available in the form of baths, and, in diseases affecting the surface, has benefited, when the internal use of the medicine was precluded, on account of the irritability of the mucous membrane of the alimentary canal.

The preparations of Iodine are numerous. The following are those most in use.

Tincture of Iodine, made by dissolving forty grains of Iodine in an ounce of rectified spirit.

Dose. ℥. x. to ℥. xx.

If this tincture be added to water, it will not remain in a state of solution, unless a little Iodide of Potassium be added, which will not only keep it dissolved, but add to its virtues. They form together an Ioduretted Iodide of Potassium.

Iodide of Potassium.

Dose. Gr. v. to gr. x.

Iodide of Mercury.

Dose. Gr. j. to gr. iij.

Biniodide of Mercury.

Dose. Gr. ss. to gr. ij.

Iodide of Lead.

Dose. Gr. $\frac{1}{4}$ to gr. j.

Used with the same intention as most of the preparations of Iodine.

Iodide of Iron.

Dose. Gr. j. to gr. ij.

Prep. Ferri Iodidum, — Hydrarg. Iodidum et Biniodidum, — Plumbi Iodidum, — Pot. Iodidum, — Liq. Pot. Iodidi Comp., — Pil. Hyd. Iodidi, — Tinct. Iodinii Comp., — Ung. Hyd. Iodidi et Biniodidi, — Ung. Iodin. Comp.

IPECACUANHA.

The root of CEPHAELIS IPECACUANHA.

This plant grows plentifully in thick, moist, and shady woods in Brazil. The root is imported in pieces of two or three lines in thickness, variously bent and contorted, consisting of an internal, slender, whitish,

ligneous chord, with a thick cortical covering, which presents on its surface unequal circular rings, separated by narrow fissures, which frequently extend nearly down to the central fibre. This has given rise to the name of Annulated Ipecacuanha, to distinguish it from some spurious varieties. The cortical part is hard and horny, breaks with a vitreous fracture, and is easily separated from the woody part, which contains the virtues of this drug in a weaker degree. Much importance has been attached to the colour of this root, and has given rise to a division into three kinds; the brown, the red, and the grey. They all contain the same principles, and almost in the same proportion, differing only in age, place of growth, and mode of drying. But when in either variety the bark is opaque, with a dull amylaceous appearance, the root is less active as a medicine. Ipecacuanha, when entire, is almost inodorous; but, pulverised, has an unpleasant nauseous smell, which occasions, in some persons, violent sneezing; in others dyspnœa, resembling asthma. The taste is bitter, acrid, and nauseous. The cortical part consists, according to the analysis of M. Pelletier, in 100 parts, of

Impure salt of Emetia,	-	16
Odorous fatty matter,	-	2
Wax,	- - - -	6
Gum,	- - - -	10
Starch,	- - - -	42
Lignin,	- - - -	20
Loss,	- - - -	4

M. A. Richard has detected a small quantity of acid, which he considers to be gallic. The ligneous portion amounting to about one-fifth, contains less than 2 per cent. of Emetine.

Emetine may be obtained by the following process. Digest powdered root of Ipecacuanha in ether for some time, then in alcohol, strain the solution and add to

it magnesia, which precipitates the Emetine. Wash the precipitate with cold water subsequently, treat it with boiling alcohol, which will dissolve the Emetine and yield it by evaporation or distillation.

Emetine is alkaline, does not crystallize, has a yellowish colour and a bitter taste, is almost insoluble in water and ether: freely soluble in alcohol. It is precipitated from its solution by gallic acid. Its action is very powerful, one grain being equal to a scruple of powdered Ipecacuanha.

Medical Properties. Ipecacuanha acts as an expectorant, diaphoretic, nauseant, and emetic; it also assists the operation of purgatives; in very small doses some consider it to be tonic. As an emetic its operation is mild, and unattended with much danger, and is advantageously administered at the commencement of the exanthemata and other fevers; in ague, and in diseases generally, where a relaxing effect is desirable. It is not a suitable emetic in cases of poisoning. It is much used in dysentery. As a nauseant, it is of value in pertussis, asthma, and hæmorrhages; as an expectorant, in most pulmonary diseases; and is a most excellent remedy in most inflammatory diseases of children, especially if it requires to be continued for several days. In children, we prefer it to Tartar Emetic, because the latter, after some days, is liable to cause ulceration in the bowels, whereas no such effect results from Ipecacuanha, if continued for a long time. Moreover, if by accident an over-dose be administered, it need not give much alarm, for it will cause vomiting, and thus become a cure for its own effects.

Modus Operandi. As an expectorant and diaphoretic, Ipecacuanha acts by producing relaxation of the exhalants, causing them to allow a more free passage of thin watery fluid. These effects freely attend the presence of nausea. As an emetic in intermittents,

it is also valuable by relaxing the exhalant and capillary vessels, obviating that contraction which attends or chiefly causes the cold stage of agues, and thereby preventing the congestion of the deep-seated large vessels. In inflammatory diseases generally, it does good, by diminishing the heart's action, determining to the surfaces, relieving the deep-seated organs from congestion, and thus equalizing the circulation.

In cases of poisoning it is objectionable, on account of its slow operation, seldom acting before a quarter of an hour; before the vomiting, nausea occurs, and is supposed by many to be a state which facilitates the absorption of poisons; and when vomiting has ensued, it is attended with considerable prostration, a condition not to be desired in cases of poisoning.

Dose. As an expectorant and diaphoretic, Gr. ss. to gr. ij.

As a nauseant, or to aid purgatives, gr. ij. to gr. iv.

As an emetic, ℥j. to 3ss.

For children, a tea-spoonful of the Vinum Ipecacuanhæ, every quarter of an hour, until it operates.

Prep. Pulv. Ipecac. Comp.,—Vin. Ipecacuanhæ.

JUNIPERI CACUMINA ET FRUCTUS.

The tops and fruit of JUNIPERUS COMMUNIS.—
Common Juniper.

This is an evergreen shrub, usually small, but sometimes attaining an elevation of eight or ten feet. The fruit is a globular berry, formed of the fleshy coalescing scales of the ament, and containing three angular seeds. The tops also are officinal. It is common in most parts of Europe. All parts of the plant contain a volatile oil, which gives them a peculiar flavour.

The best berries come from the south of Europe, especially Trieste and the Italian ports.

They have an agreeable aromatic odour, and a sweetish, warm, bitterish, slightly terebinthinate taste. They owe their virtues to a volatile oil which may be separated by distillation. The other ingredients according to Tromsdorff are

Resin,
Sugar,
Gum,
Wax,
Lignin,
Water,
Some saline substances.

The berries impart their virtues to water and alcohol, and are largely consumed in flavouring hollands and gin.

Medical Properties. Stimulant and diuretic; they give to the urine a smell of violets; they are seldom used alone, most generally in combination with other diuretics. They are given in dropsies, scorbutic affections, skin diseases, catarrh of the bladder, and atonic states of the alimentary canal and uterus. Their good effects are not very decided. They may be used in the solid form bruised with sugar, in the dose of a drachm two or three times in a day, or in infusion, or spirit.

Prep. Sp. Juniperi Comp.,—Ol. Juniperi.

KINO.

The extract of *PTEROCARPUS ERINACEUS*.

Kino is not the product of the tree above mentioned alone. There are several varieties in the markets which are known to be produced by different trees.

1st. *East Indian* or *Amboyna Kino* is the most common, it is said to be obtained from the *Nuclea Gambia*, a native of Malacca and the island of Sumatra.

2d. *West Indian* or *Jamaica Kino* is said to be

obtained from the *Coccoloba Uvifera*; of this at present very little is now supplied.

3d. *African Kino*; the original variety is the product of a tree growing in Senegal and the neighbouring countries; its name is *Pterocarpus Erinacea*. The drug very rarely finds its way to us from Africa.

4th. *Botany-Bay Kino*; this is the concrete juice of the *Eucalyptus resinifera*. When the bark is pierced, the juice flows freely and is dried in the sun. Mr. White states that one tree affords five hundred pounds weight in one year.

However, with all the labours and disputes about the nature of the tree and modes of procuring kino, it is quite evident that there is no certain or satisfactory knowledge on the subject, nor is the want of precise information a great detriment to the medical man.

General Properties. Kino is in small irregular shining pieces of a very deep reddish brown colour, brittle, and pulverizable; the powder is of a lighter colour. It has no smell, but an astringent, bitterish, subsequently sweetish taste. It is partially soluble in cold water, more so when hot, and deposits, on cooling, a reddish sediment. Alcohol dissolves a greater proportion. It consists chiefly of a modification of tannin with extractive matter, and, in some specimens, a little resin. It has no gallic acid. The alkalies favour its solubility in water, but at the same time weaken its astringency.

Medical Properties. Kino is one of the best of the vegetable astringents applicable in most cases in which such remedies are indicated, as diarrhœa, chronic dysentery, passive hæmorrhages, leucorrhœa, diabetes, &c.

It is also useful as an injection in leucorrhœa and gonorrhœa, as a topical remedy in epistaxis, introduced up the nose, and is said to be serviceable when applied to indolent and flabby ulcers. It may be given in

powder in doses of gr. x. to gr. xxx., or an infusion may be made of it, with two drachms of kino to half a pint of water, and of this one ounce may be given three or four times a day. There is also a tincture, of which two drachms may be a dose.

Prep. Tinct. Kino,—Pulv. Kino comp.

KRAMERIA

The root of KRAMERIA TRIANDRIA. *Rhatany.*

This is a shrub with a branched spreading root of a blackish red colour, a native of Peru, very abundant about the city of Huanuco.

Rhatany root is without odour, but has a bitter, very astringent, slightly sweet taste, much stronger in the cortical than the ligneous parts. The smallest pieces on this account are preferable. The virtues of the root are extracted by boiling water, which forms a dark brown infusion. With alcohol, a deep reddish brown tincture is obtained, from which a pink precipitate falls on the addition of water. From 100 parts Vogel obtained

Red astringent matter, a modifi-	} 40
cation of tannin, - - -	
Lignin - - - - -	48
Minute quantities of gum, starch, and gallic acid.	

Most mineral salts and acids throw down precipitates with its solution, and are therefore incompatible.

Medical Properties. It is somewhat tonic and a powerful astringent. It may be given in just the same cases as kino or catechu, and in about the same doses. It is considered to be an excellent ingredient in tooth powder, and its solution is used as an astringent wash for the gums.

Dose. Gr. x. to gr. xxx. An equivalent quantity may be given in the form of infusion or tincture. An

extract is made from it, of which ten to fifteen grains may be given.

Prep. Inf. *Krameriae*.

L A C M U S.

Litmus. The prepared *ROCCELLA TINCTORIA*.

This is a variety of Lichen, very abundant in the Canary and Cape de Verde Islands. In preparing litmus the plant is collected and coarsely powdered, then macerated and fermented in close wooden vessels for several weeks with urine and either potash or soda. The colouring matter is thus evolved, and the prepared mass is removed, dried, and cut into little squares for use.

It has an alkaline urinous smell, tinges the saliva of a deep blue, and is saline and somewhat pungent to the taste. It is soluble in water, and is thus used to stain paper for chemical purposes. It is employed as a test of acids, which immediately convert the blue colour into red; and after being reddened, the blue colour is restored by the contact of alkalies.

It is not used medicinally.

L A C T U C A R I U M.

The inspissated juice of *LACTUCA SATIVA*. *Garden Lettuce.*

This plant is annual, and is now found in most warm and temperate climates. At the time of flowering it contains a quantity of milky juice, which exudes when a portion of its stem is cut off, and which collected and dried forms a brown light mass, named Lactucarium. It is collected by cutting off the stem and flowering tops, that the juice may exude: then taking this up by sponges or cotton, and squeezing out the liquid, and subsequently drying it by a gentle heat. Many other processes are spoken of, but less common and im-

portant. In its concrete state, Lactucarium somewhat resembles opium, both in appearance and odour; it is partially soluble in water; the undissolved portion appearing to contain wax, resin, and caoutchouc. It contains a free acid, a narcotic principle, but not morphia, as some have asserted.

From the lettuce an extract is made, by bruising and pressing the leaves before the periods of flowering; the expressed juice is then evaporated to a proper consistence, and is known as the *extractum lactucæ*. It is milder than Lactucarium, and very variable in its action.

Medical Properties. Anodyne, sedative, and hypnotic. It produces these effects without stimulation, and even appears to lower somewhat the heart's action. Hence it may be substituted for opium in many cases. The disease in which it has been most used is consumption, and may generally be employed to allay cough and nervous irritation. Very few place any confidence in it, and its use is very limited.

Dose. Gr. ij. to gr. v.

LAVANDULA.

The flowers of *LAVANDULA SPICA*. *Common Lavender.*

This is a small shrub, found in almost every garden in this country, and abundant in most other parts of Europe. The flowers only are officinal.

They possess a highly fragrant odour, not only when fresh but dried, and this they preserve for a long time; their taste is warm, pungent, and aromatic. Alcohol takes up their virtues, which depend upon a volatile oil, that may be procured separate by distillation.

Medical Properties. Aromatic, stimulant and tonic, useful in states of nervous debility. It is more used, however, on account of the agreeable odour, in perfumery, or as an elegant adjunct to other medicines.

Prep. Sp. Lavand.,—Sp. Lavand. c.,—Ol. Lavan-
dulæ.

LAURI BACCÆ ET FOLIA.

The berries and leaves of LAURUS NOBILIS. The
Bay Tree.

This species of laurel is evergreen, and is now found in most mild climates. It is presumed to be a native of the south of Europe, where it sometimes attains an elevation of twenty feet. The fruit is an oval berry, of the size of a small cherry, and when ripe, of a dark purple, nearly black colour. The leaves and fruit, and an oil expressed from them, are the officinal portions.

The leaves have a fragrant odour, and a bitter aromatic taste. They yield by distillation a volatile oil, on which their virtues mainly depend. They impart their flavour to water, and are often employed to improve the taste of custards and puddings.

The berries when dried are black and wrinkled, and contain two oval fatty seeds within a friable envelope: or they may be considered as drupes, with a kernel divisible into two lobes. They have a taste and odour like the leaves, but are more pungent. Besides a volatile oil, they contain a concrete, fixed, green oil, which may be procured by expression or decoction.

Medical Properties. The leaves and berries are aromatic and narcotic, but are now very rarely prescribed.

They are chiefly employed to give a pleasant odour to external remedies.

Prep. Conf. Rutæ.

LIMONES.

The fruit of CITRUS LIMONUM.

LIMONUM CORTEX.

The outer rind of the fruit.

LIMONUM OLEUM.

The oil distilled from the outer rind of the fruit.

LIMONUM SUCCUS.

The juice of lemons.

The lemon tree bears a considerable resemblance to the orange tree; but is distinguished by the leaves, flowers, and fruit. The leaves are larger, slightly indented at their edges, have footstalks, destitute of winged appendages. The flowers have a purplish tinge on their outside, and the fruit is of a paler colour, and more oval, and pointed at its extremities. This tree is a native of Asia, now cultivated in most warm civilized climates. The fruit is imported from the Mediterranean and West Indies.

The rind of the fruit has a fragrant odour, and a warm aromatic bitter taste, depending on a volatile oil, which can be separated by distillation or expression. The peel imparts its virtues to water or alcohol.

The juice is sharply acid, and of a pleasant flavour, consisting of water, citric acid, mucilage, and extractive.

Medical Properties. The rind or peel is somewhat tonic, but most used on account of its pleasant flavour to render other substances more palatable. The juice is refrigerant, and is freely used in fevers, as a refreshing and agreeable beverage. It is also given in the form of a neutral salt, or saline draught, and is very eligible when we wish the bowels not to be much relaxed. It is generally associated with potash, soda, or ammonia. The relative strength of lemon juice to citric acid is about half an ounce to eighteen grains; so

that in prescriptions the one may be substituted for the other, in case of need.

There is one disease in which lemon juice appears to exercise almost a specific influence, and that is scurvy. No imitation of it succeeds so well. Therefore it is a general provision for a ship's crew, and when required is given in doses of one to two ounces three or four times a day. It is supposed to do good by supplying oxygen to the system.

Prep. Acidum Citricum,—Inf. Aurant. comp.,—Inf. Gent. comp.,—Sp. Ammon. arom.,—Syrupus Limonum.

LINI OLEUM ET SEMINA.

The seeds and oil of LINUM USITATISSIMUM.—*Common Flax.*

This is a pretty annual plant, cultivated in almost every country, supposed to be a native of Egypt or central Asia. The seeds and the oil expressed from them are officinal. The seeds are small, shining, smooth, flattened, of a brown colour externally, white within. They have no smell, but an oily mucilaginous taste. Their cuticle contains a gummy matter, which is taken up by hot water, forming a thick viscid liquid, something like mucilage of acacia, which it resembles much in its properties, as being precipitated by alcohol, salts of lead, yielding mucic acid, when treated with nitric acid; by destructive distillation it affords ammonia, but it is uncertain whether the nitrogen is derived from the mucilage or another principle associated with it. In this mucilage, Vauquelin discovered free acetic acid, silica, and salts of potash and lime.

The parenchymatous part of the seed abounds in oil, which may be separated by expression. The ground seeds are kept in the shops under the name of *linseed meal*. This when treated with hot water forms a soft

adhesive mass, highly oleaginous, employed by chemists for luting. The cake which remains after expressing the oil, affords a nutritious food for cattle.

Medical Properties of the seed. Demulcent and emollient; a decoction of it is useful in catarrh, dysentery, nephritis, calculous affections, strangury and inflammations of the mucous membrane of the lungs, intestines and urinary passages. It is a useful article for enemata. The meal, with hot water, affords one of the most common poultices, as it is very readily made, and has generally a soothing effect. In making these poultices, care should be taken to procure the meal made from the seeds, from which the oil has not been expressed, instead of the powder which is so commonly sold in the shops, and is made by grinding the seeds after pressure. The meal free from oil is apt to become dry and hard upon the skin, and gives great pain in its removal.

Linseed oil is obtained by merely pressing the seeds, or by roasting them first and then using pressure; by the latter plan, the mucilaginous matter is removed, but the oil is more acrid. This oil is of a yellowish-brown colour, of an unpleasant odour and taste; it boils at 600, F., does not congeal at zero; easily becomes rancid, and has a property of drying on exposure to the air; hence is much used by painters, and in the formation of printers' ink.

Medical Properties. It is slightly aperient, but is seldom given on account of its nauseous taste; it is serviceable in enemata. Its more common employment is that of an application to burns, mixed with lime-water.

Prep. Cataplasma Lini,—Cat. Sinapis.

LOBELIA.

The entire plant of LOBELIA INFLATA. *Indian Tobacco.*

This plant is an annual or biennial plant, growing freely in the United States of America, about a foot in height, with a fibrous root, an erect angular hairy stem, branched about midway. The leaves are sessile, oval, acute, serrated and hairy. The flowers numerous, in leafy racemes, on short axillary peduncles. The segments of the calyx, linear and pointed. The corolla five-parted is of a delicate blue colour, with a labiate border, the upper lip in two, the lower in three segments. The fruit is an oval striated inflated capsule, crowned with the persistent calyx, and containing in two cells numerous small brown seeds. It flowers in July, and continues to do so till the commencement of the frost. The plant when wounded exudes a milky juice—all parts of it possess medicinal properties; but Dr. Eberle states that the root and capsules are most active. The plant is collected in August and September. It is at present imported in packages of the herb, closely pressed and inclosed in paper, weighing half a pound.

Dried lobelia has a slight irritating odour, and when chewed at first little, but afterwards an acrid taste, very much like that from chewed tobacco, attended with a flow of saliva and nauseating effect upon the stomach. The plant yields its virtues to water and alcohol. Water distilled from it retains its acrid taste. It has not been accurately analyzed.

Medical Properties. It is emetic, occasionally cathartic, and in small doses diaphoretic and expectorant. It is also narcotic. It closely resembles the *Nicotiana Tabacum* in its operation. If taken incautiously, it

causes violent vomiting with distressing nausea, great prostration, profuse sweating, giddiness, headach, sometimes violent purging, general relaxation, and death preceded by convulsions may ensue.

As an emetic it is too violent in its operation, too distressing and hazardous. It has been most used in asthma, and often with great success. It is given in moderate quantities, and appears to relieve by diminishing the sensibility and irritability of the nervous system, and checking the spasmodic contraction of the small bronchial tubes. It has also been used in catarrh, croup, pertussis and other pectoral affections, but not with such success as to entitle it to a preference over other and safer remedies. It has been used in hernia in the form of injection, and acts on the system much like tobacco.

It may be given in substance, tincture, or infusion.

As an emetic, in powder, the dose is from five to twenty grains.

The tincture is made with two ounces of Lobelia to a pint of proof spirits. Of this a drachm or two may be given every third or fourth hour. Half an ounce would be likely to cause distressing vomiting.

LUPULUS.

The dried strobiles of HUMULUS LUPULUS.—*Common Hop.*

This plant has a perennial root, and annual climbing stems, which are commonly made to ascend upon poles in our hop grounds. It may be considered indigenous, and is also found in many European countries, and in North America. The officinal part is the fruit or strobiles, which, when fully ripe, are picked, dried by artificial heat, packed in bales and sent to market.

These strobiles consist of leaf-like scales, of a greenish

yellow colour; they have a strong narcotic fragrant odour, and a bitter aromatic, slightly astringent taste. These qualities are imparted to water by boiling, but the aroma is lost if the heat be long continued. The most active part is a substance secreted by the scales, seen in the dry fruit in the form of a powder. This is named *Lupulin*.

Lupulin may be separated by rubbing and sifting the strobiles, of which it forms $\frac{1}{6}$ th to $\frac{1}{10}$ th of its weight. It is a fine yellow powder mixed with minute particles of the scales, from which it is freed with difficulty. It is inflammable, and when moderately heated becomes adhesive. It has the flavour of the hop. From 200 parts, Chevalier and Payen procured 105 of resin, and 25 of a peculiar bitter principle, besides volatile oil, aroma, gum, an azotized substance, and various salts. In 120 grains Dr. Ives found

Tannin	-	5
Extractive		10
Bitter principle		11
Wax	-	12
Resin	-	36
Lignin	-	46

The properties probably reside in the volatile oil and bitter principle.

Medical Properties. Tonic and narcotic, useful in diseases of general or local debility, associated with morbid wakefulness and nervous derangement.

It may be used as a substitute for opium, when the latter drug seems somewhat inadmissible. The diseases in which it is most useful are dyspepsia, and the nervous tremors, wakefulness, and delirium of drunkards, and chronic rheumatism. It may be given in substance, infusion, tincture or extract.

Hops have also been used to stuff pillows, to tranquillize maniacal patients, and are said frequently to produce the desired effect.

Dose. Of the extract, gr. v. to gr. x.

Tincture, 3j. to 3ij.

Of Lupuline, gr. v. to gr. x.

Prep. Tinct. Lupuli,—Extr. Lupuli.

MAGNESIÆ SULPHAS.

Sulphate of Magnesia, or Epsom Salts.

The latter name has been given to this salt from the circumstance of it being contained in the waters of a spring at Epsom many years ago. In this country, at present, it is procured either from sea-water or Magnesian limestone. After the removal of muriate of soda from sea-water by evaporation and crystallization, the residual liquor contains sulphate and muriate of magnesia. If this solution be evaporated, the sulphate of magnesia crystallizes with a little of the muriate, and may be separated from the other impurities. To remove the muriate, the salt should be washed with a saturated solution of the sulphate: the sulphate crystallizes, and the other drains away.

It is procured from magnesian limestone, also named dolomite of mineralogists, consisting of carbonate of lime and magnesia, by first heating it to expel carbonic acid, then comminuting it, and adding to it some hydro-chloric acid to dissolve out some lime. The residual mass is then treated with sulphuric acid, which unites with it and forms a soluble sulphate of magnesia, and with any lime a sparingly soluble sulphate of lime, which, in minute quantity, is the only impurity found in this preparation. This is the plan pursued by Mr. Henry of Manchester.

In America magnesia is found in the state of a hydrate and hydrated carbonate, and only requires the addition of sulphuric acid; and indeed in some districts it is found native, but in small quantities. In Italy and elsewhere magnesia is found in schists, associated

with sulphuret of iron. By roasting such ores a sulphate of iron and magnesia is generated, to be separated by lixiviation. The lime is added to precipitate the iron, and leave a soluble sulphate of magnesia.

Sulphate of magnesia has a bitter nauseous saline taste. It crystallizes in quadrangular prisms, terminating in a four-sided pyramid, or a dihedral summit. It is commonly in the form of acicular crystals; they contain about fifty-one per cent. of water, are soluble in their own weight of water at 60° , and in three-fourths of their weight of boiling water.

<i>Composition.</i>	1 sulphuric acid	=	40
	1 magnesia	=	20
	7 water	7×9	= 63
			<hr/>
			123

This salt is decomposed by potash, soda, and their carbonates, by lime, baryta, and strontia. The bicarbonates of soda and potash do not decompose it without heat.

Medical Properties. Sulphate of magnesia is a cooling saline purgative, and with proper management a diuretic. It produces watery evacuations without much pain. It is very properly administered in fevers and inflammatory diseases, as it is also refrigerant. It possesses the advantage too of quieting the stomach, sometimes when other remedies fail, and will be retained when every thing else is rejected; this is remarkably observed in some cases, in which doses of twenty or thirty grains, frequently repeated, have checked obstinate vomiting. To act on the kidneys, the surface of the body should be kept cool, and the person taking it have exercise. It is constantly added to other purgatives, such as senna, the griping qualities of which it is said to subdue. Its action is increased by being taken in a considerable state of dilution, or with a little additional dilute sulphuric acid, as half a drachm to a

drachm, or with a small quantity, that is, about a sixth or fourth of a grain of tartarized antimony. The most pleasant modes of taking are either in infusion of roses, or in highly carbonated water, to which some syrup of lemons has been added.

How does this salt, and most saline purgatives act, is a question, usually answered by saying that they stimulate the mucous membrane of the intestinal canal, irritating the exhalants and mucous follicles, and causing them to throw out a large quantity of fluid. This opinion does not appear altogether tenable, as it generally occurs that when the mucous membrane is stimulated or irritated there is sympathetic excitement in the circulating system generally, which is not the case when sulphate of magnesia is taken: on the contrary, the pulse is weakened, there is generally feeling of debility, sense of cold, and prostration. Hence we might be inclined to explain the operation on other principles. It appears more probable that a sedative impression is made upon the exhalant vessels, by which they become relaxed, and the increased fluid escapes in consequence of their passive state.

Dose. ʒss. to ʒjss.

Prep. Magnesiae Carbonas.

MALVA.

The entire plant of MALVA SYLVESTRIS. *Common Mallow.*

This is a very common plant, not only in England, but in many other parts of the world.

The herb, flowers, and root have a weak herbaceous, mucilaginous taste, without any odour. They abound in mucilage, which they impart to water. An infusion and tincture of the flowers has a blue colour, and may be used as a test of acids and alkalies, being reddened by the former, and turned green by the latter.

Medical Properties. Demulcent and emollient. The decoction may be employed in catarrhal, nephritic, or dysenteric affections, and any other cases which are relieved by mucilaginous liquids. It also forms an emollient injection; and the fresh plant affords an emollient, relaxing poultice.

Dose. Ad libitum.

MANGANESII BINOXYDUM.

The *Binoxyde, peroxide, or black oxide* of *Manganese* is not used medicinally. It is employed in pharmacy to assist in setting free chlorine. It exists naturally in this form, and is more abundant than any other ore of Manganese. It is used in the arts for obtaining chlorine for the purposes of bleaching, to give a black glazing to pottery, or to free glass from the colour which it derives from the peroxide of iron.

Prep. Calx. Chlorinata, Liq. Sodæ Chlorinatæ.

MANNA.

The concrete juice of ORNUS EUROPEÆ. *Flowering Ash.*

Besides being procured from this tree, manna is said to flow from many others in various parts of the world; still the substance does not exactly resemble the product of this and some of the other varieties of ornus.

The flowering ash is a tree of moderate size, growing from twenty to twenty-five feet high, and is a native of Sicily, Calabria, and Apulia. During the hot months, the juice exudes spontaneously and concretes upon the bark; and to assist the exudation, incisions are made longitudinally on one side of the trunk. These incisions are repeated the following year, and thus alternately for thirty or forty years. Straws or clean chips

are sometimes placed so as to receive the juice which concretes upon them. It varies in appearance, according to the mode of collecting it, the nature of the season, and period of the year. The best comes from Sicily. The varieties met with in the markets, are separated into three sorts. 1st. *Flake manna*, in large long flattish pieces of a light colour, on breaking presenting a shining crystalline appearance.

2d. *Common manna*, is more in masses, and contains many impurities; it appears to be a mixture of portions of flake manna, with a more liquid substance of a browner colour.

3d. *Fat manna*, is collected later in the season, when the weather is cooler, and there is more rain. It is less disposed to concrete, and therefore flows down the tree into hollows or receivers at the bottom. It is soft and viscous, and of a light brown colour.

Properties. Manna has a slight odour, and a sweet taste, somewhat nauseous in the browner kind. It melts with heat. When pure it is soluble in three parts of cold, and in its own weight of boiling water. Alcohol dissolves it, and if hot alcohol be saturated with manna, on cooling, it is deposited in a crystalline form. Fourcroy and Vauquelin, by analysis, discovered in it,

A crystallizable saccharine principle named *mannite*, amounting to 75 per cent.

True sugar.

Yellow nauseous matter, on which the purging depends.

A little mucilage.

Manna when long kept and exposed to heat is apt to ferment. It is the sugar, not the mannite, which undergoes fermentation. The darker coloured manna is most purgative.

Medical Properties. A mild laxative and purgative, and in consequence of its sweetness is a very good adjunct to more powerful medicines. By itself it is a fit medicine only for young children, as the dose to purge an adult must be large, and then would cause some

flatulence and griping. The most common use of it is to add it to senna draughts.

Dose. For a child, ʒj. to ʒiv.
an adult, ʒj. to ʒij.

Prep. Conf. Cassiæ.

MARANTA.

Arrow-root, the fæcula of the root-stock of MARANTA ARUNDINACEA.

This plant is a native of South America and the West Indies, where it is abundantly cultivated. In the West Indies, arrow-root is prepared in the following manner. The rhizomes are dug up when a year old, washed and beaten into a pulp, and thrown into water, and agitated, so as to separate the amylaceous from the fibrous portion. The fibres are removed by the hand, and a milky liquid remains, consisting of the starch suspended in the water; this is then strained in coarse linen and allowed to stand, that the fæcula may subside, which is collected, again washed, then dried in the sun. This substance is supposed to be procured from other varieties of maranta, and also from plants of different natural orders.

Arrow-root is in the form of a white powder or small pulverulent masses, without smell or taste. It is pure starch, like that procured from wheat or potatoes. It is said to be often adulterated with the starch of the latter, in consequence of the difference of expense. The fraud is of little importance, as the one is quite as good as the other, unless it be that there is a slightly unpleasant taste in that procured from the potato.

Medical Properties. Arrow-root is nutritious and demulcent, affording a light, mild, digestible article of diet, well fitted for the sick and convalescent, very serviceable in bowel complaints, and diseases of the urinary passages.

It is much used during the weaning of infants, or when the mother's milk is deficient. It is prepared for use by dissolving it in hot water, with which it forms a thick gelatinous liquid. One table-spoonful is sufficient for a pint of water. It should be first made into a paste with cold water, then the boiling water be gradually poured upon it, and, to make it more palatable, sugar or lemon juice may be added. For children, milk is generally employed instead of water.

M A R M O R.

Marble.—Hard Carbonate of Lime.

Marble is found in several parts of the world. The best is from Carrara, Luni, and Paros. There are marbles in this country, but generally not so pure as to be suited for medical use. When they are coloured, they contain some metallic impregnations. Marble is used to obtain pure lime, by burning it, to expel the carbonic acid, or to afford carbonic acid, by being treated with a stronger acid.

M A R R U B I U M.

The entire plant of MARRUBIUM VULGARE.—*Common Horehound.*

This is a common indigenous herbaceous plant, found on the road sides, and by ditches. It has a strong, rather pleasant odour, which is diminished by drying, and lost by long keeping. Its taste is bitter and durable. The bitterness is extracted by water and alcohol.

Medical Properties. Horehound is more a popular remedy, than one made use of by medical men. It is considered to be tonic, diaphoretic, and diuretic. It was formerly considered to be deobstruent,

and was prescribed in chronic hepatitis, jaundice, amenorrhœa, and phthisis. It is now most employed in catarrh, and other chronic affections of the lungs, attended with cough and copious expectoration. It is given in the form of infusion, or in substance, and is used also to flavour a syrup and lozenges.

Dose. 3ss. to 3j.

MASTICHE.

Mastich, the resin of *PISTACIA LENTISCUS*.—*Mastich Tree*.

This is a small tree or shrub, a native of countries bordering on the Mediterranean. The drug is chiefly collected in the island of Scio, by making incisions in the trunk and principal branches, from which the juice exudes, and either hardens in the form of tears upon the bark, or drops upon the ground where it is received upon cloths, and concretes in regular masses; the tears are most esteemed.

Mastich is almost inodorous, unless rubbed or heated, when it becomes fragrant. It has a terebinthinate taste. Alcohol dissolves four-fifths of it, leaving a viscid substance, which is brittle when dried, and to which the name *masticin* has been applied. It swells up and softens, although it is not dissolved, in alcohol. It is quite soluble in ether and oil of turpentine, not in any degree in water. In addition to the resin and masticin, mastic appears to contain a minute quantity of volatile oil.

Medical Properties. Mastich is scarcely used now as a medicine. Some imagine it to be a stimulating expectorant and diuretic, and occasionally prescribe it in gleet and lencorrhœa; it has been given in debility of the stomach, and hæmoptysis from ulceration. It enters into the composition of some dinner pills as they are called, and is supposed to act merely, by retarding

the solubility of the other substances combined with it. In Turkey, the women chew it, to preserve the gums, and to sweeten the breath. An alcoholic solution of it, is dropped into carious teeth by dentists, or the substance itself is softened and put in, and appears sometimes to give relief. The best use to make of it, is for varnishes.

Prep. Tr. Ammoniae Composita.

M E L.

Honey, a fluid substance, collected from the flowers, and prepared by the APIS MELLIFICA, *Honey-Bee*.

It is rather uncertain what precise part the body of the bee plays, in the elaboration of honey. The elements of it, no doubt, are collected from the flowers, and probably assume a new form, by passing through the body of the insect. Honey, which is collected from hives that have never swarmed, is called virgin honey. The best is that which is allowed to drain from the comb. In addition to the honey of our own country, we procure it largely from France.

Honey has a peculiar odour, which varies with the flowers from which it was collected, and a sweet slightly aromatic taste, followed by a sense of acrimony in the fauces. Cold water dissolves it readily; alcohol less so. It contains

Crystallizable sugar.

Uncrystallizable sugar.

An aromatic principle.

An acid.

Wax.

Mannite (according to Guibourt).

The inferior honey contains a large proportion of uncrystallizable sugar and vegetable acid. Honey is adulterated sometimes with starch, to make it appear whiter and finer. This is easily detected by water,

which will dissolve the honey, and the starch will fall to the bottom, and may be tested by a solution of iodine.

Medical Properties. Honey is used in medicine chiefly to sweeten substances, in the same way as sugar. It is rather more disposed to run off by the bowels. Some call it a detergent, and thus use it in the Mel. Rosæ, and Mel. Boracis.

Prep. Oxymel : Oxym. Scillæ.

MENTHA PIPERITA.

Pepper-Mint. The entire herb.

This is an indigenous plant, with a perennial root, and annual stems. It flowers about July and August, and just before flowering should be cut down for medical use.

The herb has a penetrating strong odour, somewhat like camphor, and a warm aromatic pungent camphorous taste, attended with a sensation of coolness when air is admitted into the mouth. These qualities depend upon a volatile oil, which may be collected by distillation. The oil contains a small portion of camphor. The virtues are imparted freely to alcohol, and, in a minor degree, to water.

Medical Properties. Peppermint is one of the best aromatic stimulants, antispasmodics, and carminatives. It relieves nausea, spasmodic pains of the stomach and bowels, and is useful to cover the taste of some unpleasant medicines. It may be used in infusion or a spirituous solution; but the volatile oil is most convenient either alone, or in preparation.

Prep. Aq. Menth. Pip.,—Ol. Menthæ Pip.

MENTHA PULEGIUM.*Pennyroyal.*

This is also an indigenous plant, possessing a strong odour and taste, much less agreeable than the former. Its virtues depend upon a volatile oil, which can be separated by distillation.

The chief and only difference in its properties, if such there be, between it and the other mints, is, that it appears to have a slight action as an emmenagogue, and with this view it is sometimes prescribed.

Prep. Ol. Pulegii,—Aqua Pulegii.

MENTHA VIRIDIS.*Spear-mint.*

This is likewise an indigenous plant, more frequently found than the other species. In appearance it closely resembles the Peppermint, but may be distinguished by the flowers being arranged more in the form of a spike, and the leaves being sessile; whereas the leaves of Peppermint are petiolate.

This plant owes its virtues to a volatile oil, which is less pungent than that of Peppermint, and to many persons more agreeable.

Medical Properties. Similar to those of Peppermint. It is given in a similar manner, and in similar doses.

Prep. Aq. Menth. Vir.,—Ol. Menth. Vir.,—Sp. Menthæ Viridis.

MENYANTHES.

The entire plant of *MENYANTHES TRIFOLIATA*,—*Buckbean*, originally *Bog-bean*.

This is a very pretty herbaceous plant, always found in boggy and marshy places. The whole plant is officinal, but the leaves only are commonly kept in shops.

The taste of *Buckbean* is very bitter, and somewhat nauseous; the odour of the leaves is faint and disagreeable. Its virtues depend upon a bitter extractive matter, which is soluble both in water and alcohol.

Medical Properties. Tonic, and in large doses somewhat purgative and even emetic. Its aperient nature may render it desirable, when most other tonics are objectionable on account of the opposite effect. It was celebrated formerly in the cure of nervous diseases, intermittents, scurvy, dropsy, and many other affections. It is said to be an excellent medicine in chronic rheumatism. At present it is very rarely prescribed.

Dose. Gr. xx. to gr. xxx., or an equivalent quantity in infusion, decoction, or tincture.

MEZEREUM.

The bark of the root of *DAPHNE MEZEREUM*.—*Mezereon*.

This is a shrub, which is indigenous, growing wild in some parts of the country, and cultivated in almost every garden. It seldom exceeds three feet in height; is readily recognized by its pretty pink flowers, which open in March, and before the leaves have expanded themselves. The fruit is a berry of a red colour when ripe, oval, and containing a single seed. Other varieties

of *Daphne*, as the *D. Laureola* and *D. Gnidium*, are considered to be the sources of the drug in many instances.

The bark of the root is only officinal with us; but that of the stem is almost equally efficacious, and is met with in the shops mixed with that of the root. The berries and leaves possess also active properties, and the former have often proved fatal to children. They act as a powerful narcotico-acrid poison.

Mezereon should be in the form of thin strips, about an inch broad, partially rolled or quilled, covered with a grey epidermis, which can be easily separated. When fresh, it has a nauseous smell; but when dry, is almost inodorous. Its taste at first sweetish, is afterwards acrid, and highly irritating. It yields its virtues to water by boiling. Gmelin and Bär discovered in Mezereon

An acrid resin, associated with wax.

Yellow colouring matter.

Reddish-brown extractive matter.

Uncrystallizable sugar.

Gummy matter, containing azote.

Woody fibre.

Malic acid, and malates.

In addition to the above, chemists have discovered a crystallizable substance, named *Daphnin*, which has an austere bitter taste. This is not the active matter of Mezereon. The acrid resin is the powerful ingredient; it is procured by boiling Mezereon in alcohol; on cooling, wax is precipitated, and then the alcohol is to be distilled off. The residue is to be washed with water, and the pure resin remains. This is of a very dark colour, hard and brittle, and of an exceedingly acrid and permanent taste.

Medical Properties. The fresh bark applied to the skin is capable of producing vesication; and, for this purpose, has been much used in the South of Europe. The dried bark, moistened with vinegar, is used occasionally with the same intention, but is not very certain

in its effects. It has been introduced into ointments, to irritate blistered surfaces, as a substitute for Unguentum Sabinæ.

Internally administered, Mezereon is a stimulant determining to the skin and kidneys. It is also considered to be an alterative. At one time it had the character of being antisyphilitic, and is still used for secondary symptoms. Now we give it occasionally in skin diseases, chronic rheumatism, and scrofulous affections. The decoction has been used as a gargle in atonic disease of the throat, and, masticated, becomes a sialogogue. It is rarely given, except in combination, as in the compound decoction of sarsaparilla.

Dose. Gr. v. to gr. x.

Of the decoction ʒss. to ʒjss.

MORA.

Mulberries, the fruit of MORUS NIGRA.—*Mulberry Tree.*

This tree is supposed to be a native of Persia, and is now extended over many parts of the world. The fruit only is officinal. This is oval, of a dark-reddish-purple colour. It consists of numerous minute berries united together, and attached to a common receptacle, each containing a single seed, the succulent envelope of which is formed by the calyx.

It is inodorous, has a sweet mucilaginous acidulous taste, and abounds in a deep red juice. The acid is chiefly tartaric.

Medical Properties. Mulberries are refrigerant and laxative, and are very grateful to persons in fevers. An elegant syrup is made from the juice, and is a pleasant addition to gargles. It is objectionable on

account of suffering decomposition very readily, from the mucilaginous matter in it. Mulberries are, however, much more employed as food than a medicine.

Prep. Syr. Mori.

MOSCHUS.

Musk, a secretion in the preputial follicle of the MOSCHUS MOSCHIFERUS.—*Musk Deer*.

This animal is an inhabitant of the central mountainous districts of Asia, extending from India to Siberia. It is exceedingly timid, and is hunted generally at night. The musk is contained in an oval hairy projecting sack, found only in the male, situated between the umbilicus and the prepuce. It is lined internally by a smooth membrane, which is corrugated and thrown into a number of folds, forming incomplete partitions. In the vigorous adult animal it contains six drachms of musk; but in the old, seldom more than two; and none in the young. It is secreted by the lining membrane, and in the living animal forms a consistent mass. At first, it is probably liquid, and a portion is occasionally forced out by the animal.

Musk is imported from China, Calcutta, and Russia. The first is the best, and is known by being in rounder bags, covered with reddish-brown hairs, and containing not more than $1\frac{1}{2}$ drachm to two drachms of musk, large-grained, dark, strong scented, and having an ammoniacal odour.

Properties. The odour of musk is so diffusive that one part communicates its odour to 5000 parts of an inodorous powder. In some persons it occasions headach and other disagreeable symptoms. The taste is bitter, disagreeable, and somewhat acrid. It is inflammable, leaving a light spongy charcoal. On analysis, it yields a great number of proximate prin-

ciples, which are ammonia, stearin, elain, chlolesterin, an acid oil with ammonia, a volatile oil, muriates of ammonia, potash and lime, gelatin, albumen, fibrin, carbonated matter soluble in water, carbonate and phosphate of lime, hair and sand. By the same analysis it yielded 47 per cent. of volatile matter, chiefly ammonia. Other chemists have found a less quantity. This however varies, as well as the solubility in different menstrua. From 50 to 70 parts per cent. are soluble in water, and from 25 to 62 in alcohol. Sulphuric ether is a good solvent, the watery infusion has a reddish brown colour, a strong odour, and an acid reaction. Potash, added to musk, disengages ammonia. If carefully preserved in bottles, musk retains all its virtues for a very long period.

Musk is very often adulterated, in consequence of its high price. For this purpose dried blood is much used, also sand, lead, iron-filings, hair, animal membrane, wax, benzoin, storax, asphaltum, and many other substances, so blended with real musk that the odour does not appear altered. Musk, which burns with difficulty, has a feeble odour, a colour either pale or deep black, feels gritty to the finger, is very moist, or contains obvious impurities which should be rejected.

Medical Properties. Musk is stimulant and antispasmodic, increasing the action of the heart and appearing to rouse the nervous energy without producing any marked cerebral symptoms. It relaxes spasm in some cases in a decided manner: the diseases in which it is most properly given, are those in which there is a prostrate condition of the system, with great nervous agitation or irregular muscular action; such as low typhus, with subsultus tendinum; tremors and singultus. It has been found useful in gout in the stomach, and other spasms of that organ; in obstinate hiccough, convulsions of children depending upon disorder of the intestines, tetanus in large doses, epilepsy, hysteria, asthma, pertussis, cholera, and colic.

The high price of the substance precludes its free and general use, even admitting that it has powerful virtues. It may be given in substance in the form of pill, or in mixture suspended by mucilage, or in the form of tincture.

Dose. Gr. x. to gr. xx.
Of the mixture ℥j.

Prep. Mist. Moschi.

MUCUNA.

The hairs on the pods of MUCUNA PRURIENS.—
Cowhage.

This plant has an herbaceous annual stem, and a perennial root. It entwines itself upon trees in its neighbourhood. It grows both in the East and West Indies. The fruit is a coriaceous pod, shaped like the italic letter S, about four inches long, and covered with brown bristly hairs, which easily separate, and stick to the fingers when handled, causing a most intolerable itching. The pod only, covered with the hairs, is imported. In some Pharmacopœias the plant is described as a variety of Dolichos; in others, of Stizolobium.

Medical Properties. Cowhage is only used as an anthelmintic, for the removal of either Tænia, Lumbricus Teres, or Ascarides. Its action is purely mechanical, and it is remarkable that it does not irritate or inflame the mucous membrane of the bowels. The spiculæ pierce the worms, and either kill them or cause them to be detached from their nidus in the mucus. An objection raised against it is, that it causes intolerable irritation about the anus and fauces. This I cannot subscribe to, as I have known many cases in which cowhage has been given without any complaint of the kind being made. There may be a little tickling

in the fauces, which can be removed by eating some bread and drinking some mucilaginous liquid. The mode of giving it is to mix up the hairs pretty thickly with treacle or syrup, and to let the patient, (if a child,) take a tea-spoonful of it every morning; and an adult may take a table-spoonful: a purgative should be administered every third day. It has been suggested, rather absurdly, to rub cowhage on the body in poisoning by opium, to rouse the patient. This operation would be too disagreeable to the attendants to admit of being practised.

Dose. Gr. v. to gr. x.

MYRISTICA ET MYRISTICÆ OLEUM.

The Nutmeg, the kernel of MYRISTICA MOSCHATA, and the volatile oil distilled from the *Nutmeg*.

The Nutmeg-tree has a very handsome appearance, somewhat resembling the Orange-tree, and grows to a height of 25 to 30 feet. The fruit, which is officinal, is round or oval, of the size of a small peach, with a smooth surface, at first green; when ripe, yellow, and marked with a longitudinal furrow. This opens and separates into two portions, disclosing a yellowish-red reticulated membrane or arillus, commonly called *mace*, closely investing a brown shining shell, which contains the kernel or Nutmeg. There are several varieties of it cultivated in the East Indies.

This tree is a native of the Moluccas, and is abundant in the group named Banda. It is now cultivated at Sumatra, Java, Penang, and some other parts of the East Indies; and has also been introduced into the Isle of France and Bourbon, and some of the West Indian islands.

In the Moluccas, there are three gatherings or crops of Nutmegs in the year. When the fruit is gathered by the hand, the outer part is removed and rejected as

useless; the mace is then separated, flattened, and dried in the sun, and subsequently sprinkled with salt-water, to assist in its preservation. The nuts are dried in the sun or by ovens, till the kernels rattle in the shell. They are then broken open, and the kernels having been removed are steeped in a mixture of lime and water, probably to preserve them from the attack of worms; then cleaned, and subsequently packed in chests or casks for exportation.

Properties. The interior of the Nutmeg is of a yellowish colour, varied with reddish-brown branching irregular veins, which give it a marbled appearance. These dark veins abound in an oily matter, upon which the medical properties depend. The odour of Nutmegs is fragrant, the taste warm, aromatic, and pleasant. The virtues are extracted by alcohol and ether. From 500 parts, M. Bonastre procured,

White insoluble oily matter (stearin)	-	120
Coloured soluble oil (elain)	-	38
Volatile oil	-	30
Acid	-	4
Fæcula	-	12
Gum	-	6
Lignin	-	270
Loss	-	20

The volatile oil which may be procured by distillation, is of a pale straw colour, and possesses strongly the flavour of the nutmeg. It is lighter than water, but by agitation in water, is separated into two parts, one sinking, the other remaining on the surface.

By pressure, with heat, the kernel affords an oily matter which becomes solid on cooling, and is commonly although improperly called *oil of mace*. It is a mixture of fixed and volatile oil.

Nutmegs are sometimes deteriorated by having been heated and punctured to extract the volatile oil, which can be done without any visible change in the appearance of the surface. This is called sweating them.

They should be rejected when light, of a feeble taste and smell, or worm-eaten.

Mace has a taste and odour very like nutmeg. It contains a volatile and fixed oil, a large quantity of gummy matter, like amidine and gum, and a small quantity of lignin: the best mace is not brittle, should be rather dark coloured, and have a strong smell and taste.

Medical Properties. The nutmeg is principally used as an aromatic, but it possesses at the same time narcotic qualities. In large doses it causes stupor and delirium, and cases are recorded where it is thought to have produced a fit of apoplexy, consequently it should be avoided by persons who have any tendency to that disease. It is used to cover the taste of other medicines, and more freely as an agreeable addition to farinaceous food, or drinks, in cases of languid appetite or delicate stomach. It is reduced to powder, by grating, for common use. The properties of mace are similar.

Dose. Gr. v. to xx.

Of volatile oil three to five drops.

Prep. Conf. Aromat.—Sp. Amm. Arom.,—Tinct. Lav. comp.—Sp. Myristicæ,—Ol. Myristicæ.

MYRRHA.

The Gum Resin of BALSAMODENDRON MYRRHA.—*Myrrh Tree.*

The tree from which Myrrh was procured for a long time was unknown: we are indebted for a knowledge of it to Ehrenberg, who found it growing in Arabia Felix, and found upon it the Gum-Resin. The tree also grows in Abyssinia. It is rather of a small size covered with a greyish bark, from which the myrrh exudes.

The varieties of myrrh in the market, are known as East Indian and Turkey. The former is conveyed to India from Abyssinia, the latter finds its way through Egypt, and is by far the best.

Properties. Myrrh is in irregular shaped pieces, sometimes in tears, of a reddish brown colour, translucent when very good, of a peculiar strong aromatic odour, and a bitter aromatic taste. It is brittle and pulverizable; it is partially soluble in water, alcohol, and ether: according to the analysis of Brandes 100 parts of myrrh contain,

Of volatile oil	-	-	-	2.60
Soft bitter resin, soluble in ether				22.24
Tasteless resin insoluble in ether				5.56
Gum, with traces of salts	-			54.38
Bassorin	-	-	-	9.30

Besides salts of potash and lime, water, and impurities.

The volatile oil can be obtained separate by distillation, and carries with it most of the aroma of myrrh.

Medical Properties. Myrrh is stimulant and tonic, and is considered by some to be expectorant, antispasmodic and emmenagogue; whatever be its virtues nobody gives it alone. It is always associated with other medicines, either to moderate or assist their action, such as preparations of iron or aloes. The diseases in which it has been most given, are phthisis, chronic catarrh, bronchitis, and asthma, and pectoral affections generally, where mucus is secreted and there is insufficient power to expel it, chlorosis and amenorrhœa. It is a good application to spongy gums in the form of tooth-powder, or the solution as a wash for them. Myrrh may be given in substance or tincture or suspended in mixtures by mucilage.

The tincture of myrrh of the pharmacopœia is made with rectified spirit, and consequently holds the resin and oil in solution, when this is added to water it makes a

turbid liquid, and by degrees most of the myrrh is separated. This tincture is an agreeable addition to liquids for gargles.

Dose. Gr. v. to gr. xv.

Preparations. Tinct. Aloes c.—Mist. Ferri comp.,—Pil. Al. c. Myrrha,—Pil. Ferri c.—Pil. Galb. c.,—Pil. Rhei c.,—P. Myrrhæ.

NUX VOMICA.

The seeds of *STRYCHNOS NUX VOMICA*.

The tree is of a moderate size, a native of the East Indies, growing in Malabar, Ceylon, and many other parts. The wood and root are very bitter, and are used, in India, for the cure of intermittents. The fruit is a round berry, of the size of an orange, covered with a smooth yellow rind, and containing within, a soft pulp, and several seeds. The seeds only are officinal with us. These seeds are flat, circular, somewhat like buttons, nearly an inch in diameter, with a velvety covering of very delicate fibres attached to a fragile coating, which invests the interior nucleus or kernel. They are very hard, requiring to be rasped, before they can be powdered. Their taste is intensely bitter. They impart their virtues to water and alcohol. In *nux vomica* Pelletier and Caventou discovered two alkaloids, named *strychnia* and *brucia* associated with *igasuric acid*, recently named *strychnic*. The other constituents are yellow colouring matter, concrete oil, gum, starch, bassorin, and a small quantity of wax. The active principles are the alkaloids.

Strychnia is found not only in this nut, but likewise in the bean of *St. Ignatius* which contains it in a much larger proportion, and unmixed with *Brucia*. This substance crystallizes in prisms, is permanent in the air,

inodorous, but excessively bitter, so much so that it communicates a decided bitterness to 600,000 parts of water. It is soluble in 7000 parts of water at 50 and 2500 of boiling water. Alcohol dissolves it sparingly when cold, freely when heated. Its ultimate elements are oxygen, hydrogen, nitrogen, and carbon.

For mode of preparation, vide London Pharmacopœia.

Medical Properties. Nux vomica, and of course strychnia are tonic and stimulant, shewing their effects most on the nervous system, especially the motor nerves of the spinal chord. In large doses it is a very powerful poison, and therefore requires in all cases to be administered with great caution. The diseases in which it is given are paralysis, intermittents, chorea, epilepsy, dyspepsia, dysentery, mania, and hypochondriasis. The diseased state in which it is most likely to do good is paralysis, and particularly when it is of a partial character and not immediately depending upon the brain, as paraplegia, and the palsy which attacks the arms of those persons who work with lead, as painters and others. It does not appear to act much on the brain.—When it is taken by a paralytic person, and begins to produce an effect, a sense of tingling, heat, and pricking is felt in the paralyzed part, and the muscles contract involuntarily, producing a kind of subsultus tendinum; whilst this is going on, the healthy parts may not and usually are not in any degree affected: having arrived at this point, we must desist from increasing the dose, and indeed rather diminish it. Should its use be discontinued, and subsequently resumed, we must recommence with the small doses, and not with those the patient took, when he left it off. By not attending to this, many persons have lost their lives. In larger doses it causes tetanic contractions of the muscles of the body, and by affecting those of respiration, prevents the changes of the blood, and asphyxia and death ensue.

Some have explained its fatal operation, by stating

that it exhausts the irritability of the heart, but this is not borne out by facts; others imagine that it partly destroys by contracting the small branches of the arteries, and thus overloading the heart: whenever it occasions a constriction of the abdomen, tightness of the chest, heat in the stomach, and violent spasmodic contraction of muscles, a brisk purgative should be given, and the medicine be discontinued for a day or two. Paralysis of the bladder, incontinence of urine from paralysis of the sphincter, and amaurosis, are said to have been often relieved by it.

Nux vomica may be used in the form of powder or the alcoholic extract prepared from it, or *strychnia*, which acts in a similar manner, but is by far more powerful.

Dose. Of the powder, gr. v., to be gradually increased.

Of the extract, gr. ss. to gr. ij.

Of *strychnia* gr. $\frac{1}{16}$ to be very cautiously increased.

It can seldom be given in more than one grain doses.

Brucia acts in a very similar manner to *strychnia*, but is much less active. It is estimated that twelve grains are only equal to one grain of *strychnia*, so that about a grain may be given for a dose.

It is chemically distinguished from *strychnia* by being reddened by nitric acid in almost exactly the same manner as *morphia*.

OLIBANUM.

The gum resin of *BOSWELLIA SERRATA*.

The tree now named as the source of this substance, grows in India, and is of a considerable size. It is most abundant in the neighbourhood of Nagpur. It

appears to be produced by another tree in Africa and Arabia, and differs somewhat in appearance from the Indian specimens, being of a somewhat darker colour, and some of the pieces much softer. Indian Olibanum consists of yellowish, roundish tears, generally covered by a whitish powder produced by friction. It has a balsamic, resinous smell, and an acrid, bitterish, rather aromatic taste. It burns with a fragrant odour, and is thought to have been the frankincense of the ancients. Triturated with water, it forms a milky liquid. Alcohol dissolves three-fourths, and the tincture is transparent. From 100 parts Braconnot obtained of

Volatile oil	-	-	-	8
Resin	-	-	-	56
Gum	-	-	-	30
Glutinous matter insoluble in water or alcohol	-	-	-	3.2
Loss	-	-	-	0.8

The oil may be separated by distillation, and resembles that of lemon in colour, and somewhat in smell.

Medical Properties. Stimulant, but most rarely used: some give it in gleet and leucorrhœa, but there are far more certain remedies. It may be burnt to scent sick rooms, or as incense in catholic chapels.

OLIVÆ OLEUM.

The oil expressed from the drupes of the *OLEA EUROPEÆA*.—*Olive tree*.

This tree is a native of the Levant and South of Europe, where it is most abundantly cultivated, forming groves which have been much celebrated by poets and historians. It grows to a height of from 15 to 20 feet, bearing fruit at the second year of its growth, and will continue to do so for at least one hundred years. The fruit, the portion for which the olive tree is culti-

vated, is a smooth oval drupe, of a green or violet colour, with a fleshy pericarp, and a very hard nut of a similar shape.

In the state, in which the fruit is first gathered, it is exceedingly acrid; but when macerated in water, or an alkaline solution, and afterwards put into a solution of common salt, it becomes mild and a pleasant article of diet. The pericarp abounds in a fixed oil, which constitutes its greatest value. The oil is procured by bruising the olives in a mill, and then submitting them to pressure. The best oil, called *virgin oil*, is obtained from the fruit before it is ripe, and immediately pressed. It is known by its greenish hue. The common, ordinary oil, is procured from very ripe olives, or from those which have afforded the virgin oil. The commonest oil is from fruit which has been thrown into heaps, and allowed to ferment for several days, or from the residue left after obtaining the better oil, broken up, exposed to fermentation, and again pressed. The best oil is brought from the South of France, though, to the oil generally, we apply the term Florence oil.

Good olive oil has scarcely any smell, but a bland rather sweet taste. It is lighter than water, begins to concrete at 38 F. At 32 F. the stearin is solid, and the elain may be separated by pressure, or by the action of alcohol, which will dissolve it, and leave the concrete principle.

When exposed to the air, it is apt to become rancid, and acquires a disagreeable smell, a sharp taste, thicker consistence, and a deeper colour; and the change is promoted by heat.

Medical Properties. Olive oil is nutritious and mildly laxative, and is given sometimes in cases of irritable intestines, where more active remedies cannot be given, and sometimes as a substitute, although mild, for castor oil. It is useful where strong alkalies have been taken as poisons, by forming a soapy and com-

paratively inert compound. It has been recommended for worms, which it is imagined to destroy, as it does insects, by blocking up the respiratory pores, and is a common ingredient in laxative enemata. It is much used externally to sheath irritated surfaces from the action of the air, and is employed as a vehicle or diluent for more active substances. The most extensive use made of it is, in pharmacy, as a constituent of liniments, ointments, cerates and plasters.

Dose. As a laxative, one to two ounces.

OPIMUM.

The inspissated juice of the unripe Capsule of the *PAPAVER SOMNIFERUM*.

This plant is presumed to be a native of Asia, but is now cultivated in Europe, even in our own country. There are two varieties which afford opium, known as the white and black poppy. The plant is annual and herbaceous, with a smooth stem, rising to a height of three feet, and, in favorable situations, still more. The flowers are large and polypetalous, the calyx is dissepalous, the leaves large, ovate, sessile, and irregularly dentate. The seed vessel is a capsule, which is smooth, glaucous, of a rounded form, about two inches in diameter, somewhat flattened at the top and bottom, crowned with the persistent stigma, the diverging segments of which are arranged in a circle upon the summit. It contains numerous white seeds, which, when ripe, escape through small openings beneath the stigma. In the black poppy, the seeds are of a darker colour.

All parts of the fresh poppy yield a white milky juice, which, however, does not contain the active principles of the opium. It is the capsule which yields the juice, in which the virtues of the plant reside. The

dry capsule retains only a small portion of active matter, still sufficient to cause them to be used medicinally. The seeds are destitute of narcotic qualities, and are even used as an article of food. They abound with a bland oil, which may be separated by pressure, and may be used for the same purposes as olive oil. It is much in use in France, where the plant, in some departments, is cultivated for its seeds alone. The poppy does not appear to elaborate its potent principles before a certain period of its growth, for we are told that in Persia the young plant is often used as a mild pot-herb. For the production of opium, it is cultivated most extensively in Turkey, Egypt, Persia, and India.

Opium is procured in the following manner, which resembles the process employed from the remotest periods, in which the use of this drug is mentioned. The unripe capsules about half-grown are selected for the purpose. In the evening, about sun-set, longitudinal and oblique superficial incisions are made in the capsule, by an instrument which can only cut to a certain depth; during the night the juice exudes, and is scraped off in the morning, and put into proper receivers, in which it is exposed to the sun to concrete, and when sufficiently inspissated is worked into masses by the hand, and covered with the leaves of a variety of dock, or of the tobacco plant. The incisions are repeated upon the same capsules several times in the course of a fortnight, till the whole of it has been scarified. The evening is selected to favour the exudation, for the heat of the sun in the day would soon dry up the juice, and naturally impede its escape. In this manner, opium, of an excellent quality, has been procured in our own country and France; and from the analysis made of it, might be used with equal effect and in not much smaller doses. The growth of it has been discontinued in consequence of the difficulty experienced in its sale, solely by virtue of foolish prejudice. Another mode of obtaining opium is

reported to have been, that of bruising the unripe capsules, expressing the juice and evaporating it to a proper consistence. Such a preparation has not more than half the strength of our general specimens of opium.

We obtain our supply of opium principally from Turkey and Egypt, in a very limited extent from Persia and India. Most of the Indian opium is consumed by its inhabitants or exported to China, where it finds a ready and desirable market. Turkey opium is raised chiefly in the province of Anatolia, and is shipped from Smyrna. It comes to us in masses of an irregular size and form, more or less flattened, covered with leaves and the reddish capsules of a species of *Rumex*. According to Dr. A. T. Thomson, nearly one-fourth of opium consists of impurities, amongst which we find, sand, ashes, the seeds of plants, the extracts of poppy, *glycyrrhiza glabra*, and *chelidonium glaucum*, gum, *tragacanth*, small stones, minute pieces of lead or other metals.

The varieties of Turkey opium, described by Guibourt, are the *Smyrna*, *Constantinople*, and *Egyptian*.

Smyrna opium is in variable-sized masses, much flattened from the original softness, covered with seeds of a *Rumex*; becoming black and dry in the air; of a strong odour. It is most esteemed, but is liable to be mixed with a kind of opium in balls or round masses which are hard and of an inferior quality.

Constantinople opium, is in small, flattened, somewhat regular lumps, from two to two and a half inches in diameter, always covered with poppy leaf, the middle nerve of which marks the middle of the mass. Its odour is weaker, than in the former variety. It blackens and dries in the air.

Egyptian opium, is in regular masses, somewhat larger than the former, bearing the impress of having been carefully moulded. It is covered with the vestiges of a leaf. It is distinguished by its redder

colour, its weaker odour, and by softening instead of drying in the air. It has a shining surface, and is somewhat adhesive to the fingers. Notwithstanding the high authority for the above characters of distinction, implicit reliance cannot be placed in them. Opium varies considerably in appearance, in different periods, and will be found very often not to correspond with the description given of it.

Good opium has a peculiar strong narcotic odour, and a powerful acrid taste. When long chewed it excites a tingling of the lips and mouth, and a flow of saliva, and may even blister the mouth in those unaccustomed to it. Its colour is reddish brown; in the centre, when soft, nearly fawn coloured. Its texture should be compact and uniform. It readily inflames, if applied to a lighted paper. It is partially soluble in water, alcohol, ether, acetic acid, wine, or lemon juice, to which it imparts a deep brown colour. Triturated with hot water, five parts in twelve are dissolved, six suspended, and one not affected. Cold water will take up about 12 parts in sixteen, but these proportions will be found to vary in different specimens.

The discovery of most of the proximate and active principles of opium has not been long made; and even in the present day, it is highly probable that some still remain unknown, to be detected hereafter, by the further progress of chemistry. Opium is said now to contain,

Morphia.
Codeia.
Paramorphia.
Pseudomorphia.
Narcotine.
Narceine.
Meconine.
Meconic acid.
Gum.
Resin.
Extractive.
A fixed oil.

Caoutchouc.

Odorous matter.

Woody matter.

Several salts, as of lime, potash, &c.

The most important and valuable of these principles is morphia.

Morphia exists in opium in combination with meconic acid, and possibly sulphuric, which give it solubility. It may be procured by the process ordered in the London Pharmacopœia. It is in the form of transparent crystals, is almost insoluble in cold water. It has a bitter taste. It is soluble in ^{100 times} ~~1~~¹⁰⁰th of its weight of boiling water, almost insoluble in ether, most soluble in hot alcohol, which takes up $\frac{1}{30}$ th of its weight. It is soluble in the fixed and volatile oils, a solution of potash and soda, and many of the acids. It is composed of

34 carbon	$34 \times 6 = 204$
18 hydrogen	$18 \times 1 = 18$
1 nitrogen	$= 14$
6 oxygen	$6 \times 8 = 48$

Atomic number of anhydrous morphia 284

The crystallized morphia contains two equivalents of water.

The tests of morphia are the following.

Nitric acid turns it of a red colour, afterwards yellow.

Iodic acid, being added to morphia is decomposed: the mixture becomes brown by the disengagement of some iodine, which will form the characteristic blue colour by the addition of starch. No other alkaloid will decompose iodic acid, setting free the iodine.

Bichloride of iron turns morphia and its neutral salts of a blue colour.

Many other tests are spoken of by authors, but are too uncertain in their indications to be of much value. Pure morphia is not used medicinally, in consequence

of its insolubility in water. If it meets with acids in the stomach, it will be dissolved, and thus be powerful in its action. It is most used in combination with hydrochloric and acetic acid; the quantity of morphia in opium is said to be nearly ten per cent.

Meconic Acid exists in the poppy only, partly in combination with morphia, partly in a free state. It is procured from the meconate of magnesia, formed by adding magnesia to a solution of opium. This meconate is decomposed by a soluble salt of baryta or lead, and meconic acid is separated from the lead by hydro-sulphuric acid, and from baryta by sulphuric acid.

In a pure free state, meconic acid is in the form of white micaceous scales. It is soluble in water and alcohol. It is decomposed by hot water, and is converted into metameconic acid; and by dry heat is turned into pyromeconic acid. It is inert, and, of course, is not used medicinally. The tests of its presence are the following:

The *Persalts of Iron* produce a red colour, occasioned by the formation of permeconate of iron.

Sulphate of Copper produces a yellowish green precipitate.

The *Chloride of Gold* throws down a purple precipitate, if a little potash has been previously added.

Codeia is an alkaloid discovered in the year 1830, by Monsieur Robiquet. It is white, crystalline, solid, sparingly soluble in cold water, more so when hot; soluble in ether. It unites with acids and forms salts. It differs from Morphia in not forming a blue colour with the persalts of iron, and is reported not to be reddened by nitric acid. Ammonia does not precipitate it from its solution with hydro-chloric acid.

It has medical properties somewhat similar to Morphia, and may be given in rather larger doses. At present the evidence on its virtues is very contradictory.

Narcotine is a crystalline substance, very soluble in

ether, very sparingly so in water. It has no alkaline reaction, although it is capable of uniting with acids. Its salts are very bitter; they redden litmus, and form precipitates with infusion of galls and alkalies. In medical virtues, narcotine is very deficient. It was at one time supposed to be the stimulating principle of opium, but experiments have shewn that such an opinion was erroneous.

Narceine is a white crystalline solid, discovered by M. Pelletier in 1832. Its precise nature is not satisfactorily known. It is distinguished by the action of sulphuric, muriatic, and nitric acids upon it, which evolve a bright blue colour. It also produces a bluish colour with iodine. It does not produce a blue colour with the persalts of iron. It has little sensible effect upon the body.

Meconine also is a white solid, of an acrid taste, sparingly soluble in cold water, much more so in boiling water. It is characterized by its fusibility, greater solubility, forming a colourless solution with dilute sulphuric acid; after fusion becoming of a blood-red colour, if chlorine gas be passed over it. It is of no service as a medicine.

Paramorphia, discovered by Pelletier in 1835, is the substance previously named *Thebaine*. It is a white crystalline solid, acrid to the taste, very soluble in ether and alcohol, almost insoluble in water. It has an alkaline reaction, and forms salts with acids. In composition it appears isomeric with morphia, but differs from it in the persalts of iron, not forming a blue colour, and not being reddened by nitric acid. Majendie says that its action on the body is like that of *Brucia* and *Strychnia*.

Pseudo-Morphia has only been occasionally met with by Pelletier. The account given of it is so imperfect that it leaves little room to doubt whether it is not *Morphia* slightly modified by some occasional deviation in the analytical processes.

Medical Properties. Opium is a stimulant, anodyne, soporific, hypnotic, antispasmodic, indirectly sedative, diaphoretic, and astringent. When taken in a moderate dose by persons in health, it soon increases the force and frequency of the pulse, raises the temperature of the skin, augments muscular action, elevates the spirits, and excites fresh vigour in the intellectual faculties. This excitement may even extend to a state resembling intoxication or delirium. In a short time the excitation subsides, and is followed by calmness of the corporeal actions and an exquisite placidity of mind: this is succeeded by drowsiness and sleep. The sleep is sometimes composed, at others disturbed by frightful dreams, so much so that poets and painters have taken opium on account of the extraordinary scenes which it raises up for the imagination. After a sleep of some hours the person awakes with a feeling of nausea, headach, and tremors, which will last for some time. Such are the common effects if opium be taken in a moderate dose. Amongst the therapeutical effects and peculiarities of its action, there are some deserving particular attention. All the secretions of the body are checked by opium, except of the skin; the peristaltic action of the intestines is arrested; pain and inordinate muscular contraction are subdued; and general nervous irritation is relieved.

When large doses of opium are taken, the stage of excitement is shorter, and the narcotic depressing effects are more obvious and alarming.

Opium taken in poisonous doses, soon operates on the system; it speedily reduces the frequency of the pulse, diminishes muscular strength, brings on drowsiness, and almost an apoplectic sleep. At the commencement, the breathing is stertorous, there is suffusion of the eye, a full labouring pulse, almost total insensibility to external impressions, sometimes violent agitation, confused state of intellect, and, if roused,

an irresistible desire to sink into a comatose sleep. The pulse is sometimes so full and powerful in its beat as to advise the use of the lancet. In the space of a few hours these symptoms are changed, and a state of great debility and danger shews itself. It is in this condition that medical men are often called to persons who have taken opium in poisonous doses. The countenance is then pallid, the skin and extremities cold and clammy, the pulse small and weak, the pupil contracted, the breathing slow, quiet, and somewhat gasping; there is almost total insensibility; and, unless treated by active measures, the patient soon dies.

The morbid appearances in poisoning by opium are very insufficient to account for death,—the vessels of the brain are gorged, and there is sometimes an inflammatory appearance in the mucous coat of the stomach, which, however, is supposed, in the majority of instances, to have been more caused by the remedies than the poison itself. It appears to act on the nervous system by a sedative influence, and possibly by actual contact, resulting from its absorption.

The general effects of opium in medicinal doses may be obtained by introducing it into the rectum, or applying it to the surface of the body, especially where the cuticle is removed. In this way it appears to cause less general excitement than when given by the mouth. Its local action presents the same character as when it is taken internally. It first produces increased action of a part, then a diminution of sensibility and contractility. These effects are observed more rapidly, the larger the quantity in which the opium is applied.

In some countries opium is eaten largely as an article of luxury, and a substitute for intoxicating liquor. This is the case in Turkey, Persia, Hindostan, and China. The quantity taken is enormous, and in time becomes less powerful to the stomach, the sensibility of which is gradually destroyed. Such indi-

viduals are the most wretched and miserable objects, emaciated, enfeebled, and, when deprived of their opium, unfit for the least mental or bodily exercise.

As a stimulant and excitant opium must be given in small doses. For this object we employ it in low typhoid complaints, in confluent small-pox with great prostration, extensive suppurations, as in phlegmonous erysipelas, especially when with these there is combined restlessness with want of sleep. In these cases it exalts the action of the nervous and vascular system, and may be advantageously given with other stimulants.

As an anodyne, opium is our most valuable remedy. It relieves pain very speedily and effectually. It may be given in most painful diseases, which are not attended with high inflammatory action. We give it in cancer, colic, passage of gall-stones. As a narcotic, or hypnotic, we depend upon it more than any other remedy. It is prescribed in many diseases for this purpose, where morbid vigilance exists, independent of any inflammation of the brain. Amongst the most important, is the delirium tremens of drunkards, in which it is sometimes sufficient to effect a cure. It produces sleep by its direct operation on the brain, and also by allaying that nervous irritation on which the wakefulness so much depends.

As an antispasmodic, opium is highly useful in tetanus, colic, spasm of the stomach, in gout, spasm in the ureters, spasms of the biliary ducts in the passage of calculi, and various convulsive affections.

It is very efficacious in checking morbid discharges, which it accomplishes, probably, by allaying irritation in parts, and subduing the action which supported them. Thus, it benefits in diarrhœa, chronic catarrh, humoral asthma, diabetes, and some forms of hæmorrhages. As a diaphoretic, opium is not very certain when given alone. It acts best in combination with ipecacuanha and tartarized antimony, as in *Pulvis Ipecacuanhæ Compositus*, and other formulæ. Dovers'

powder may be said to act by the ipecacuanha relaxing the exhalants, and the opium forcing the blood into the relaxed vessels.

Whatever be the disease in which opium is used, it should be recollected, as a general rule, that it is contraindicated in a highly inflammatory condition, or plethora, or where there is determination of blood to the head, or the secretions are locked up. It is improper in constipation of the bowels, with one exception, and that is colic, in curing which, opium is sometimes called an indirect purgative. In this disease, it overcomes the spasm of the muscular fibres, and thus makes a passage for castor-oil or other purgatives.

It would be a tedious task to enumerate all the diseases in which opium is prescribed, for there are very few in which it may not be given in some of their stages. It is often given in inflammations of serous membranes; not on account of its own peculiar virtues, but to control and aid the action of other remedies. Thus, given with calomel in peritonitis, it acts by preventing the calomel running off by the bowels. It does this, by checking the secretion of bile which calomel has a tendency to increase. Given, after a full bloodletting in acute diseases, in a full dose, with a large dose of calomel, it acts as a sedative, and effectually prevents reaction. It has been given in large doses a short time before the cold stage of intermittent fevers, and has often succeeded in preventing the paroxysm. In this case it probably acts by relaxing the capillaries, retaining the blood in them, and consequently obviating congestion in the large venous trunks. Amongst the secretions which are diminished by opium, that of the liver is most remarkable. In this respect, it operates, in direct opposition to calomel. The evacuations of persons taking opium are likely to be clay-coloured, and will continue so, with the use of opium, for a long time; acquainted, as we are, with the necessity of the liver performing its

functions duly, it is not surprising that the abuse of opium should be seriously detrimental to the health and vigour of the system.

Some of the preparations from opium, such as Battley's sedative solution, and the salts of morphia, act more kindly and certainly than opium. They stimulate less, and cause less distressing symptoms in the head the day after; besides, they are more decidedly sedative and act with greater certainty. About a quarter or a third of a grain of the acetate or muriate of morphia, is considered equal in effect to one grain of opium. Care should be taken that they are obtained from respectable vendors, for the price of them holds forth inducements to adulteration. It is convenient to keep a solution of these salts in water, so contrived, that it represents the strength of tincture of opium.

Opium varies much in its relative effects upon the body at different ages; in children it requires to be given in small doses and with great caution. Elderly people also feel its effects more than the vigorous adult. In a child of twelve months old, it is dangerous to exceed the dose of one minim; and, indeed, when infants take it, it would always be more safe to reduce this dose, and let it be repeated till it produces the desired effect. The ordinary dose of opium for an adult is one grain, equivalent to twenty minims of the tincture, but this may be extended to three grains or more, in very painful spasmodic diseases. In tetanus, 20 and 30 grain doses have been given with scarcely any effect. The dose must also be modified by the habits of individuals, for an opium-eater can take as much for one dose, with impunity, as would kill half a dozen ordinary persons.

In cases of poisoning, the treatment to be pursued consists in washing out the stomach by the aid of the stomach-pump: administering tonic stimulating emetics, giving tea and coffee to rouse the system, awakening the patient by exercise, dashing cold water upon the

head and epigastrium, (which will also aid the vomiting,) and even by any other plan which may suggest itself. If there is great exhaustion, ammonia and even brandy may be given. In some cases, bloodletting is necessary: generally it is objected to, as it is supposed to be likely to give rise to increased absorption of the opium into the system. On the following day, bloodletting is often requisite, followed by purgatives and antiphlogistic remedies.

A discovery of opium by tests is not a very easy matter. The poison is likely to be entirely thrown off, and it does not permeate the tissues like mineral poisons: when it is known to exist, the morphia and meconic acid are to be obtained in a separate state, and the proper tests be applied to each. There are few cases in which the existence of opium in persons poisoned by it has been ascertained to satisfaction.

Doses of opium:

As a stimulant, gr. $\frac{1}{4}$ to gr. $\frac{1}{2}$ three or four times a day.

As an anodyne, soporific or hypnotic, gr. 1.

As a sedative and anti-spasmodic, gr. j. to gr. iij.

Preparations.

Morphia, not used as a medicine.

Morphiæ acetas, dose gr. $\frac{1}{4}$ to gr. 1.

———Hydrochloras, the same dose.

Confectio Opii,—about thirty-six grains of it contain one of Opium. It is a stimulating preparation of opium.

Emplastrum Opii,—an anodyne plaster, useful in pleurodynia, neuralgic, and chronic inflammatory affections.

Enema Opii, four ounces contain thirty minims of tincture of Opium.

Extr. Opii purificatum, given in the same doses as opium: it is less stimulating.

Linimentum Opii.

Pilulæ Ipecacuanhæ compositæ.

— Saponis compositæ, five grains contain one grain of opium.

Pulv. Cretæ c. cum opio., there is one grain of opium in two scruples.

Pulv. Ipecac. comp.—commonly known as Dovers' Powders. Has one grain of opium in ten grains, which quantity is the usual dose.

Pulv. Kino comp., contains a grain of opium in a scruple.

Tinct. Camph. comp., contains nearly a grain of opium in half an ounce.

Tinct. Opii, contains about a grain in twenty minims.

Vinum opii, is of nearly the same strength as the tincture.

OPOPONAX.

The gum-resin obtained from the OPOPONAX CHIRONIUM.—*Rough Parsnip.*

This plant is more commonly known by the name of Pasticana Opoponax. It is a large specimen of an umbelliferous plant, rising from four to eight feet in height; a native of the Levant, and grows wild in the south of France, Italy, and Greece. The drug is obtained from the base of the stem, by making incisions, and drying in the sun the juice which exudes. It is imported from Turkey. The composition of it, according to Pelletier, in 100 parts, is,

Gum	-	-	-	33.4
Resin	-	-	-	42
Starch	-	-	-	4.2
Extractive	-	-	-	1.6
Wax	-	-	-	0.3
Malic acid	-	-	-	2.8
Lignin	-	-	-	9.8
Volatile oil and loss,	}			5.9
with traces of ca-				
outchouc				

By trituration, water dissolves about half, forming a milky liquid, which deposits the resin by standing, and becomes yellowish; alcohol and water distilled from it retain its flavour; only a very small quantity of oil can be obtained from it, in a separate state.

Medical Properties. It was formerly prescribed as an anti-spasmodic and deobstruent in hysteria, asthma, and chronic visceral affections, and as an emmenagogue; it may be considered as a stimulating expectorant; but from its feeble and uncertain action, the use of it is now almost abandoned.

Dose. From gr. x. to gr. xxx.

ORIGANUM.

The herb ORIGANUM VULGARE.—*Common Marjoram.*

This is an indigenous plant, also found in most parts of Europe. It has a peculiar, agreeable, aromatic odour, and a warm, pungent taste. These properties are owing to a volatile oil, which may be separated by distillation.

Medical Properties. It is considered by some, stimulant and tonic, and in the form of infusion as a diaphoretic and emmenagogue; like other similar plants, it is useful as a carminative.

Prep. Ol. origani.

OVUM.

The egg of the PHASIANUS GALLUS.—*Common Dung-hill Fowl.*

The egg may be divided into four parts, for the sake of description: 1st, the shell; 2d, the white semi-opaque membrane, lining the inside of the shell; 3d, the white; 4th, the yolk. The shell consists, according to Vauquelin, of carbonate of lime, with a little animal matter, phosphate of lime, carbonate of magnesia, oxide of iron, and sulphur. By exposure to great heat, the lime is left almost pure.

The lining membrane of the shell is albuminous. The white of the egg, according to Bostock, consists of 12 parts of albumen, 2.7 of mucus or uncoagulable matter, 0.3 of saline substances, including soda, with a trace of sulphur, and 85 of water, in 100 parts.

The yolk contains water, albumen, a mild fixed oil, and colouring matter.

Properties. The shell may be powdered and levigated, and administered as an antacid in diarrhœas or dyspepsia. The white is often used to clarify liquids, which it does by involving substances during its coagulation. It is a valuable antidote for corrosive sublimate: agitated with a piece of alum, it is coagulated and at the same time dissolves a portion of the alum, thus forming the alum curd, a cooling application to the eye in ophthalmia.

The yolk is supposed by some to be laxative, but without sufficient reason. It is a light nutritive substance, acceptable to the stomach, and easily digested. In pharmacy it is much employed for mixing with water insoluble substances, such as resins, balsams, oils, &c.

Prep. Mistura Spir. Vini Gallici.

PAREIRA.

The root of the *CISSAMPELOS PAREIRA*.

This tree or shrub grows like a vine, in Brazil and the West Indies. The root only is officinal. It is in hard, solid, dark coloured pieces, varying from a quarter of an inch to two inches in diameter, wrinkled on the surface, and of a dark brown colour. It has no odour, but a slight taste, which is bitter, and at the same time a little sweet. It contains,

Soft resin.
Yellow bitter matter.
Brown matter.
Animal matter.
Fæcula.
Acid malate of lime.
Nitrate of potash.
Some other salts in small quantity.

Water extracts all its active qualities.

Medical Properties. Said to be tonic, aperient, and diuretic, and has been given in calculous diseases, ulceration of the kidneys and bladder, leucorrhœa, dropsy, rheumatism, and jaundice.

Dose. Of the powder ʒss. to ʒj, or it may be given in the form of decoction.

PAPAYER.

The ripe capsules of *PAPAYER SOMNIFERUM*.

For the production of the dry capsules, poppies are cultivated in this country. The white poppy is most employed, but occasionally we meet with the black variety, of which the seeds are of a dark colour, but do not differ essentially in properties. They contain

principles, somewhat similar to those of opium, which they yield to water by decoction. The seeds contain a bland fixed oil, which is much used in France; triturated with water, they form a white, milky, pleasant emulsion.

Medical Properties. These capsules, analogous to opium in medical properties, are exceedingly feeble. They are often used in the form of decoction as an emollient, anodyne fomentation, or in the form of syrup, or extract, to calm irritation, promote rest, and to procure narcotic effects.

Syrup of poppies is a remedy much given to children to compose them, and as it is very variable in its strength, and in large doses injurious, requires some consideration in using it: when carefully made, from two to three drachms are equivalent in effect to one grain of opium; but, if carelessly prepared, possibly an ounce or two would not be equivalent. Some druggists make it with the extract of poppies, others with tincture of opium, so that very rarely can it be depended upon. It would be better to lay it aside altogether. The extract may be said to differ from opium in being less stimulant, less likely to confine the bowels, or produce the head symptoms which follow generally the use of opium: from eight to ten grains are considered equal to a grain of opium.

Dose. Of the extract, gr. x. to gr. xv.

Of the syrup, for an adult ʒij. to ʒiv.

For an infant, ten to twenty minims; but it is better never to give it.

PETROLEUM.

This substance belongs to that class of bodies named bitumens. They consist almost entirely of hydrogen and carbon. Petroleum is found at Amiani near Parma,

at Gabian in France, on the borders of the Caspian sea, in the kingdom of Ava, in Barbadoes, Trinidad, and other West Indian islands. The wells in Ava are said to afford 400,000 hogsheads annually. The petroleum from Barbadoes only is used officinally.

Qualities. Barbadoes tar is a black, thick, viscid liquid, possessing a bituminous taste, and strong odour. It is very combustible. Sp. gr. .730 to .878. By distillation it affords naphtha, and a solid residue, called asphaltum.

Medical Properties. It is a stimulating expectorant, antispasmodic, and sudorific. It has also been administered as an anthelmintic, and used externally as a stimulating embrocation, in chronic rheumatism, pains of the joints, and paralysis.

Dose. From 10 to 30 minims in any convenient vehicle.

PHOSPHORUS.

This substance can scarcely be considered officinal in its uncombined state: it is mentioned on account of being used in making the dilute phosphoric acid.

Phosphorus is best obtained by calcining bones, by which we have remaining phosphate of lime, with a little carbonate of lime. To this, sulphuric acid is added, which produces a comparatively insoluble sulphate of lime, and a soluble superphosphate. The latter is removed and evaporated to the thickness of a syrup, and then mixed with half its weight of powdered charcoal. To this mixture, in a proper apparatus, heat is applied and carried to redness; phosphorus passes over and is condensed in water, and subsequently melted and poured into a mould to assume its usual shape. In the latter part of the process, the charcoal decomposes the phosphoric acid, uniting with its oxygen, and forming

carbonic acid, which, with the lime, forms carbonate of lime, and the phosphorus is set at liberty.

Phosphorus is insoluble in water, is dissolved sparingly by alcohol and oils; is more soluble in ether.

Medical Properties. Phosphorus in very small doses is a powerful, general stimulant: in large doses a violent irritant poison. It appears to act most electively on the urinary and genital organs, and has been given in dropsy, impotency, typhus, phthisis, marasmus, chlorosis, paralysis, amaurosis, &c. It is rarely used in this country. The plan of administering is to dissolve three grains of it in an ounce of ether, and begin with about ten minims for a dose. As its action is very powerful, its effects should be very carefully watched.

Prep. Acid. Phosp. dil.

P I M E N T A.

Allspice. The dried unripe berries of MYRTUS PIMENTA.—*Pimento Tree.*

This is an elegant tree, about thirty feet high, evergreen, and bearing a profusion of flowers. The fruit is a spherical berry, crowned with a persistent calyx, and when ripe has a black or dark purple colour. The tree exhales an aromatic fragrance, especially when it is in flower. It is a native of the West Indies, Mexico, and South America; most abundant in Jamaica. The berries only are officinal. They are gathered after they have attained their full size, but still green, and are dried in the sun. They contain two cells, each having a black hemispherical seed. These berries possess a fragrant odour, likened to a mixture of cinnamon, cloves, and nutmegs, whence their name *allspice*, by which they are generally known. Their taste is warm, aromatic, and pungent; their flavour is imparted to water, and com-

pletely to alcohol. By analysis, M. Bonastre discovered in them,

Volatile oil.
Green fixed oil.
Oleaginous substance in yellow flakes.
Tannin.
Gum.
Resin.
Uncrystallizable sugar.
Malic and gallic acids.
Saline matters, moisture, and lignin.

The volatile oil is the aromatic principle, the green oil occasions the acidity. The external portion contains twice as much of these oils, as we find in the internal parts.

Medical Properties. A warm aromatic stimulant, forming an agreeable adjunct to tonics and purgatives, to cover their taste, increase their warmth, and be more acceptable to the stomach, especially in cases where there is much flatulence and griping. Allspice is more used as a condiment than as a medicine.

Dose. Gr. x. to gr. xx. Of the distilled oil three or four drops.

Prep. Aq. Pimentæ,—Spiritus Pimentæ,—Syrupus Rhamni,—Ol. Pimentæ.

PIPER CUBEBA.

Cubebs. The berries of PIPER CUBEBA.

This is a climbing perennial plant, a native of Java, where it grows luxuriantly in the woods. It flourishes also in the Isles of Bourbon, and France, and in Guinea. The fruit is a berry which grows in clusters, and is officinal. Cubebs are round, of a blackish colour, wrinkled on the outside, and have a pedicle attached, whence the name of tailed pepper. The shell is hard, almost ligneous, containing within it a loose seed, covered

with a blackish coat, and internally white and oleaginous. The odour is aromatic, the taste warm and camphorous, leaving a sensation of coolness in the mouth, something like peppermint. Vauquelin found in cubebs,

Volatile oil.

A resin in odour and taste like copaiba.

A brown resin.

A coloured gummy substance.

Extractive matter.

Saline matter.

The oil may be obtained separate by distillation. It has usually a green colour, is rather viscid, and has a strong camphorous taste. Cubebs should not be kept in the state of powder, as they become gradually very weak; but they should be preserved entire, and be powdered only when required.

Medical Properties. This pepper is stimulant, diuretic, stomachic, and carminative. It is rarely used but in gonorrhœa, gleet, and leucorrhœa; in the cure of which it has great reputation. As it stimulates considerably, it is more rational to prescribe it after the inflammatory stage has passed over; yet, there are many who give it from the very commencement of a gonorrhœa. The unpleasant effects of it occasionally are nausea, vomiting, headach, severe purging, sometimes with bloody discharges.

The *modus operandi* of this drug in gonorrhœa is explained in several ways, viz. it acts either by entering the urine, to which it gives a peculiar odour, and stimulating by direct contact the mucous membrane of the urethra, producing in it a new action; or by revulsion, causing a great flow of blood and nervous energy to the mucous membrane of the alimentary canal, which idea is somewhat strengthened by the fact that cubebs is most beneficial when it causes a smarting in the rectum, and a peculiar sensation of coolness after evacuating the fæces. Cubebs given injudiciously and largely,

appears sometimes to bring on inflammation of the testicles.

Dose. 3j. to 3iij. mixed up with some bland liquid.
Of the volatile oil x. to xx. drops.

PIPER LONGUM.

The dried unripe fruit of PIPER LONGUM.

This variety of pepper is readily known by the shape of the fruit, which consists of a number of very small one-seeded grains or berries, imbedded in a pulpy matter. It is a native of South-Eastern Asia, very abundantly produced in the neighbourhood of Bengal. The fruit is green when unripe, becoming red as it ripens; in the former state it is more pungent, and gathered to be dried in the sun.

Long pepper is cylindrical, about an inch in length, with a weak odour, and a pungent fiery taste. It contains piperine, a concrete oil on which its acrimony depends, and a volatile oil.

Medical Properties. The same as of black pepper; as a spice, it is less esteemed, and is seldom used.

Prep. Conf. Opii,—Pulv. Cretæ comp.,—Tinct. Cinn. comp.

PIPER NIGRUM.

The berries of PIPER NIGRUM.—*Black Pepper.*

The pepper vine is a perennial plant, growing wild in Cochin-China and various parts of India, and is cultivated on the Malabar Coast, Malacca, Sumatra, Java, and many other places. The best pepper is said to come from Malabar, although the largest supplies are derived from Sumatra and Java.

The vine is propagated by cuttings, and is supported by props, or trees planted for the purpose, upon which

it is trained. In three or four years from the period of planting, it begins to bear fruit. The berries are gathered before they are ripe, and are dried in the sun.

White pepper is the ripe berry deprived of its skin, by maceration in water and subsequent friction, and afterwards dried in the sun. It is not quite so pungent as the black pepper, although it sells at a much higher price.

The dried berries are externally blackish and wrinkled, internally whitish, of an aromatic smell, and a hot, pungent, fiery taste. They yield their virtues partially to water, completely to alcohol and ether. Pelletier found them to contain

A crystalline matter named *Piperine*.

An acrid green concrete oil.

A balsamic volatile oil.

A coloured gummy substance.

Extractive matter.

Bassorin.

Uric and malic acids.

Lignin and various salts.

Piperine when pure is in colourless transparent crystals, without taste, insoluble in water, soluble in alcohol, ether, and acetic acid; is decomposed by the strong mineral acids. It is obtained from pepper, chiefly by the agency of alcohol. The taste and pungency of pepper depend on the concrete and partly on the volatile oil.

Medical Properties. Black pepper is a warm stimulant and carminative, acting on the system generally, but most so on the part to which it is applied. It is extensively employed as a condiment, for which purpose it is given to stimulate the stomach and prevent flatulence. It has also been used in cases of piles in the form of Ward's paste, and is thought to do good by stimulating the torpid vessels of the alimentary canal. Intermittents are said to have been cured by it, and possibly may be in weak debilitated habits, where starvation has

prostrated them: to such persons, a generous diet with cordials and stimulants may give vigour to the system, and stop the disease. Some have attributed the good effects to Piperine, but probably without sufficient reason, for it appears that Piperine in a pure state is totally inert and useless; therefore it is a sad pity that a patient's health should be trifled with, by substituting a very uncertain remedy for one comparatively certain in its action, namely, disulphate of quinine.

Dose. Gr. v. to gr. xx.

Prep. Conf. Pip. Nigr.—Con. Rutæ.

PIX LIQUIDA.

Tar. The prepared liquid resin of the PINUS SYLVESTRIS.—*Scotch Fir.*

The mode of procuring tar is to cut the wood into billets and pile it up, and cover it over with some turf, then prepare a cavity at the bottom, communicating with a little ditch surrounding it. The wood is then ignited at the top, and the heat thus applied causes the liquid to exude, and run down to the bottom, where it is collected and put into barrels.

Tar has a strong odour, a bitter resinous taste, a black colour, and a thick consistence. It is composed of resin chiefly, with acetic acid and empyreumatic oil, coloured with charcoal. It yields some of its constituents to water, which thus form the once celebrated tar-water. By heat, the liquid parts are evaporated, and leave a solid matter, named *Pix nigra*.

Medical Properties. Stimulant and expectorant. Its action is very like that of the turpentine generally. It is only to be given in chronic cases, such as chronic bronchitis or catarrh. Formerly this was a favourite medicine in phthisis, but now is abandoned. Some skin diseases would appear to have been benefited by its use, and recently an author has published his opi-

nion that it is the best remedy in lepra and some other scaly diseases. Externally applied, it is often employed for tinea capitis, and as an application to indolent ulcers.

Dose. Gr. x. to gr. xxx. ter die: or tar water may be administered as ordered in the Dublin Pharmacopœia.

Prep. Ung. Picis liquidæ.

PIX NIGRA.

Black Pitch. The solid prepared resin of PINUS SYLVESTRIS.

This is obtained from tar, by heating it, to expel the liquid constituents. It is used only externally in the form of ointment.

Prep. Ung. Picis Nigræ.

PLUMBI CARBONAS.

Carbonate of lead or white-lead.

This substance may be prepared by two methods; first, by transmitting carbonic acid through a solution of the subacetate, by which we have formed the acetate of lead, and a carbonate which is precipitated. The second process is a slower operation, and is managed in the following manner: lead is first cast into thin sheets, then loosely rolled up, and placed in an earthen pot, containing a little vinegar, having within it projecting parts of the pot, on which the lead is supported without touching the vinegar. Pots thus prepared are placed in sheds, in horizontal layers, each being covered with a piece of board, on which stable litter is strewed. These are allowed to remain undisturbed for about six weeks, at the end of which time the lead is found almost

entirely converted into a white substance, viz. the carbonate of lead. This is scraped away from the metallic lead, ground in water, and reduced to a very fine powder. The mode of its formation is not thoroughly understood. The straw fermenting causes a temperature of about 112, which may occasion part of the acetic acid to rise and be decomposed, oxidizing the lead, and supplying carbonic acid to unite with the oxide; some carbonic acid is probably derived from the vegetable matter. White-lead is usually in lumps, which can easily be rubbed into a very fine powder. It has no smell, and very little taste. It may be easily distinguished by its weight, and by the effect of sulphuretted hydrogen upon it, which instantly turns it of a brownish black colour. It is an anhydrous compound, consisting of

$$\begin{array}{rcl}
 1 \text{ carbonic acid,} & = & 22 \\
 1 \text{ protoxide of lead,} & = & 112 \\
 \hline
 & & 134
 \end{array}$$

Medical Properties. Carbonate of lead is not administered internally; if it were, its action would be astringent and sedative to such an extent as probably to cause fatal obstruction in the intestinal canal. It is sometimes applied externally to inflamed and excoriated surfaces, either sprinkled on, or in the form of an ointment. Nurses occasionally use it in this way for excoriations about the anus of infants, a practice which is very dangerous, as the lead may be absorbed and exert its sedative influence, and be the cause of death. Many cases are recorded where such consequences have ensued.

Of the various preparations of lead, the carbonate is considered to be the most poisonous; and, indeed, Dr. Thomson states, that no other form of lead becomes deleterious till it is converted into the carbonate. The effects of this substance gradually taken into the body, are colic, paralysis of the extremities,

especially of the right hand, general debility, and a pallid sickly appearance. In cases of colic from lead, the best treatment is to give a full dose of calomel and opium, and in half an hour follow it up with a large dose of castor oil. The bowels should be kept freely open by repeated doses of sulphate of magnesia and senna. The lead appears to paralyze a portion of the muscular apparatus of the intestines, thus suspending the peristaltic action, and causing a stoppage of the fæces, beyond which there is a collection of flatus, and consequently severe pain; sometimes a portion of the bowels is considerably contracted. Admitting the truth of Dr. Thomson's opinion and practice, persons who are engaged in operations where white lead is used, ought to take daily a good share of vinegar, to convert any portion of lead into an acetate.

PLUMBI OXYDUM.

The semivitreous OXIDE of LEAD.

This substance is a protoxide of lead, rendered crystalline by fusion. It is most frequently procured from argentiferous galena. By fusing this alloy and the exposure to the air, the lead becomes oxidized and melts, forming a stratum, which floats upon the fused mass. This is allowed to run off into a proper receiver, which, upon cooling, crystallizes in small scales, constituting the litharge.

Litharge is in the form of small brilliant vitrified scales, some red, others yellow. It is devoid of taste and smell. It slowly attracts carbonic acid from the air, which is the cause of the effervescence sometimes observed when acetic acid is added to it. Two varieties of litharge are met with, the yellow with a silvery appearance, sometimes named *Litharge of Silver*; the other red, known as *Litharge of Gold*, or *Red Litharge*.

Pharmaceutical Uses. It is not used internally as a medicine, but is employed in Pharmacy to make the lead plaster. In the arts it is much engaged, as for glazing pottery, as an ingredient in flint glass, and by painters to render oils drying.

Prep. Cerat. Saponis,—Empl. Plumbi.

PORRUM.

The bulb of ALLIUM PORRUM.—*Leek.*

This plant is a native of Switzerland, and now cultivated in most parts of Europe. The part of it most used is the bulb; as a medicine, it is very rarely prescribed; its action is principally diuretic. Some consider it to be a stimulating expectorant. Its taste and properties are similar to those of onions and garlic, but milder; they depend on a volatile oil, which is dissipated by long boiling. With the number of active remedies we possess, and that contain all the properties belonging to this herb, there is very little necessity for its remaining in the lists of *Materia Medica*. The most fit use for it is as an ingredient in soups.

Dose. ʒj. to ʒij. of the expressed juice.

POTASSÆ BITARTRAS.

BITARTRATE of POTASH.—*Cream of Tartar.*

This salt is obtained from the impure tartar of wine-casks, by dissolving it in boiling water, decolorizing with charcoal, and allowing the salt to crystallize on cooling and by evaporation.

The crude tartar is named *Argol*, of which there are two varieties, according to the character of the wines from which it is deposited; namely, the white and the

red. It consists of bitartrate of potash, a little tartrate of lime, and colouring matter, with some other trifling impurities. This acidulous salt exists naturally in tamarinds and the grape; in the latter, dissolved by the means of the sugar and mucilage. When the grape juice is fermented the sugar and mucilage are decomposed, and the alcohol formed is unable to hold this salt in solution, which explains the cause of its being deposited.

Bitartrate of potash, crystallized and pure, is imported in large quantities from France, and lately from Trieste. It requires ninety-five parts of cold water for solution, and is insoluble in alcohol. Its solubility in water is very much increased by a little borax. It is scarcely ever pure, generally containing at least 6 per cent. of tartrate of lime. Crystallized cream of tartar consists of,

2 tartaric acid,	-	$2 \times 66 =$	132
1 potash,	-		48
1 water,	-		9
			<hr/>
			189

Medical Properties. This salt is purgative, diuretic, and refrigerant. It is given in many diseases to answer these several indications. In small doses it acts as a laxative, and in large ones becomes a hydragogue cathartic. It is seldom given alone; generally in combination with Jalap or Scammony, when we wish to promote copious watery stools, as in dropsies. Its diuretic action is supposed to depend upon the potash entering the circulation and stimulating the kidneys to increased secretion. It may here be observed, that when neutral salts containing a vegetable acid act as diuretics, the acid appears to be separated or digested in the intestines, and the alkali only passes into the circulation; and that when a neutral diuretic salt contains a mineral acid, it enters the circulating mass without decomposition. This salt

is much used as a cooling drink, dissolved in water, sweetened with sugar, and flavored by oil of lemons; and is known by the name of Imperial. Jalap and Supertartrate of Potash form an excellent purgative and diuretic for the dropsy, which succeeds scarlatina.

Dose. As a diuretic, ʒss. to ʒj., several times in the day.

As a cooling laxative, ʒij. to ʒiv.

As a hydragogue cathartic, ʒss. to ʒj.

Prep. Acid. tart.,—Pulv. Jalapæ comp.,—Ant. Potassio-tart.,—Potassio-tart. sodæ,—Potassæ tartras.

POTASSÆ CARBONAS IMPURA.

Impure CARBONATE of POTASH, formerly subcarbonate.—*Pearlash.*

This substance is procured ordinarily by the incineration and lixiviation of land plants. The product obtained on a large scale is very impure, and of a dark colour: when prepared with more care, and the combustible matter is more completely removed, it becomes whitish, and is named Pearlash. The different parts of the same vegetable afford variable quantities of potash. Woody plants furnish less than herbaceous, the trunk less than the branches, and these less than the leaves. Potatoe stalks, bean stalks, the varieties of fumitory, artemisia, and the ferns, would yield a larger proportion of potash, but are not sufficiently abundant, or would not repay for the trouble of extracting it in our country, as we get the salt from abroad at a cheap rate. It is to the potash of the ashes that the ley used for washing in the country owes its virtues, although the persons employing it are little aware of the cause. It is prepared in the following manner: wood ashes are put into a cloth spread over a strainer, and supported over a large tub; upon these ashes, water is poured, which in

passing dissolves the potash, and precipitates the lime which was in it, and gave it a hardness; thus the ley is a more excellent solvent of the soap, and requires a less quantity of it for washing.

In a commercial point of view, pot and pearlash are made in countries where wood abounds, as in Canada and the United States. It is produced in large quantities in Russia and the shores of the Baltic, and is generally known by the names of Russian, Dantzic, American, &c.

Pharmaceutical Uses. Pearlash is never used in medicine, in consequence of its impure state, but is employed in pharmacy to obtain the pure carbonate of potash.

POTASSÆ CHLORAS.

This salt, formerly named Oxymuriate of Potash, is procured by transmitting chlorine through a solution of carbonate of potash. By so doing the carbonic acid is first expelled with effervescence, and five equivalents of potash are decomposed: five of oxygen, with one of chlorine, form chloric acid; and this, with one equivalent of potash, forms chlorate of potash, which crystallizes very readily: five equivalents of chlorine, with five of potassium, form five atoms of chloride of potassium. The chlorate, crystallizing, is easily removed from the solution.

Medical Properties. Its use, internally, is very limited; it may be considered to be somewhat diuretic. During the last four or five years it has been given in cholera, to improve the quality of the blood, which it is supposed to effect by imparting oxygen. With the same object it has of late been administered in low typhoid fevers. By chemists, it is much employed for procuring oxygen gas.

Dose. Gr. v. to gr. xv.

POTASSÆ NITRAS.

Nitrate of potash, *Saltpetre*, *Nitre*.

This salt is found naturally, and is prepared artificially. In many countries it exists in the soil, as in some parts of Europe, Egypt, and Peru, and effloresces on the surface, and is found in the greatest abundance in the East Indies. In the latter, the soil is lixiviated, and the solution is evaporated in shallow pits, until the salt crystallizes: when the salt is mixed with nitrate of lime, potash is added, by which a nitrate of potash is formed, and lime is thrown down.

In Germany, nitre is made in nitre beds, which are formed of animal and vegetable remains mixed with calcareous matter and ashes, heaped up under sheds, and exposed to the air. This mixture is occasionally sprinkled with urine. At the end of two or three years, nitric acid is formed and combines with the potash, and is separated by lixiviation; there is at the same time a little nitrate of lime and magnesia, which are decomposed by carbonate of potash, producing nitrate of potash, and the earth is precipitated. In France, much nitre is procured from old plaster rubbish, which affords, by lixiviation, nitrates of potash, and lime, and chloride of sodium. The solution of these, by evaporation, affords a crust on the surface which is chiefly the common salt, and is removed. The remainder is treated with carbonate of potash; when double decomposition ensues, a carbonate of lime is formed and precipitated, and nitrate of potash is left in solution, and by evaporation is obtained in crystals.

Nitrate of potash crystallizes in hexangular prisms with dihedral summits, is soluble in between 4 and 5 times its weight of cold water. It undergoes no change in the atmosphere, unless it be very moist;

has no water of crystallization, but has generally water lodged between its particles. The most common impurity in saltpetre is common salt, which can be discovered by dissolving it in water and testing with nitrate of silver.

Medical Properties. Nitre is refrigerant, sedative, and diuretic, and is much used in inflammatory diseases, and is said also to be antiseptic. It generally promotes the secretion of urine and perspiration, lessens the heat of the body, lowers the pulse, and has a tendency to keep the bowels in a relaxed condition. It acts as a diuretic by getting into the blood and escaping by the kidneys without decomposition. This is proved by finding nitrate of potash in the urine, either by dipping paper into it, then drying and burning the paper, when the deflagrating qualities of the nitre are perceptible; or, by evaporating the urine, the nitre may be procured in a crystalline state. In fevers, nitre is much employed with tartar emetic and bitartrate of potash, forming together a most excellent antiphlogistic remedy. It is given in larger doses in hæmorrhages, in which it restrains the flow of blood, chiefly by its sedative action; and is valuable in inflammatory sore throat, either allowed to dissolve in the mouth or in the form of gargle. As nitre causes a determination of blood to the kidneys and other urinary organs, it should not be given when they are inflamed, as it aggravates the symptoms considerably, and often induces bloody urine and strangury. If this salt be taken accidentally in very large doses, it will occasion inflammation of the bowels and urinary organs. To combat these, copious demulcents should be administered, and subsequently opium and cordials.

Dose. Gr. x. to gr. xv. As much as one and two drachm doses have been given successfully in cases of hæmorrhage.

Prep. Acid. nitric., — Antim. Potassio tart. — Ung. Sulphuris c.

POTASSII FERRO-CYANIDUM.

This salt is also named PRUSSIAN OF POTASH, and FERRO-CYANATE OF POTASH.

This salt is not used in medicine. In pharmacy, it is employed for the preparation of hydrocyanic acid. It is usually in beautiful yellow crystals, in the shape of 4-sided tables, which are derived from a primary octoedron.

The salt is made on a large scale, by heating to a point of moderate ignition an iron pot, and throwing into it pearlash and dry animal substances, such as hoofs and horns. The mixture, as it calcines, assumes a pasty form, during which time it should be stirred up briskly. When ammoniacal and fetid vapours have ceased to escape, the mass is removed with an iron ladle. When this substance is treated with water, and the solution is filtered, by evaporation, it will afford yellow crystals of ferro-cyanide of potassium. The crystallized salt contains 3 equivalents of water; in an anhydrous state, the following is supposed to be its composition.

1 iron	= 28
2 potassium	$2 \times 40 = 80$
3 cyanogen	$3 \times 26 = 78$
	<hr/>
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PRUNA.

Prunes, the dried Drupes of the PRUNUS DOMESTICA.

The fruit of the plum tree, when ripe, is exposed to heat in an oven, and, subsequently, dried in the sun. Prunes are chiefly imported from the South of France,

and an inferior kind from Germany. They contain uncrystallizable sugar, malic acid, and mucilaginous matter.

Medical Properties. Mildly laxative and nutritious. They may be stewed with water, and the liquid added to purgative decoctions. If taken largely, they are apt to occasion flatulence and severe gripings. They form an ingredient in laxative confections.

Prep. Conf. Sennæ.

PTEROCARPUS.

The wood of the PTEROCARPUS SANTALINUS.—*Red Saunders.*

The tree which affords this wood is of a considerable size, growing in the mountainous districts of India. The wood is brought over in large billets of a blood-red colour, compact, heavy, and of a fibrous texture. It is kept in the shops in the form of small chips, raspings, or coarse powder.

Red Saunders wood has little smell or taste. It imparts its colour to ether and alcohol, but not to water. The colouring principle has been named *santalín*; it is of a resinous nature, is slightly soluble in fixed and volatile oils, excepting those of lavender and rosemary, which readily dissolve it. It has no medicinal virtues, and is only used on account of its colour.

Prep. Tinct. Lavand. comp.

PYRETHRUM.

The root of the ANTHEMIS PYRETHRUM, Pellitory of Spain.

The root of this plant is perennial, but the stem is annual, and it is a native of Barbary, the Levant, and

South of Europe. The dried root is imported in pieces of about 3 or 4 inches in length, of a greyish brown colour, externally; it is wrinkled longitudinally; whitish within, hard and brittle. Its taste is slight at first, but afterwards it causes an acidulous, saline, acrid sensation in the mouth and fauces, which lasts for a long time, and is attended with a copious flow of saliva. Its component parts, according to Gautier, are,

A fixed oil,
Yellow colouring matter.
Gum.
Inulin.
Lignin.
Traces of volatile oil and chloride of calcium.

The pungency depends on the fixed oil, which is closely allied to a resin.

Medical Properties. It is powerfully irritant, but used almost exclusively as a sialogogue in toothach. With the same intention it was formerly prescribed in headach, rheumatic affections about the face, and as a local stimulant in paralysis of the tongue and fauces, and relaxation of the uvula. The mode of using it is to chew a piece for several minutes; and some employ it in the form of decoction or tincture. It is a remedy seldom had recourse to in this country.

QUASSIA.

The wood of QUASSIA EXCELSA.—*Bitter Ash.*

This tree is a native of Jamaica and the Caribbean Islands. It grows to a considerable height, sometimes as much as one hundred feet. The wood is used officinally. Another variety of quassia, named *amara*, affords a wood possessing similar properties and still more powerful. It is a native of Surinam. Its appearance is very like that of the common quassia, but it seldom finds its way into this country.

Quassia is brought over in cylindrical billets, varying in diameter from two inches to a foot. It is covered with a smooth bark, slightly adherent, possessing the properties of the wood. In shops it is in the form of chips or rasped.

The wood is of a pale yellow colour, inodorous, but possessing a powerfully bitter taste, which is very permanent. It gives out its properties to water or alcohol; an extract has been obtained from it, for which Dr. Thomson proposes the name Quassin. This substance embodying the properties of quassia affords precipitates only with nitrate of silver and acetate of lead; hence it is compatible with any other medicines with which it may be thought desirable to combine it.

Medical Properties. Quassia is an excellent tonic and may be considered as the most pure and simple of bitters. It is not a stimulant, and is therefore useful in dyspepsia, where there is some irritability of the stomach, and also during the convalescence from fevers. It is likewise valuable as a menstruum for some of the salts of iron, especially the tinctura ferri sesquichloridi. It might be given in all cases in which bitter tonics are indicated. It is said to be largely employed by brewers, to give bitterness to their beer.

It may be given in the form of infusion, tincture, or extract.

Dose. Of the infusion, ℥j. to ℥ij., three times a day.

Prep. Inf. Quassiæ.

QUERCUS.

The bark of QUERCUS PEDUNCULATA. — *Common Oak.*

The bark of this tree is officinal. It should be collected in the spring, and from branches of about three

or four years old. It contains gallic acid, tannin, and extractive matter, on which its virtues mainly depend. The infusion of oak-bark is remarkable for not occasioning a precipitate with tartar emetic. This bark is extensively employed in the tanning of leather.

Medical Properties. Tonic and astringent, but it is seldom prescribed for internal use. In intermittents, it has been combined with cinchona, when the latter passes off too rapidly by the bowels, and it might be given in diarrhœa and passive hæmorrhages. A decoction of it may be employed as a gargle for relaxed uvula. It is often employed externally, as an astringent in prolapsus ani and piles, condylomata, and used as an injection with alum in leucorrhœa.

Some have recommended a solution of it in the form of a bath for children, as a tonic to the body, when medicines could not conveniently be administered. It may be given in decoction, or an extract may be procured from it.

Dose. If given in powder, 3ss. to 3j.

Of the decoction, ʒij.

Of the extract, gr. x.

Prep. Decoctum Quercus.

RESINA

The solid residue of the distillation of the Terebinthina Vulgaris.—*Commom Rosin, or Yellow Resin.*

This substance is only employed in the preparation of ointments and plasters. It is considered to be mildly stimulant.

Prep. Ceratum Resinæ,—Empl. Ceræ,—Empl. Resinæ,—Empl. Picis.

RHAMNUS.

The Berries of the RHAMNUS CATHARTICUS.—*Purging Buckthorn.*

This is a shrub growing about seven or eight feet high, common in hedges, and a native of Europe. It flowers in May and June. Its berries are ripe in September and October. The berries only are officinal. They are of the size of a pea, round, somewhat flattened on the top, black, smooth, shining, with four seeds, surrounded by a green, juicy, parenchyma. Their odour is unpleasant, the taste rather bitter, acrid and nauseous. The expressed juice soon ferments, generating acetic acid, which turns it of a red colour. Evaporated to dryness with some lime, it forms the pigment called *sap-green*.

Medical Properties. Actively purgative, but the operation of them is attended with very severe griping, consequently, aromatics should always be added. The only form in which this drug is usually employed is a syrup, which may sometimes be given to children, when there is difficulty in administering other purgatives. It is an useful adjunct to purgative draughts. Formerly it was considered a valuable hydragogue cathartic, and was given in dropsies, gout, and rheumatism. Buckthorn berries have a powerful purgative action on some animals, especially dogs.

Dose. For a child, ʒj. to ʒij. of the syrup.
an adult, ʒss. to ʒj.

Prep. Syr. Rhamni.

RHEUM.

The root of the RHEUM PALMATUM.—*Rhubarb.*

The variety of Rhubarb from which the root is procured, is designated by the London College, Palma-

tum, although it is supposed by many writers that it is the produce of other varieties, such as *R. Undulatum*, *Rhaponticum*, *Compactum*, *Enodi*, which has been named by Don and Colebrooke, *Australe*. From all that has been said and done on the subject, there is no conclusive evidence to shew what species affords it, nor is there any reason for concluding that it is not obtained from two, three, or more species.

All the species are perennial and herbaceous, with large branching roots, sending up stems from six to eight feet high, with large petiolate leaves.

The *Rheum Rhaponticum*, when cultivated, produces the stems and leaf-stalks which are used as a substitute for gooseberries in making tarts and pies. Rhubarb is produced abundantly in the mountainous districts of Tartary, and in some of the Chinese provinces, from which parts our supplies of Russian and Chinese Rhubarb are derived.

The root is not considered good till the plant is six years old. It is dug up twice a year in Tartary, in spring and autumn; in China, only in the winter. After it is taken from the ground it is deprived of its cortical covering, and separated into pieces of a convenient size. These pieces are then bored through, and suspended by strings upon cords, to dry in sheds. Several other processes are employed to reduce it to a proper condition for the markets, which are detailed in larger works on *Materia Medica*.

Chemical Properties. Rhubarb yields its active properties to water and alcohol. The infusion is of a dark reddish yellow colour, possessing the odour and taste of rhubarb: the residue is whitish, inodorous, and insipid. The virtues of the drug are somewhat impaired by boiling. Rhubarb, according to the analysis of M. Henry, affords

- A peculiar yellow colouring matter.
- A fixed oil, soluble in alcohol and ether.
- Starch.

Gum.	
Tannin.	
Lignin.	
Oxalate of lime.	
Super-malate of lime,	} in small proportions.
Phosphate of lime,	
A salt of potash,	
Oxide of iron,	

The most interesting ingredient is the yellow colouring matter. It possesses the odour of rhubarb, has a bitter harsh taste, is slightly soluble in cold water, volatilizes in yellow vapours by heat, is reddened by solutions of potassa and ammonia, precipitated yellow by acids and most metallic salts, green by sulphate of iron, and converted into artificial tannin by nitric acid. This substance has been named *Rhabarbarin* by some chemists, and by Caventon has been obtained in the form of crystals. Oxalate of lime gives the gritty feel to rhubarb, if it is chewed. It has been found to form, in some specimens, almost a fourth of the weight.

European Rhubarb contains less oxalate of lime, but more tannin and fæcula.

The varieties of Rhubarb yield different quantities of soluble matter to water and alcohol. The Chinese is said to yield 70 parts in 100 to water and alcohol; European, from *R. Palmatum*, 64; *R. Compactum*, 50 parts; *Undulatum*, 32; *Rhaponticum*, 30. Water, at 212, takes up 40 per cent. of Russian Rhubarb; 50 of the Chinese. Alcohol dissolves 27 per cent. of the former; 40 of the latter.

The epithet Turkey, now incorrect, has been applied in consequence of rhubarb formerly being sent into this country from Turkish sea-ports. The so-named Turkey rhubarb should be called Russian, and is principally imported from St. Petersburg.

Medical Properties. Rhubarb, in small doses, is tonic, stomachic, and astringent; in larger ones, purgative. As a purgative it principally acts on the muscular coat, producing rather solid evacuations.

Its operation is liable to be followed by constipation. Hence in diarrhœas it is often administered first to clear out the primæ viæ; secondarily, to restrain the evacuations, and give tone to the alimentary canal. To prevent subsequent constipation, saline purgatives may be combined with it, and, if it occasions griping, aromatics may be employed. Rhubarb is very serviceable in dyspepsia; also in a disordered state of bowels of young children. When they are suffering from thrush, rhubarb with magnesia, in small doses, forms an useful combination.

It is well suited as a purgative for weak habits of body, but less so to persons suffering under fever or inflammations. In as short a time as ten or fifteen minutes, a remarkable change is produced in the urine, which becomes of a deep red colour. This is owing to the absorption of the colouring principle of the rhubarb.

It may be administered in powder, extract, infusion, or tincture.

The *Dose* of the powder, gr. iij. to gr. vj. as a tonic and astringent; ʒj. to ʒss. as a purgative.

Prep. Inf. Rhei,—Pilulæ Rhei, comp.—Tinct. Rhei, comp.

RHÆAS.

The petals of the PAPAVER RHÆAS.—*Common Corn-Poppy.*

This plant grows wild in every part of Europe, and is seen very abundant in our corn-fields. The capsule contains a milky juice, which, by drying, somewhat resembles opium; but the small quantity procurable from each plant, and the trouble required for collecting it, more than compensates for any virtues it may possess. The part used officinally is the petals, on account of the beautiful colour which is extracted from

them. Some chemists have discovered a very small quantity of morphia in them, but too small to make the drug of importance as a narcotic.

A syrup is prepared from them, much valued for its beauty of colour.

Prep. Syr. Rhædos.

RICINI OLEUM.

The oil expressed from the seeds of *RICINUS COMMUNIS*.—*Palma Christi* or *Castor-Oil Plant*.

This plant in the East-Indies and Africa attains to the character of a tree, rising sometimes thirty or forty feet high. In more temperate latitudes it is an annual plant, flowering in May and June; its seeds ripening in August and September. This species of *Ricinus* is a native of the East-Indies and Africa, but has been introduced into Europe. It is cultivated largely in the West Indies and many districts of the United States. The seed is the only part employed to produce the oil. In extracting the oil, care should be taken that the seeds are not rancid, which is very apt to be the case. In 100 parts of the seeds, Geiger found, exclusive of moisture,

Envelope	-	-	23.82
Kernel	-	-	69.09

The kernel consists of

Fixed oil	-	-	46.19
Gum	-	-	2.40
Starch and lignin	-	-	20.00
Albumen	-	-	0.50

The seeds themselves, taken internally, purge powerfully. Two or three are sufficient; but seven or eight act with great violence. Their acrid principle resides in the whole kernel, and not in the envelope, which is almost inert. This principle is volatile, and is dissipated by boiling in water. By a greater heat the oil is altered, and acquires acrid qualities. Castor-

oil is extracted by decoction, expression, and by the aid of alcohol.

In the East and West Indies the seeds are bruised after removing the husk, and then boiled in water. The oil which rises is skimmed off and again boiled, to remove the acrid principle. If the boiling be continued after the evaporation, the oil turns brown and acrid. This is observed more in the West Indian oil.

The preparation of the oil by expression, ordered in the former, is discontinued in the last London Pharmacopœia.

The method of procuring it by alcohol has been practised in France, but the oil so obtained is said to become more readily rancid than that from other processes.

The seeds of the ricinus affords about 25 per cent. of oil. Castor oil is entirely soluble in pure alcohol, which circumstance would enable us to detect other fixed oils used to adulterate it, for they are in a very trifling degree soluble in that menstruum. The purgative qualities of this drug, do not depend upon any one principle, but may be said to depend on the operation of its combined constituents.

Medical Properties. Castor oil is an excellent purgative, acting, in most instances, mildly and speedily. In some persons it nauseates and distresses the stomach, and even sometimes plays the part of a drastic. It is intermediate in its action to saline and drastic cathartics. The chief objection to its use is the unpleasant sensation it gives to the fauces. It would be difficult to enumerate all the cases in which it might be advantageously prescribed. It is a good medicine for children, and is often given to women a day or two after parturition; and in inflammation of the bowels, or peritoneum, this is one of the first purgatives we prescribe. The best mode of taking it is mixed with some warm milk. Some prefer it with a little peppermint water, gin, coffee or tea.

Dose. ʒss. to ʒjss.

ROSA CANINA.

The pulp of the fruit of *ROSA CANINA*.—*Dog Rose* or *Wild Briar*.

This variety of rose is indigenous. The only official portion of it is the fruit, the soft pulpy substance of which is separated from the seeds by pressure.

The conserve made with it may be slightly laxative. It is employed in the form of linctus, with other substances in coughs, and used as a common vehicle in the preparation of pills.

Prep. Conf. Rosæ Caninæ.

ROSA CENTIFOLIA.

This variety of rose is cultivated in our gardens, and is much admired in most countries. The petals are the officinal portion. They are fragrant, and have a sweetish, acidulous, somewhat bitter taste. The odour depends on a volatile oil, which may be obtained by distillation, and is known by the name of *Ottar of Roses*. The quantity of oil, however, is very small, 100 pounds of the petals scarcely yielding half an ounce of it. It is chiefly prepared in the East Indies. It becomes concrete in cold weather, which enables us to distinguish any adulteration with other volatile oils.

The petals are slightly laxative, and are used in making a syrup, which is more an elegant adjunct to draughts, than of service as a laxative. The petals are also employed to procure rose-water.

Prep. Aq. Rosæ,—Syr. Rosæ.

ROSA GALLICA.

The petals of this species are officinal. They should be gathered before the flower is blown, separated from their claws, and dried in a warm sun or by the fire, and kept in a dry place. Their odour is improved by drying. They contain according to Cartier

Tannin.
Gallic acid.
Colouring matter.
Volatile oil.
Fixed oil.
Albumen.
Salts of potash and lime.
Silica.
Oxide of iron.

The sensible properties and medical virtues are extracted by boiling water.

Red roses are astringent and slightly tonic, but chiefly used in infusion as a vehicle for other substances.

Prep. Conf. Rosæ Gal., — Mel. Rosæ, — Infus. Rosæ comp.

ROSMARINUS.

The tops of the ROSMARINUS OFFICINALIS.— *Rosemary*.

This is an evergreen shrub, a native of the south of Europe, now cultivated and abundant in our gardens. The flowering summits are officinal. They have a strong balsamic odour, which, in a more feeble degree, exists in the other parts of the plant. The taste is bitter and camphorous. This depends on a volatile oil, which may be obtained by distillation. The virtues are partially dissipated by drying, and it becomes inodorous by long keeping.

Medical Properties. Gently stimulant, and according to some emmenagogue; it is seldom used in this country, although it is an ingredient in many preparations on the continent. It has been used as a sternutatory, and in some external applications.

Dose. Of the oil, 5 to 10 drops.

Of the spirit, 3j. to 3ij.

Prep. Ol. Rosmarini, — Spir. Rosmarini, — Lin. Saponis.

RUMEX.

The leaves of the RUMEX ACETOSA. — *Common Sorrel*.

This plant is indigenous. Its leaves are pleasantly sour, and without odour. The sourness depends on the presence of binoxalate of potash, with a little tartaric acid. There is in them also some starch and mucilage. The taste is almost lost by drying.

Medical Properties. Refrigerant and diuretic, and may be used as an article of diet in scorbutic complaints. The juice has been taken as an acidulous drink in fevers, in doses of $\bar{3}$ ss. to $\bar{3}$ i.

RUTA.

The leaves of RUTA GRAVEOLENS.—*Common Rue.*

This plant is a native of the south of Europe, but now very common in our gardens; it flowers from June to September. The whole plant is active, but the leaves are commonly preferred. They have a strong odour, and a bitter, hot, and acrid taste. In the fresh state, they are sometimes capable of blistering the skin, if they are much handled: the virtues depend chiefly on a volatile oil, which is abundant, and is contained in glandular vesicles, dispersed over the whole surface of the plant. In addition to volatile oil, they contain, according to Mahl,

Chlorophylle.
Albumen,
An azotized substance,
Extractive,
Gum,
Starch or inulin,
Malic acid,
Lignin.

Their active properties are extracted both by alcohol and water.

Medical Properties. Stimulant and antispasmodic. It is used in hysteria, flatulent colic, and amenorrhœa, and worm cases. By the ancients, it was used as a condiment, and was supposed to be an antidote to poisons.

Dose. Of the powdered leaves, gr. x. to xx.

Prep. Conf. Rutæ.

SABADILLA.

The seeds of *HELONIAS OFFICINALIS*.

This plant, formerly named *Veratrum Cevadilla*, is a native of Mexico, bearing spiked racemes; the fruit is a capsule with three cells, each containing two or three seeds, which are blackish and angular. They have no odour, but an acrid and bitter taste. According to M. M. Pelletier and Caventon, they contain

Fatty matter,
Wax,
Acid gallate of veratria,
Gum,
Woody fibre.

These seeds are never given internally. They are employed for procuring veratria according to the process of the London Pharmacopœia.

SABINA

The tops of *JUNIPERUS SABINA*.—*Savine*.

This is an evergreen shrub, very common at present in this country, somewhat resembling the juniper, but not generally attaining to so large a size. It is a native of the south of Europe and the Levant. The ends of the branches should be collected for medical use, in the spring. The tops and leaves have a strong, heavy, disagreeable odour, and a bitter acrid taste. These qualities depend on a volatile oil, which may be separated by distillation in the usual manner. It amounts to 15 or 16 per cent. They impart their properties to alcohol and water.

Medical Properties. Savine is highly stimulant and diuretic, increasing also the secretion of the skin and uterus, on which it exerts a powerful action. It is used most commonly in amenorrhœa, and by some has been prescribed in chronic rheumatism. This drug has the character of being able to procure abortion, and deaths unfortunately have resulted from such an abuse of it. It is considered that abortion will not result

from it unless such disturbance of the system has been occasioned as to endanger the life of the female.

Savine is used in the form of a cerate as an external irritant, to promote the discharge from blistered surfaces. It has been applied in powder, or in infusion to warty excrescences, indolent ulcers, psora, and tinea capitis.

Dose. Of the powder, gr. v. to gr. xv.
Of the oil, 2 to 5 drops.

Prep. Ceratum Sabinæ.

SACCHARI FÆX.

Treacle.

This is the uncrystallizable syrup left after separating the crystallizable sugar. It is used in the Pharmacopœia, in the preparation of some pills. And is also an useful vehicle for some medicines for children, particularly the carbonate of iron.

SACCHARUM.

Sugar. The prepared juice of the SACCHARUM OFFICINALE.—*Sugar cane.*

For an account of the process for procuring sugar, the reader is referred to numerous non-medical works.

SAGAPENUM.

A gum-resin, obtained from an unknown variety of FERULA.

It is collected in Persia, and is imported from Smyrna, Alexandria, and other parts of the Levant. In its external characters, it somewhat resembles assafœtida, but is generally darker coloured, has a greasy appearance, is often mixed with impurities, has a strong alliaceous odour, and a hot, bitterish, nauseous taste. It is

best dissolved by proof-spirit. According to Pelletier, its constituents are, in 100 parts,

Resin	-	-	-	54.26
Gum	-	-	-	31.94
Bassorin	-	-	-	1.0
Peculiar substance			-	0.60
Acidulous	}			0.40
Malate of lime			-	
Volatile oil, including loss, 11.80				

Brandes found 3.73 per cent. of volatile oil.

Medical Properties. Stimulant, antispasmodic, and a reputed emmenagogue and anthelmintic. It partakes of the properties of assafoetida and galbanum. It is given chiefly in amenorrhœa, hysteria, and chlorosis.

Dose. Gr. x. to xxx.

Prep. Pil. Galb. Comp.,—Conf. Rutæ.

SAGO.

A form of starch procured from the *SAGUS RUMPHII*.—*Sago Palm*.

This is one of the smallest of this family, seldom exceeding thirty feet in height. It grows plentifully in the East Indian Islands, especially the Moluccas, Borneo, and a part of New Guinea. The pith of the stem is the part which affords the Sago. As much as 500 or 600 pounds of it are said to have been obtained from one tree.

Sago is a mild nutritious substance, easily digested, well adapted for cases of fever, in which the stomach rejects more substantial or stimulating substances. It is given dissolved in water, and is rendered very grateful to the palate, by adding to it a little sugar, or some spice, or a small quantity of wine. A table-spoonful of sago to a pint of water is sufficient.

SAMBUCUS.

The flowers of *SAMBUCUS NIGRA*.—*Common Elder*.

This variety of *Sambucus* may be called a small tree. It is indigenous, and flourishes in almost every part of the country. The flowers only are officinal. The berries, which are of a dark purple colour, are employed in making a species of wine.

The flowers have a peculiar, rather unpleasant odour, stronger when they are fresh than dried. Their taste is slightly bitter. They contain a volatile oil in small quantity, and ammonia is found in the water in which they may have been heated. The berries contain sugar, mucilage, and malic acid.

The inner bark is ordered in the Dublin Pharmacopœia.

Medical Properties. The flowers are slightly excitant and diaphoretic, but very seldom used. They are more employed externally in ointments, fomentations, or poultices.

The berries are diaphoretic and aperient. Their inspissated juice has been administered in rheumatism, gout, cutaneous and syphilitic eruptions, in doses of ʒj. to ʒij. as an alterative, ʒss. as a laxative.

The inner bark is a hydragogue cathartic, and emetic in large doses. It has been given in dropsies and some chronic diseases; one ounce may be boiled with two pints of water down to one, and two to four ounces of it given for a dose.

Prep. Ung. Sambuci.

SAPO.

Hard soap is made by the action of soda on olive oil. According to the discoveries of chemists, the oil is decomposed, and gives rise to the production of two

acids, margaric and oleic, with a third principle, named glycerine. These two acids unite with the soda to form soap. The variety of hard soap used medicinally is ordinarily called *Castile soap*. This is recognised by its marbled or mottled appearance, bluish in the centre, and red on the surface after it has been exposed to the air. This colouring is given by sulphate of iron, which at first makes the streaks of the interior blue, and the iron, by becoming exposed to the air, attracts more oxygen, and becomes a sesquioxide.

Sapo mollis, *soft soap*, is made with olive oil and potash. The oil used is generally of a very inferior quality. It contains usually a considerable excess of alkali, and hence is more powerful as a detergent.

Medical Properties. Laxative, antacid, emetic, diuretic, externally emollient and detergent. It is given in dyspepsia with rhubarb, to relieve constipation, and to assist the hepatic system: also in urinary disorders, where the uric acid prevails. At one time it was considered antilithic, that is, that it prevented the formation of urinary calculi, and even had the power of dissolving them, when formed. Soap may be serviceable in cases of poisoning, as an emetic, when more powerful ones are not at hand. It should be given freely, dissolved in water. It is often used in pharmacy to give consistence to pills, and to prevent their becoming too hard and insoluble after long keeping. It likewise enters into several discutient applications.

SARZA.

The root of SMILAX OFFICINALIS.—*Sarsaparilla*.

The plant which affords this, was long named Smilax Sarsaparilla, till it was ascertained to be another species, which is now thought to be correctly designated. The plant is perennial, with an annual climbing or trailing stem, which is angular and prickly. It abounds

about the river Magdalena, and is the Zarzaparilla of the natives. The plant also grows in Mexico, Guatemala, and the warm latitudes of South America. The root is very long and slender, and as it is brought into the market from various sources, is divided into several commercial varieties, such as Honduras, Jamaica, Lisbon, &c.

Honduras Sarsaparilla comes in bundles two or three feet long, consisting of the roots folded lengthwise, and secured by some circular turns, and packed in bales, weighing about 100 pounds, imperfectly covered with skins. The roots, at one extremity, are collected in large numbers to a common head, to which a portion of the stem is sometimes appended.

The *Jamaica* or *Red Sarsaparilla*, generally reputed to be the best, is not produced in Jamaica, and only got the name in consequence of that Island being a channel for its exportation. A large quantity of sarsaparilla is also shipped from Vera Cruz and Tampico. The bundles are rather smaller than of the Honduras variety, the fibres are smaller, and the bark is thinner.

The *Brazilian* or *Lisbon Sarsaparilla* grows in the country between the Orinoco and Rio Negro, and is conveyed to the port of Para. It is distinguished by the amylaceous character of its interior structure, and on this account has at times been supposed to be the most valuable variety.

Dried Sarsaparilla root is wrinkled externally, of a grey-brown, reddish, and sometimes blackish colour, composed of a thin epidermis, a thick cortical portion, ligneous fibre, and a central pith. In its ordinary state it is almost inodorous, but in decoction acquires a very peculiar odour. It is mucilaginous and slightly bitter to the taste, and, after long chewing, causes an acrid sensation in the fauces. The root is considered to be efficacious in proportion as it possesses this acrimony, which appears to reside chiefly in the cortical part. The virtues are imparted to water, but are impaired by

long boiling. Diluted alcohol is considered to be even a better menstruum than water, for taking up the active matter.

The chemical composition of sarsaparilla is very uncertain; and different chemists disagree much as to the proximate principles they find in it. It contains starch, lignin, and extractive matter. Canobio found 3 per cent. of resin; Berzelius found volatile oil; Pallotta discovered a white powdery substance, which he named Pariglin, and thought it was the active principle: to a similar substance Folchi gave the name of Smilacin. Much of the uncertainty may have arisen from the sarsaparilla being liable to deterioration by keeping, and being collected from other varieties of smilax, which are less useful. If it does not produce an acrid sensation in the throat, after being long chewed, it should be rejected.

Medical Properties. Sarsaparilla is generally considered to be alterative, diaphoretic, tonic, and anti-syphilitic.

At one period this medicine was supposed to be a specific in the cure of syphilis; such an idea now is almost altogether abandoned. It may be and appears to be very serviceable in the management of the secondary forms in combination with other remedies, after a protracted use of mercury, and the system being greatly reduced. It is certainly useful in some skin diseases; possibly it does good by soothing the internal mucous membrane, by lubricating and allaying irritation, and may enter the circulation and attenuate and purify the blood. It is also prescribed in chronic rheumatism and scrofulous affections, and after protracted diseases, in which there is emaciation and a cachectic appearance, with any perceptible organic affection. If the compound decoction of sarsaparilla proves beneficial, it is not fair to give all the merit to the sarsaparilla, as there are other ingredients which are certainly quite as active.

Dose. In powder 3ss. to 3j., seldom taken on account of the bulk.

Of the decoction, or compound decoction, a pint may be given in the day.

Of the extract 3ss. to 3j.

Prep. Decoct. Sarzæ,—Dec. Sarzæ comp.,—Extr. Sarzæ.

SASSAFRAS.

The root of LAURUS SASSAFRAS.

This tree is a native of the United States, Mexico, and Brazil, and is also found in Cochin-China. The parts of it used, are the wood, the pith, the root, and bark of the root. The root only is ordered in our Pharmacopœia. The most active part is the bark of the root.

The wood is porous, of a white colour, laminated, and covered with a spongy bark, which is divisible into layers. The bark is of a rusty colour, very brittle, of a lighter colour in the interior. Its odour is fragrant; the taste sweetish and aromatic. These qualities are extracted by water and alcohol; they reside in a volatile oil, which can be separated by distillation.

Medical Properties. Sassafras is mildly stimulant, and sometimes diaphoretic. It is also called an alterative. It is most employed as an adjuvant on account of its pleasant flavour. It is recommended in secondary syphilis, chronic rheumatism, and skin diseases. It would be very wrong to place much reliance on it. In the London streets, especially in winter nights, an infusion of it is sold at stalls, known by the name of Saloup: its admirers consider it a most wholesome beverage. It may be given in infusion or decoction, ad libitum, or the oil may be given in doses of ten to twenty drops.

Prep. Dec. Sarzæ comp.,—Ol. Sassafras.

SCAMMONIUM.

The Gum-resin of CONVULVULUS SCAMMONEA.

The plant which affords scammony has a perennial root, with annual, trailing, twining, herbaceous stems. It is a native of Syria and the neighbouring countries. The drug is collected in the following manner: in the month of June the earth is cleared away from the root, which is sliced off about two inches from the top, and the milky juice which exudes is collected in shells or any other convenient receivers. A few drachms only are collected from each root. The juice from several plants is placed in a proper vessel and gradually hardens, forming pure scammony. It is not exported in this state, but is mixed with the expressed juice of the leaves and stalks, wheat-flour, chalk, fine sand, &c. The drug produced in Syria is called Aleppo scammony, and is the best. Another variety is named Smyrna scammony, from the place of its export. The precise source of it is not known.

Aleppo scammony is in large irregular heavy masses, generally somewhat porous, occasionally quite compact. The colour internally is lighter than on the outside, but becomes dark by exposure to the air. It is easily pulverised, and yields a light grey powder. Saturated with water it gives a greenish milky appearance. The smell of it is likened to old cheese. The taste is bitterish, and slightly acrid.

Smyrna scammony is in flat cakes, darker, heavier, more compact, less easily pulverized, with a bitter acrid taste, and an odour different from the preceding variety. With water it forms an opaque solution of a dirty white colour.

Scammony is classed with gum-resins. It is partially soluble in water and alcohol, entirely in proof-spirit, excepting the impurities. Its chief constituent is

resin, which forms about two-thirds of Aleppo scammony. From this variety Bouillon, Lagrange, and Vogel procured, in 100 parts,

Resin	-	-	-	60
Gum	-	-	-	3
Extractive	-	-	-	2
Insoluble matter	-	-	-	35

And from the same quantity of Smyrna scammony,

Resin	-	-	-	-	-	29
Gum	-	-	-	-	-	8
Extractive	-	-	-	-	-	5
Vegetable remains and earthy substances	-	-	-	-	-	58

Medical Properties. Scammony is a drastic cathartic, and may also be called an anthelmintic. It acts with considerable violence in large doses, producing slimy mucous evacuations. As a purgative it is perhaps the best for discharging mucus: it not only discharges that already secreted, but stimulates the mucous follicles, unloading them, and thus removes the nidus of the worms of the intestines, by which proceeding they are more easily dislodged. This is probably the only explanation to be afforded of its anthelmintic virtues. Scammony is generally given in combination with other purgatives, and with aromatics, especially ginger, to counteract its griping effects.

Dose. For an adult, gr. x. to gr. xv.
a child, gr. iij. to gr. v.

Prep. Conf. Scamm., — Extr. Col. c., — Pulv. Scamm. comp.

SCILLA.

The fresh bulb of *SCILLA MARITIMA*.—*Squill, Sea Onion.*

This plant is perennial, with fibrous roots proceeding

from the base of a large bulb, which sends forth several large leaves, and a long succulent flower-stem supporting a long spike of whitish flowers. It grows on the sea-coast of Spain, Italy, Greece, and other countries bordering the Mediterranean. The bulb is the officinal portion, and may be kept in a moist state by immersion in sand. It is pear-shaped, varying in size from that of a fist to a child's head, consisting of fleshy scales, thin at their margin, and thin and dry externally, so as to appear like a membranous envelope. The colour of the interior is ordinarily white; sometimes it has a pinkish tinge. The bulb abounds in an acrid juice, which will inflame the skin and even excoriate it, if much handled. By drying, the acrimony is diminished, without lessening the medical virtues, and four-fifths of the weight are lost. The drug is usually kept in the form of thin dry slices, prepared by incision and artificial heat; the most external and internal parts are rejected; the former wanting the active principle, and the latter being too fleshy and mucilaginous. Squill may be pulverized, but it is difficult to preserve it in that state long, on account of its absorbing moisture from the air, which makes it concrete into a mass. The odour is feeble, the taste bitter, nauseous, and acrid. The virtues of squill are extracted by water, alcohol, and vinegar. The constituents, according to Vogel, are

A bitter principle, named *Scillitin*.

Gum.

Tannin.

Traces of citrate of lime, and saccharine matter.

An acrid principle which he could not isolate.

The tannin is in very small quantity. The scillitin is soluble in water, alcohol, and vinegar. According to another chemist, the acrid principle is insoluble in water and dilute acids, but soluble in strong alcohol. From the conflicting statements it is clear that little is known for certain respecting it; and, as it is not

separated for medical use, further consideration is superfluous.

Medical Properties. Squill is a stimulating expectorant, diuretic, and in large doses emetic and purgative. As an expectorant it is only suited for chronic diseases, such as chronic catarrh, asthma, and bronchitis, occurring in elderly people. It acts by giving tone to the vessels of the mucous membrane, and causing them to throw out more healthy fluids. When there is deficient secretion, it is better to be combined with tartarized antimony, or ipecacuanha. When there is excessive secretion, with debility, it diminishes the quantity, by giving tone to the relaxed vessels.

The *modus operandi* is explained in two ways: 1st. That some of its principles enter the blood and come into actual contact with the morbid vessels.

2d. That it relieves by sympathy with the mucous coat of the stomach; which sympathy is easily established by both parts being supplied by the same nerve, namely, the par vagum.

Squill is an improper medicine for children's diseases generally; we have a much better substitute in ipecacuanha. As a diuretic, squill is much used in dropsies, and is very often combined with calomel or pilula hydrargyri, which assists, by exciting the absorbents, to take up the squill, that it may stimulate the kidneys to increased secretion. As an emetic and purgative it is better left alone, for, in overdoses it causes hypercatharsis, strangury, bloody urine, bloody stools, and fatal inflammation of the stomach and bowels.

Dose. Of the powder, one grain gradually increased to five.

Of the tincture, ʒss. to ʒj., ter die.
vinegar, ʒj. to ʒij.

As an emetic, the quantity which has been given is eight to twelve grains. In the moist state squill is not

administered; but its strength, compared with the dried substance, is only one-fifth.

Prep. Acetum Scillæ,—Oxymel Scillæ,—Pil. Scillæ comp.,—Tinct. Scillæ.

SCOPARIUS.

The tops of CYTISUS SCOPARIUS.—*Common Broom.*

This shrub is indigenous, existing in great abundance on our heaths; readily recognized by its beautiful yellow flowers. The whole plant has a bitter nauseous taste, and when bruised, a strong peculiar odour. The tops are officinal, but the seeds possess similar properties. The virtues are extracted by water and alcohol.

Medical Properties. Diuretic and cathartic. It has been prescribed in dropsies, and is said to have given great relief to the late Duke of York, by which, for a time, this drug obtained some notice. It is best given in the form of decoction, for the preparation of which a formula is now given in the London Pharmacopœia.

Dose. Of the decoction, one to two ounces three times a day.

Prep. Dec. Scoparii comp.

SENEGA.

The root of POLYGALA SENEGA.—*Rattlesnake Root.*

This plant grows wild in most parts of the United States: the root is perennial, but the stem annual; of rather a diminutive size, seldom growing more than nine inches high. The root only is used officinally. This root, at first sight, bears some resemblance to ipecacuanha, in its small branches, but is readily distinguished by the tuberosity on its summit, from which

several stems had grown. The outer part is hard and resinous, and contains the active principle; the internal portion is comparatively inert. The taste of the root is at first sweetish and mucilaginous, and after chewing, pungent and acrid, leaving great irritation in the fauces. The active principles are extracted by boiling water, also by alcohol, in rather a less degree; diluted alcohol is the best solvent. According to the analysis of Gehlen, it contains

Senegin	-	-	-	-	6.15
Soft resin	-	-	-	-	7.5
Acrid extractive matter	-	-	-	-	26.85
Gum, with a little albumen	-	-	-	-	9.5
Lignin	-	-	-	-	46

Medical Properties. Senega is a stimulating expectorant, tonic, and at the same time somewhat diaphoretic. It is said also to be emetic, purgative, and emmenagogue, in fact increasing most of the secretions. Its good effects are best shown upon the pulmonary organs, for, at the same time that it restores the tone of the mucous membrane of the air tubes, it is a tonic to the system generally. It combines the good effects of ipecacuanha with those of the vegetable tonics. I have used it with much benefit in chronic catarrhs, in the last stages of Bronchitis or Peripneumonia where there is excessive secretion, and at the same time much debility; and I believe that it is little used, because many who have prescribed it have given it in improper doses. By some it has been much extolled as an emmenagogue.

Dose. In powder, gr. v. to gr. x.
Of the decoction, ʒvi. to ʒj.

Prep. Decoctum Senegæ.

SENN A.

The leaves of *CASSIA LANCEOLATA* and *CASSIA OBOVATA*.

The drug named Senna is considered to be the produce of several species of Cassia, and of other plants besides. Those which contribute most to its formation are the *C. Acutifolia*, *C. Obovata*, *C. Elongata*, and *C. Lanceolata*.

The *Cassia Acutifolia* is a small shrub growing from two to three feet high, abundantly in Upper Egypt, near Sienne, in Nubia, and Sennaar. It furnishes the Tripoli Senna, and forms the greater part of Alexandrian Senna. The leaflets are ovato-lanceolate, acute, oblique at their base, nerved, from half an inch to an inch in length, and of a yellowish green colour.

The *Cassia Obovata* is a still smaller shrub, rarely growing more than a foot high. The leaflets are obovate, very obtuse, sometimes mucronate. It grows wild in Syria, Egypt, and Senegal, and has been cultivated in Spain and Italy. It yields the variety of Senna named Europe-Aleppo Senna, and enters into the composition of the Alexandrian.

Cassia Elongata is the name conferred on the plant from which the East Indian Senna is derived. It has not been described as having been seen growing by naturalists. The leaflets are elongated, acute, thin, obscurely mucronate, oblique, with very short petioles. The length is remarkable, compared with the other sennas: it varies from an inch to 20 lines; the breadth is from 3 to 5 lines.

The *Cassia Lanceolata* is mentioned by some authors, and has been described as growing in Arabia. Decandolle considers it to be a variety of the *C. Acutifolia*.

In addition to the plants just mentioned, we find mixed with the senna, leaves of other plants, such as

Cynanchum Oleafolium, known also by the name of *argel* or *arguel*, the *Colutea Arborescens*, and *Coriaria Myrtifolia*. The *Cynanchum Oleafolium* is found in the Alexandrian Senna, and may be distinguished by a careful inspection of the leaves. They are generally an inch long, thick and firm, have no lateral nerves on their under surface, of a somewhat lighter colour, and have a regular base. It is remarkable in the real senna leaves, that whatever be the species, they are always characterized by obliquity at their base, one side of the limbus being inserted into the petiole lower down than the other, and forming a different angle. For medical use, senna is prepared by picking out the leaflets and rejecting the leaf-stalks, the small fragments, and leaves of other plants; the pods are also rejected, although unnecessarily, as it appears that their purgative qualities are equal to those of the leaves.

Properties. The odour is faint and sickly. The taste is slightly bitter, sweetish, and nauseous. Water and alcohol extract the active principles. To water senna-leaves yield one-third of their weight. The infusion exposed to the air for a short time deposits a yellowish insoluble precipitate, supposed to arise from the union of oxygen with the extractive matter. Decoction impairs the medical virtues considerably. By analysis, M. Lassaigne and Feneuille discovered

A peculiar principle named Cathartin.

Chlorophylle.

A fixed oil.

A small quantity of volatile oil.

Albumen.

Yellow colouring matter.

Mucilage.

Malate and tartrate of lime and acetate of potash.

Mineral salts.

The active purging principle is considered to be the cathartin. It is an uncrystallizable substance, having a peculiar smell, a bitter nauseous taste, and a reddish yellow colour; is soluble in water and alcohol, but

insoluble in ether; and in its dry state attracts moisture from the atmosphere. It is thus prepared: to a decoction of senna add acetate of lead, and then remove the liquid from the precipitate. Through the solution pass hydrosulphuric acid, to precipitate the lead, and separate the sulphuret by filtration. The liquid is now evaporated to the consistence of an extract, and the product is treated with rectified alcohol, and the alcoholic solution is evaporated. This is further purified by repeated washing, and the liquid, by evaporation, yields cathartin.

Medical Properties. Senna is a prompt and efficient purgative, very useful where a decidedly violent impression is not required. The chief objection to its use is the severe griping which attends its operation. This, however, may be obviated in a great measure by combining with it either aromatics, or neutral salts, or camphor. The aromatic spirit of ammonia is a pleasant addition, and does not appear to diminish its efficacy. The operation is said to be promoted by giving it in combination with bitters, a fact noticed by several writers. Dr. Thomson considers that if the infusion be made with water several degrees below the boiling point, the purgative matter is dissolved, but the griping principle is either not dissolved or not developed. Such an infusion may not gripe so much, but certainly it is far less active than that made in the usual manner.

Senna might be given in powder, if its bulk did not make it inconvenient; it is most used in the forms of infusion and tincture.

Dose. Of the powder, 3ss. to 3j.
— infusion, ʒij. to ʒiij.
— tincture, ʒij. to ʒiv.

Prep. Conf. Sennæ,—Inf. Sennæ comp.—Tinct. Sennæ comp.

SERPENTARIA.

The root of *ARISTOLOCHIA SERPENTARIA*.—*Virginian Snake-root*.

Several varieties of *Aristolochia* have been in medical use, and, from supposition of their emmenagogue qualities, received their Latin name. The present variety is herbaceous, with a perennial root, consisting of numerous fibres, proceeding from a short caudex. The root only is officinal. It is a native of the United States.

This root has a yellowish brown colour, bearing some resemblance to Valerian, from which it may be distinguished by the fibres being longer, smaller, and in greater number to each caudex. The smell is strong, aromatic, and camphorous; the taste is warm, bitter, and camphorous. It yields its virtues to water and alcohol. Chevallier found in the root,

Volatile oil.

A yellow bitter principle, soluble in water and alcohol.

Resin.

Gum.

Starch.

Albumen.

Lignin and various salts.

The active principles appear to be the volatile oil and the bitter principle, analogous to the quassin of quassia. The volatile oil will pass over by distillation with water. It is stated that this liquid, by standing, will deposit minute crystals of camphor.

Medical Properties. Serpentry is a stimulating tonic, also somewhat diaphoretic and diuretic. If taken in excess it causes nausea, vomiting, and dysenteric tenesmus. It is best adapted for the treatment of typhus, when the system requires moderate stimulation: also in the exanthematous fever, where there appears to be insufficient power to determine the eruption to the surface. It has also been recommended in

intermittent fevers; and if not in itself sufficient to cure the disease, is an useful auxiliary to cinchona.

Dose. Of the powdered root, gr. x. to gr. xxx.

— infusion, ℥jss. to ℥ij. ter die.

Prep. Infusum Serpentariæ,—Tinct. Cinch. comp.,
—Tinct. Serpentariæ.

SEVUM.

Suet, fat from the OVIS ARIES,—*Sheep*.

This is the fat of the sheep, taken chiefly from about the kidneys. It is of a firm consistence, and requires a higher temperature for melting than any other animal fat. It contains a very large proportion of stearine, the solid principle existing in fat and oils. By long keepingsuet acquires an unpleasant smell, and becomes unfit for pharmaceutical purposes. It is chiefly employed to give consistence to ointments and plasters.

Prep. Emplastrum ceræ.

SIMARUBA,

The bark of the root of QUASSIA SIMARUBA.—*Mountain Damson*.

This tree is of considerable size. It grows in the West Indies and Guiana, and is named in Jamaica the Mountain Damson. The bark of the root is officinal; the wood itself being almost tasteless and inert. This bark has no odour, but a bitter taste; it imparts its virtues to water and alcohol. It is composed, according to Morin, of a bitter principle, supposed to be

Quassin.
Resinous matter.
Volatile oil.
Malic acid.

A trace of gallic acid.
An ammoniacal salt.
Malate and oxalate of lime.
Some mineral salts.
Oxide of iron.
Silica.
Ulmin.
Lignin.

Medical Properties. It is a mild tonic, possibly useful in cases in which similar remedies are indicated; but there is very little to recommend it. It cannot be pulverized without much trouble.

Dose. ʒj. to ʒj. of the powder.
ʒj. to ʒij. of the infusion.

Prep. Inf. Simarubæ.

SINAPIS.

The seeds of SINAPIS NIGRA. — *Common Black Mustard.*

This plant is a native of the South of Europe, and now naturalized in this country, in which it grows very readily; the officinal part of the plant is the seed. The white mustard seed is also employed in most countries. The seeds of either plant yield a yellow powder, which has a somewhat unctuous appearance, and cakes when pressed: when bruised they impart their active qualities entirely to water, and in a less degree to alcohol. They yield by pressure a fixed oil of a greenish yellow colour, with little smell or taste; the remaining portion being exceedingly pungent. By distillation in water, black mustard seeds yield a volatile oil, soluble in alcohol and water, of a powerfully pungent odour and acrid burning taste, containing a little sulphur, and capable of soon exciting vesication, when applied to the skin. This oil does not appear to exist ready formed in the seeds, but

is an educt of the action of water. Messrs. Robiquet and Boutron could not obtain volatile oil from the white mustard seed. Their active qualities depend on a fixed principle not existing in the seed, but developed like the volatile oil in the former case by the action of water or other agents. The ingredient converted into the acrid principle is named *sulpho-sinapisin*, discovered by M. Henry and Garot in the oil of white mustard, afterwards found in the seeds themselves. They believe this because mustard deprived of this substance is incapable of developing the acrid principle.

The two varieties differ essentially in their constitution, though it is likely that their characteristic ingredients are very analogous, as they both contain sulphur.

Sulpho-sinapisin is composed of sulphur, carbon, oxygen, hydrogen, and nitrogen. It is neither acid nor alkaline, white, crystallizable, soluble in water and alcohol, affording a yellow solution, inodorous, with a taste like mustard. It appears that vinegar diminishes the irritating properties of black mustard, and that the powder of it with strong acetic acid is almost inert upon the skin, although either separately is very irritating. This is not the case with white mustard.

Medical Properties. Mustard seeds swallowed without bruising act as a laxative, and have been considered useful in dyspepsia, where there is a torpid state of the bowels; with this intention the white mustard is preferred and is administered in the dose of a tablespoonful: their action is chiefly mechanical. The principal application of mustard in medicine is, as an external agent, to produce irritation, inflammation, and even vesication upon the surface. The poultice made with mustard is called a sinapism.

Mustard poultice, or a sinapism, is used as a rubefacient, counter-irritant, and stimulating application.

It is often prescribed as a substitute for cantharides, in consequence of a more certain and speedy operation. Great care, however, is necessary in the employment of

sinapisms. If they are applied to an emaciated, delicate, and weakly body, and left on too long, they may occasion sloughing; in children they act sufficiently in the course of ten or fifteen minutes, and should be carefully watched, so that, as soon as the skin is reddened, they may be removed. They are much used in apoplexy, applied to the extremities. If put on the dorsum of the foot, calves of the legs, or thighs, from twenty to thirty minutes may be sufficient time to leave them on. When in contact with the soles of the feet, a longer time is necessary to produce any effect, in consequence of the thickness of the epidermis.

Sinapisms are beneficial by drawing blood to the surface, and, consequently, diverting its current from an internal organ. In apoplexy they cause a greater flow of blood to the extremities, relieving the upper part of the body; they may, at the same time, rouse into action the nervous system, depressed by an accumulation of blood in the head; and may in some cases be considered to act as evacuants.

Prep. Cataplasma Sinapis.

SODÆ ACETAS.

ACETATE OF SODA.

This salt is procured in the process for obtaining pyroligneous acid, and is introduced into the Pharmacopœia, as a ready mode of preparing acetic acid of considerable strength. It is obtained on a large scale in the following manner: the impure pyroligneous acid is first saturated with lime, forming an acetate of lime, and during the saturation a black scum rises, and is removed. It is then decomposed by sulphate of soda, by which we have formed a soluble acetate of soda, and an insoluble sulphate of lime, which, in

falling, carries a good deal of tarry matter with it. The solution of acetate of soda is then evaporated to crystallize, and is afterwards purified by drying and submitting it to igneous infusion, by which the remaining tarry matter is driven off. It is subsequently dissolved in water, filtered and crystallized, and charcoal is sometimes employed to decolorize it.

In pharmacy it is used to procure strong acetic acid, by the medium of sulphuric acid, which unites with the soda, setting free the acetic acid, which is separated by distillation.

Prep. Acid. Aceticum.

SODÆ CARBONAS IMPURA.

Impure CARBONATE of SODA, formerly the SUB-CARBONATE.

Soda is found mineralized in some countries, in others it is obtained artificially. Native soda is found in Egypt, and several other parts of Africa. It is obtained from lakes, which, by the evaporation of the water, produce the soda in a solid form. It is known by the name of Trona amongst the natives of Africa.

Soda, of vegetable origin, is procured from plants which grow on the borders of the sea, and is known by the name of Kelp and Barilla. Barilla is obtained from plants belonging to the genera *Salicornia* and *Salsola*: the species preferred are the *Salsola soda* and *Salicornia herbacea*. In Spain, Sicily, and some other countries, the plant is regularly cultivated for the production of soda. The plants, when mature, are gathered, dried, and burnt in pits, about three feet deep and four broad, and the combustion is kept up till the pit is filled with the ashes. These are in the form of a hard, semifused, compact, saline mass, which, by pickaxes, is broken into fragments and sent into the markets.

Kelp is also procured from the incineration of seaweeds, principally the algæ and fuci, in the Orkney islands, Wales, Scotland, and Ireland. The plants are allowed to ferment in heaps, then dried, and afterwards burnt to ashes in ovens, roughly built in the ground. The alkali, in the ashes, melts and forms the whole into a hard solid mass, which is broken up into smaller pieces and thrown into commerce.

Barilla contains from 20 to 40 per cent. of carbonated soda, the rest being sulphate of soda, sulphuret of sodium, common salt, carbonate of lime, alumina, silica, oxide of iron, and a small quantity of charcoal.

Kelp is less pure than barilla, containing only from 3 to 8 per cent. of carbonated soda, the rest being made up of a large proportion of sulphates of soda and potash, the chlorides of sodium and potassium, and a small quantity of either the iodide of sodium or potassium; it is from this that iodine is chiefly procured.

The Soda of Commerce, so extensively used in washing and a variety of other processes, is obtained artificially by decomposing the sulphate of soda and common salt. This is practised on a very large scale in Scotland. The impure carbonate is used in Pharmacy to obtain the pure carbonate of soda.

SODÆ PHOSPHAS.

This salt is procured by adding to calcined bones some sulphuric acid with water, by which we have formed a superphosphate of lime in solution, with a little sulphate, and sulphate of lime largely precipitated. The solution is removed and evaporated, that the remaining sulphate of lime may fall, by being deprived of the necessary quantity of water for its solution. The superphosphate is then treated with more water, and carbonate of soda is added till effervescence ceases: in this case part of the phosphoric acid com-

bines with the soda, forming a soluble phosphate of soda, expelling carbonic acid, and phosphate of lime is precipitated. By evaporating the liquid, the phosphate of soda is procured in crystals.

Medical Properties. This salt is a mild purgative, and, as it has very little taste, will often suit delicate stomachs, and is well adapted for children. It requires to be given in rather large doses, and is best administered in gruel or weak broth, to which it gives a flavour, as if seasoned with salt.

Dose. For an adult, from one to two ounces.

SODII CHLORIDUM.

Common Salt. This mineral substance is diffused over almost all parts of the world, and is found either crystallized or in solution in springs, and largely in the waters of the ocean. In the solid state, called rock-salt, it is found in extensive beds, occurring almost constantly in secondary formations, associated with clay and gypsum. The chief salt-mines are in Poland, Hungary, and Russia; in some parts of Germany; in our own country in Cheshire; in Spain, and various parts of Asia and Africa. Rock-salt is always transparent, but often exhibits various colours, as red, yellow, brown, violet, or blue; supposed to be derived from iron and manganese.

When the salt is pure, it is merely dug out of the mines: when impure, it is dissolved in water, and afterwards extracted from the solution by evaporation. From the saline springs, it is procured only by evaporation. Sea-water affords salt by the agency of solar heat in hot countries; and the salt, thus obtained, is called bay-salt. In Europe, it is chiefly so prepared, especially on the shores of the Mediterranean. This is accomplished by letting in the sea-water into shallow dykes, lined with clay, and from which the sea can again be

shut out. In these situations the sun's heat concentrates the water, and the salt crystallizes. In temperate climates, the water is first concentrated in buildings, called Graduation-houses, which are of considerable length and height; in which are suspended faggots, upon which the brine is pumped. By the large surface exposed, evaporation is facilitated, and the brine acquires a considerable degree of concentration. It is then subsequently heated in iron-boilers by artificial heat. Sometimes to save fuel, the last concentration is effected by allowing the brine to trickle down a number of vertical ropes, on the surface of which the salt is deposited, forming a crust. Chloride of sodium crystallizes in cubes; and, by hasty evaporation, it often assumes the form of hollow quadrangular pyramids. When pure, it undergoes no change in the air; when it becomes moist, it is generally caused by the presence of muriate of magnesia.

It is composed of

1 chlorine,	-	=	36
1 sodium,	-	=	24
			—
			60

and has no water of crystallization, although a little water is generally present between its particles. In the salt of commerce, impurities are found not very abundant, and can be removed by chemical processes, when we desire the salt to be quite pure; they are, in addition to the muriate of magnesia, muriate of lime and sulphate of lime and magnesia, and some insoluble matter.

Medical Uses. This salt is tonic in small doses; in larger ones emetic and purgative. It is considered to promote digestion, which is found to be less perfect if those accustomed to it are deprived of its use. It is used externally as a stimulant, either in fomentations or as a bath; as a tonic and excitant in depraved

conditions of the system, especially in children, particularly depending on a scrofulous diathesis; and it is often employed in solution, as a stimulating enema.

It may be called also a vermifuge, as we find that it assists materially in the removal of worms, if used freely in the diet. This possibly may be owing to the tonic effect of salt on the stomach and bowels, and also the secretion of the liver. It is an interesting fact, that persons deprived of salt are almost certain of being subject to worms, and that when this salt is employed freely there is an exemption from them. The conclusion from this is obvious. As an emetic, salt is prompt in its operation, and during the cholera of last year was preferred to other emetics. Lately it has been given in typhoid fevers with chlorate of potash and sesquicarbonate of soda, and is thought to be beneficial by getting into the blood, and giving it that appearance and quality which it appeared to have lost from a deficiency of saline matter.

The use of salt is well known in domestic economy, as a condiment and antiseptic. It is employed in agriculture as a manure, and largely in the arts for several purposes. In Pharmacy we employ it in preparing hydrochloric acid, chlorine, calomel, and corrosive sublimate.

Dose. As a tonic, ʒj. to ʒj.
As an emetic, ʒss. to ʒj.

SPIGELIA.

The root of SPIGELIA MARILANDICA.—*Mariland Worm-grass Root.*—*Pink Root.*

This plant has an herbaceous annual stem, rising to a height of 12 to 20 inches, and a fibrous perennial root, which is officinal. It is a native of the southern parts of the United States.

This plant has a faint smell and a sweetish, rather bitter, not very unpleasant taste. Water extracts its active qualities. The root yielded to M. Feneuille

A fixed and volatile oil.

Resin in small quantity.

A bitter substance, supposed to be the active principle.

Mucilaginous saccharine matter.

Albumen.

Gallic acid.

Malates of potash and lime.

Lignin.

The leaves were found to contain the same principles as the root, but are less active.

Medical Properties. This root is only used as an anthelmintic, and with us very rarely. If administered in doses sufficient to produce a sensible impression, it purges, and is apt to give rise to very unpleasant symptoms. In overdoses it occasions vertigo, dimness of sight, dilated pupils, spasms, and convulsions. It is safest in its operation when combined with cathartics. In America, where it is most in use, it is employed in the form of powder and infusion. The dose of the powder for a child of four or five years is from 10 to 20 grains: for an adult, from one to two drachms, to be given night and morning for several days, and then followed by a brisk cathartic. The infusion is administered generally with infusion of senna, and is made with half-an-ounce of the root to a pint of water.

SPIRITUS RECTIFICATUS.

Rectified Spirit.

SPIRITUS TENUIOR.

Proof Spirit.

These liquids are both composed of the same constituents, viz., alcohol and water, only differing in the relative proportions.

Alcohol, in a chemical point of view, is a compound of olefiant gas and water, or may be described as consisting of 1 oxygen, 3 hydrogen, and 2 carbon, and also the product of the vinous fermentation. It is generated in vegetable solutions by the process just mentioned; and the liquids containing it are called vinous or alcoholic: sugar appears to be necessary for its development, or starch, which is convertible into sugar; and, to assist it, moisture, a certain temperature, and a ferment are necessary.

When sugar is exposed to this process, it gradually disappears, carbonic acid flies off, and alcohol is found in the liquid; and it is also known that the weight of the carbonic acid and alcohol is equal to the sugar which has disappeared: hence the conclusion is that by the vinous fermentation, sugar is converted into alcohol and carbonic acid. From all liquids thus fermented, alcohol may be procured by distillation. In vinous liquors it is diluted with an abundance of water, and associated with colouring matter, volatile oil, extractive, and various acids, and salts. In purifying it, advantage is taken of its volatility, which enables us to get it gradually more free from water. The distilled product of vinous liquors constitutes the various ardent spirits so extensively in use. From wine we obtain brandy; from fermented molasses, rum; from cyder, malted barley, or rye, whiskey; from malted barley or rye meal, rectified from juniper, Hollands; from malted barley, rye, or potatoes, rectified with turpentine, common gin; and from rice, arrack. They are severally distinguished by their flavours, and their strength is known by their specific gravity, which is always inversely to their concentration. When the specific gravity is $\cdot 920$, they have a strength equal to what we call proof spirit; and if stronger or weaker, they are said to be above proof or under proof. Proof spirit in this state is far from pure; it contains half its weight of water, essential oil, and foreign matters. It is

further purified by distillation and rectification, as it is called. By repeating the process several times, the liquid can be obtained of a specific gravity .825. It still contains 11 per cent. of water.

When it is desired to procure or obtain alcohol still more concentrated, substances are resorted to which have a strong attraction for water, such as chloride of calcium, lime, and carbonate of potash. These are heated and deprived of any moisture, and then put into the spirit. They attract and retain the water, whilst the spirit may be distilled over, of a lighter specific gravity; and by frequently repeating the operation, the water may be entirely removed, leaving absolute alcohol of specific gravity .796.

Very useful tables have been constructed by chemists to shew the proportion of water contained in spirit of different specific gravities, in the following manner.

100 PARTS		Sp. gr. at 60.
<i>Alcohol.</i>	<i>Water.</i>	
100	0	796
93	7	815
84	16	838
49	51	920

Medical Properties. Alcohol, in any of its forms, is a powerful stimulant, and to it we usually refer, in defining the effects of stimulants on the body. It produces a feeling of warmth in the stomach, which soon diffuses itself over the system; the heart beats stronger, the pulse is quicker and fuller, the secretions are increased, and also the appetite; there appears to be greater muscular energy, and excitement of the cerebral functions. These are the effects of a stimulant in moderation; if exceeded, they pass into a state resembling narcotism, and are succeeded by considerable prostration. In its pure state, alcohol is not used medicinally, but is employed in the form of wine or brandy, named,

in the Pharmacopœia, Spiritus Vini Gallici. This is found a valuable remedy in some severe diseases attended with extreme debility, as in some typhoid fevers, and diseases of the nervous system occurring in persons long habituated to the use of ardent spirits. The use of ardent spirits is sadly abused by almost all classes of people. An excess of them lays the foundation of many diseases, such as dyspepsia, hypochondriasis, visceral obstructions, dropsy, paralysis, and sometimes mania.

If taken in an unusually large quantity, alcohol produces an apoplectic state, and sometimes sudden death. The face becomes livid, the lips purple, the respiration stertorous, the mouth frothy, and the sensation and feeling are more or less suspended. The remedies for this state are emetics, affusion of cold water, blood-letting, a small quantity of spiritus ammoniæ, or a large dose of liquor ammoniæ acetatis.

Alcohol, more or less diluted, is extensively used in pharmacy in the formation of tinctures, spirits, ethers, and resinous extracts, added to distilled water and some other liquids, to assist in their preservation; and in consequence of its powerful antiseptic qualities, it is useful in preserving anatomical preparations.

STANNUM.

Tin.

Tin is one of the metals which has been longest known. It generally is found in the state of an oxide, very rarely as a sulphuret. It occurs in Cornwall most abundantly, and in some other countries of Europe. In Asia it is found in the Island of Banca, and the peninsula of Malacca. In America, we find it in Chili and Mexico. The purest tin is procured from the mines in Asia.

This metal is employed medicinally in a metallic state, minutely divided. It is prepared by melting it, and, during the cooling, stirring it briskly, by which it is separated into small particles. They may then be sifted, to obtain them sufficiently fine.

Uses. Tin is only employed as an anthelmintic, especially in cases of lumbricus teres. Its action is purely mechanical. It may be given in doses of one to two drachms twice a day, and a brisk purgative should be administered every third or fourth day. It has also been given for tape-worm in still larger doses, such as half an ounce to an ounce. The use of it has not been observed to be followed by any bad consequences.

STAPHYSAGRIA.

The seeds of DELPHINIUM STAPHYSAGRIA.—*Stavesacre.*

This plant is a native of the South of Europe: the seeds of it only are officinal. They are irregularly triangular, wrinkled, brown externally, internally whitish and oily. They have little odour, but a very acrid, bitter, hot, nauseous taste. They yield their virtues to water and alcohol. According to the analysis of Lassaigne and Feneuille, they yield

A brown and yellow bitter principle.

Volatile oil.

Fixed oil.

Albumen.

An azotized substance.

Mucilaginous saccharine matter.

Mineral salts.

Delphine, an alkaloid, combined with Malic acid.

Delphia, or *Delphine*, is a white substance, soluble in alcohol and ether, sparingly in water, and possessing a very acrid taste. It forms salts with acids. It is

procured by boiling the seeds, and adding magnesia, by which the alkaloid is precipitated. This is to be taken up by alcohol, which yields it by evaporation or distillation.

Medical Properties. Emetic and cathartic, but too violent for common purposes. They are chiefly used to destroy lice about the body, as in the hair or about the pubes. The powdered seeds, for this purpose, may be mixed with lard, and thus applied, or the powder sprinkled upon the parts. They have also been infused in vinegar, for the same purpose. They intoxicate fish, like *Cocculus indicus*. *Delphinia* is poisonous in small doses, acting powerfully on the nervous system.

STRAMONII FOLIA ET SEMINA.

The leaves and seeds of *DATURA STRAMONIUM*.
—*Thorn-apple, Jamestown weed.*

This plant is an annual, generally considered to be a native of North America, being particularly common about Jamestown, whence it has obtained one of its English names. It grows freely now in this country, and when it has once been planted and the seeds allowed to ripen, the plant is almost sure of shewing itself next season in or about our gardens. A large number of these plants growing together, produce a rank unpleasant odour, which may be detected at some distance. Every part of the plant possesses medical virtues. The leaves and seeds only are, however, officinal. The leaves, when fresh and bruised, exhale a fetid narcotic odour, which they lose by drying. Their taste is bitter and nauseous. They yield their properties to alcohol and water. According to Promnitz, they contain, in 100 parts—

Gum	-	-	0.58
Extractive	-		0.60
Green starch	-		0.64
Albumen	-		0.15
Resin	-	-	0.12
Saline matter			0.23
Lignin	-	-	5.15
Water	-		91.25

The seeds are small, somewhat kidney-shaped, almost of a black colour, inodorous, with a taste like the leaves, and some acrimony. Brandes examined them carefully, and detected, in addition to a peculiar alkaline principle which is named Daturine,

Glutinous matter.
 Albumen.
 Gum.
 A butyraceous substance.
 Green wax.
 Resin, insoluble in ether.
 Fixed oil.
 Bassorin.
 Sugar.
 Gummy extractive.
 Orange-coloured extractive.
 Some salts.
 An earthy substance.

Daturia is an alkaloid, soluble in like manner as the other alkaloids, and combined naturally with some malic acid. It is crystallizable in acicular prisms, and forms crystalline salts with nitric, muriatic, and sulphuric acids. It is procured by boiling the seeds in alcohol, then adding magnesia to the strained solution. The magnesia unites with the acid, and daturia is precipitated and obtained by evaporation. This substance, as a neutral salt, is powerfully narcotic and sedative, destroying animals in doses of three or four grains. It has not been employed medicinally. Berzelius says, that this so named daturia is nothing more than phosphate of magnesia.

Medical Properties. It is powerfully narcotic, and requires to be given with caution. In overdoses it occasions vertigo, headach, dimness of sight, confusion of intellect, and a delirium like intoxication, feeling of fulness about the fauces, with sense of suffocation, and some tendency to sleep. In still larger doses, these symptoms are aggravated; there will also be complete loss of vision, with dilatation of the pupil, delirium, stupor, paralysis, and sometimes death. To meet such occurrences, stimulating emetics are indicated, and the use of the stomach-pump. Stramonium appears powerfully to diminish the sensibility of the nervous system, so that ordinary emetics will sometimes not act; consequently, sesquicarbonate of ammonia and mustard are particularly indicated; afterwards, diffusible stimulants and anti-narcotic remedies should be employed, such as strong infusions of tea or coffee. Vinegar may be useful if there is not too much depression.

Stramonium may be serviceable in many diseases, the pathology of which is obscure, and in which if pain be relieved, the patient is satisfied, or where there is irregular nervous action. It is hence given in mania, epilepsy, neuralgic and rheumatic affections, syphilitic and cancerous sores, and spasmodic asthma. It is of most service in the latter, given in repeated doses during the paroxysm. With the same intention, and sometimes effect, the plant is smoked like tobacco, a practice which is not uncommon in the East Indies. Care must be taken that it is not used where there is much plethora, or copious secretion in the bronchial tubes, as, by deadening the nervous sensibility, the accumulation of mucus is less felt, and may be increased to such an extent as to induce asphyxia.

This substance has been externally applied in the form of fomentation, plaster, or poultice, to irritable ulcers, inflamed tumors, swollen and painful breasts,

and hæmorrhoids. It acts like belladonna, in dilating the pupil, applied in a similar manner.

As a medicinal agent, stramonium is not very certain in its operation, and if continued, the dose must be gradually increased. On some it has a deleterious influence even in small quantities.

Dose. Of the powdered leaves, 2 to 4 grains.

Of the extract, gr. $\frac{1}{4}$ to gr. ij.

Prep. Extractum stramonii.

STYRAX.

The balsam or concrete juice of the STYRAX OFFICINALE.—*Storax Tree.*

This tree grows to about 15 or 20 feet high. It is a native of Syria and the Levant, and is now naturalized in the South of France and Italy.

Storax is obtained in Asiatic Turkey, by making incisions in the tree. The drug is described as imported in three conditions. 1st, in fine grains of a yellow colour, and of the size of a pea, capable of uniting into a mass. 2d, the styrax calamita, from the circumstance of its being enclosed in small reeds, its colour being yellow, with a red appearance in the centre. The above two forms are rarely seen now. The third state, which is most common, is in reddish brown masses, like lumps of dark sawdust impregnated with storax, which it yields either to pressure or rectified spirit. It is also sent over in the form of a thick viscid liquid.

Storax has a fragrant odour, which it imparts to water. It is very combustible; soluble in alcohol and ether. It yields benzoic acid by distillation, and contains resin and volatile oil.

Medical Properties. Stimulating expectorant, and diuretic, but seldom used. It might be given in leucorrhœa and gonorrhœa as a substitute for Copaiba.

Dose. Gr. x to gr. xx, twice or thrice in a day.

Prep. Tinct. Benz. comp.

S U C C I N U M.

Amber.

This fossil substance is supposed to have a vegetable origin, from the nature of its elements and the circumstances under which it is found. It is most abundant in Prussia, either on the sea-shore of the Baltic or underneath the surface in the alluvial formations. It occurs abundantly at Catania in Sicily. It is most found associated with bituminous wood and lignite, sometimes enclosing twigs of vegetables, and insects. It is a brittle solid, of a yellow colour, with a vitreous fracture, and capable of a fine polish. It is tasteless and inodorous, unless heated, when it gives out an aromatic smell. It is either transparent, translucent, or opaque: heated in the open air, it softens, becomes liquid, and afterwards takes fire, leaving behind a small portion of ashes. Subjected to distillation, it affords a sour yellow liquid, then a thin yellowish oil, with a yellow crystalline sublimate, which is copiously deposited in the neck of the retort and receiver. In the mean time a quantity of combustible gas is evolved. By continuing the heat, the oil deepens in colour, becoming at last black and of a pitchy consistence; this oil is called oil of amber. The crystalline sublimate is named succinic acid, not in a pure state, but contaminated with some oil. The constituents of amber, according to Berzelius, are—

Volatile oil, of an agreeable odour.

Yellow resin, somewhat resembling ordinary resins.

Another resin sparingly soluble in cold alcohol.

Succinic acid.

A principle very analogous to lac-resin.

A balsam strongly odorous, which hardens by time, but still retains some of its odour.

The ultimate elements of it are carbon, oxygen, and hydrogen. The officinal preparation of amber is the oil, which is to be rectified by a second and third distillation. Thus obtained it is limpid, liquid, almost colourless, though sometimes of an amber or yellowish-brown colour. Sp. gr. .758, it boils at .186. It has a powerful, strong, unpleasant odour, and hot acrid taste, which it imparts in some degree to water. It is soluble to a great extent in alcohol. The fixed oils unite with it; exposed to the air and light it becomes darker coloured and thicker.

Medical Properties. It is stimulant and antispasmodic, and has been given in amenorrhœa, tetanus, epilepsy, hysteria, hooping-cough, and convulsions of infants from intestinal irritation.

Dose. v. to xv. drops.

It is also used as a rubefacient in the form of embrocation, particularly in hooping-cough, being an ingredient in a well-known popular embrocation.

Prep. Tinct. Ammonizæ comp.

SULPHUR.

Sublimed Sulphur. Sulphur is an elementary nonmetallic solid, found in a free state or in combination with metals, forming sulphurets which are very abundant. The sulphur of commerce is chiefly derived from the sulphur earths, which are most plentiful in Italy and Sicily. It is extracted from the earths, by placing

them in furnaces, which have tubes passing from them to transmit the sulphur into water prepared to receive it; this sulphur is impure, and is known by the name of crude sulphur. For purification it is melted in cast-iron vessels: when the impurities subside, the sulphur is ladled out and poured into cylindrical wooden moulds, which give it the form of cylinders, known as *roll sulphur*. The dregs of the process form an impure sulphur, known by the name of *sulphur vivum*.

Another mode of purification consists in distilling or subliming the crude sulphur, into rooms, where it condenses: if the rooms are small and much heated, it runs down the sides in a liquid state, and may be cast into rolls; if the room is capacious and cooler, it will be condensed in the form of a fine powder, named *sublimed sulphur*, or *flowers of sulphur*.

Sulphur may also be procured from the sulphurets, more especially of iron, which is practised in the island of Anglesea, and in Sweden. Sublimed sulphur, as imported, is always contaminated with a little sulphuric acid, which is formed during its sublimation, by the medium of the air; on this account sublimed sulphur always reddens litmus, and is ordered to be washed for medical use, to remove any acid.

Medical Properties. Laxative and diaphoretic. As a laxative, sulphur is very mild in its operation, unless it contains a good deal of acid, when it produces griping. It is serviceable in hæmorrhoids, and has obtained reputation in chronic gout and rheumatism, asthma and other affections of the respiratory organs not attended with inflammation. The ease with which it escapes by the skin is very remarkable: if persons taking it freely, carry about them gold or silver, these will soon be blackened, by sulphur combining with them; this is most readily perceived in warm weather. Externally sulphur is much used in the form of ointments, in the treatment of skin diseases, particularly the itch, for which it may be considered a specific.

Sulphur may be given either in milk, treacle, or syrup.

Dose. As a laxative, ʒij. to ʒiv.

Prep. Hydrargyri Sulphuretum Nigrum et Rubrum,—Potassii Sulphuretum,—Unguentum Sulphuris, Ung. Sulph. comp.

TABACUM.

The leaves of NICOTIANA TABACUM.—*Common Tobacco Plant.*

This plant is an annual, rising from three to six feet in height. It is generally considered to be a native of America, but is now cultivated in a great many countries; with us it flourishes very well, although its cultivation to a large extent is prohibited in consequence of the large sum obtained by government by the duty paid on its importation. The leaves, which are officinal, are very large, ovato-lanceolate, alternate, sessile, somewhat decurrent, slightly viscid, and of a light green colour. The plant is very abundantly cultivated in Maryland and Virginia.

Two varieties of this species of tobacco are mentioned by authors: one with narrow, the other with broad leaves. They do not however differ much in their qualities. Tobacco varies most from the soil, climate, and mode of cultivation.

The leaves of tobacco impart their properties to water and alcohol, but they are destroyed by long boiling in water. Posselt and Reimann have analyzed this substance, and found, in 10,000 parts, the following constituents,

Nicotin, an alkaline principle,	6
Nicotianin - - -	1
Bitter extractive - - -	287

Gum, with malate of lime	-	174
Green resin	- - -	26.7
Albumen	- - -	26
Substance analogous to gluten		104.8
Malic acid	- - -	51
Malate of ammonia	- -	12
Sulphate of potash	- -	4.8
Chloride of potassium	-	6.3
Potash with malic and nitric acid		9.5
Phosphate of lime	- -	16.6
Lime	- - -	24.2
Silica	- - -	8.8
Lignin	- - -	496.9
Water	- - -	8828

Nicotin, or nicotia, is a liquid, colourless and transparent, possessing an odour like tobacco, with an acrid, disagreeable, burning taste. It is inflammable, soluble in water and in ether, has alkaline properties, combining with acids to form salts. It is a powerful poison to animals.

Nicotianin is the odorous principle of tobacco. It is a fatty substance, having an aromatic bitter taste, and an odour like tobacco-smoke. It is volatilizable by heat, insoluble in water, soluble in alcohol and ether, not affected by dilute acids, but dissolved by a solution of pure potash.

When distilled at a heat above boiling water, tobacco yields an empyreumatic oil, which is highly poisonous, and which is believed to hold the narcotic principle in solution; a drop of it injected into the rectum of a cat, causes immediate death. This oil has a dark brown colour, an acrid taste, and a strong smell, like tobacco-pipes which have been much used.

Medical Properties. Tobacco is a very powerful sedative, also somewhat diuretic and purgative. It is not a very suitable remedy for internal administration; almost the sole medical use now made of it is in the

form of enema, in the treatment of strangulated hernia, tetanus, and by a few practitioners in peritonitis and enteritis : the objection to its use is, the extreme prostration which attends its action, and which cannot always be limited to the extent of our wishes. Even in hernia it is rarely prescribed, compared with former times, on account of having been considered to be the cause of death in cases which exhibited no signs of rapid sinking previously. It appears to operate both on the heart and brain. The proper quantity of the enema to be used is six to eight ounces, which may be repeated if necessary. Tobacco-water has been employed externally as a wash in some skin diseases, and apparently with good effect. Should there be excoriation, its application to the bodies of children would be attended with danger.

Prep. Enema Tabaci.

TAMARINDUS.

The pulp of the legume of TAMARINDUS INDICA.
—*Tamarind Tree.*

This tree is a native of the East and West Indies, Egypt, and Arabia. It attains a considerable height, sending off spreading branches, and presenting a very beautiful appearance. The fruit is a pod, broad, compressed, ash-coloured, from two to six inches long, with numerous flat rather quadrangular seeds, contained in cells formed by a tough membrane. Exterior to this, is a light coloured, acid, pulpy matter, between which and the shell are several tough ligneous strings running from the stem to the extremity of the pod. The shells are brittle and easily separated.

Tamarinds are chiefly imported from the West Indies, where they are prepared by placing the pods, previously

deprived of their shell, in layers in a cask, and pouring boiling syrup upon them. Another method is to place them in stone jars, with alternate layers of powdered sugar. From the analysis of Vauquelin, 100 parts of tamarinds contain, independently of the sugar added to them,

Citric acid	-	-	9.40
Tartaric acid	-	-	1.55
Malic acid	-	-	0.45
Supertartrate of potash			3.25
Gum	-	-	4.70
Jelly	-	-	6.25
Parenchymatous matter			34.35
Water	-	-	27.55

Traces of copper are sometimes detected in tamarinds, in consequence of being prepared in copper vessels.

Medical Properties. Tamarinds are laxative and refrigerant. They form, with water, a pleasant cooling drink, in fevers. As a laxative medicine, tamarinds are rarely used alone, but are combined with other substances, as in the confection of senna.

Dose. ʒss. to ʒj.

Prep. Conf. Cassiæ,—Conf. Sennæ.

TARAXACUM.

The root of LEONTODON TARAXACUM.—*Dandelion.*

This herbaceous plant is indigenous, and may also be found in most parts of the world. The root is perennial, fusiform, and is officinal. The leaves have a slightly bitter taste, and are used as a salad by some persons in this and other countries, probably on account of the medical qualities which they are supposed to possess.

The root is several inches in length, of a light brownish colour externally, whitish within, and abounding with a milky juice. It is without smell, has a sweetish, mucilaginous, rather bitter, taste. It yields all its properties to boiling water. In the milky juice John found bitter extractive, gum, caoutchouc, saline matter, a trace of resin, and free acid, also starch and saccharine matter.

Medical Properties. Slightly tonic, and diuretic, and thought to be useful in unloading the gorged vessels of the liver. It is a very mild remedy. The diseases in which it is most given are congestion and chronic inflammation of the liver and spleen, jaundice, and some dropsical affections, depending on obstruction in the abdominal viscera.

Dose. Of the extract, gr. xx. to ʒj.

Prep. Extr. Taraxaci.

TEREBINTHINA CANADENSIS.

The liquid resin of PINUS BALSAMEA.—*American Silver Fir.*

This tree inhabits Canada and Nova Scotia. The resin is procured by breaking the vesicles which form upon the trunk, and receiving the liquid in bottles. When fresh it is almost colourless, transparent, of a consistence like thin honey, very tenacious, with a strong odour, and a bitterish, somewhat acrid taste. By time it becomes gradually thicker, and finally solid. It is sometimes named Balm of Gilead. It consists of resin and volatile oil.

TEREBINTHINA CHIA.

The liquid resin of *PISTACIA TEREBINTHUS*.

This is a small tree, a native of Barbary and Greece, now flourishing in the islands of Cyprus and Chio, from the latter of which the drug derives its name. The turpentine is collected by making incisions in the tree during the summer; the liquid which exudes is received upon stones placed at the bottom, and then scraped off and dropped into bottles. It is a thick pellucid liquid, of a yellowish colour, a penetrating rather agreeable odour, and a mild, slightly bitter taste. By exposure to the air it gradually thickens, and becomes ultimately hard and brittle.

TEREBINTHINA VULGARIS.

The liquid resin of *PINUS SYLVESTRIS*.—*Scotch Fir*.

This variety of pine has been mentioned under the head of *Pix liquida*. The liquid resin is procured by making incisions in the trunk of the tree, or removing a portion of the bark, and receiving the juice, which exudes in small troughs or holes, dug at the foot of the tree. It is purified by heating and straining. When prepared it is white, turbid, and thick, and upon standing, separates into two parts, one very liquid, the other like thickish honey. From this substance, by heat we procure large quantities of oil of turpentine, and a resin commonly called *rosin*, the *resina flava* of the Pharmacopœia. From this tree, also, we obtain *Pix liquida* and *Pix nigra*.

The three turpentines above mentioned, and a host of others, resemble each other much in colour, odour, and taste. Water extracts very little of their volatile oil: they are wholly soluble in alcohol, and unite readily

with the fixed oils. They consist essentially of resin and a volatile oil, which may be separated by distillation. With this oil, it is said that a minute portion of succinic acid is combined.

Medical Properties. The turpentine is stimulant, diuretic, anthelmintic, and purgative. Either taken internally or applied to the surfaces, they impart a peculiar odour to the urine, something like violets, and often occasion irritation of the mucous membrane of the urinary passages, sometimes amounting to strangury. Externally they act as rubefacients. They are occasionally prescribed in leucorrhœa, gleet, and other chronic diseases of the urinary passages; sometimes in piles, chronic catarrhal affections, sciatica, and lumbago. They may be given in the form of pill, or in emulsion with mucilage of acacia, the yolk of egg, or syrups.

Dose. ℥j. to ʒj.

TEREBINTHINÆ OLEUM.

The oil distilled from the resin of *PINUS SYLVESTRIS*.

This oil is easily separated from the resin, and the quantity procured is generally about 20 per cent.

It is limpid and colourless, of a strong odour, and a warm pungent taste. It is volatile, and highly inflammable, slightly soluble in water, more freely in alcohol, completely so in ether; exposed to the air and light it deposits a white solid matter in crystals, which are without taste and smell, insoluble in cold water, but soluble in ether and alcohol. By transmitting muriatic acid gas through this liquid, a white crystalline substance is formed, named artificial camphor. By keeping and exposure to the air, the oil absorbs oxygen, becomes thicker and yellowish, and loses part of its activity.

Medical Properties. Oil of turpentine is stimulant, diuretic, purgative, anthelmintic, and externally rube-facient. When taken in moderate quantities, it quickens the pulse, increases the heat of the skin, produces warmth of the stomach, without much affecting the brain. It also stimulates the kidneys to increased secretion, and sometimes causes irritation of them, a discharge of bloody urine, and strangury. In large doses it occasions vertigo, a sense of fulness in the head, intoxication, and often brisk catharsis. When it purges speedily and briskly, it does not affect the kidneys, as it is liable to do if given in smaller doses, insufficient to purge. It has also a remarkable effect upon bleeding vessels, either on the surface or in cavities.

The diseases in which this oil has been found useful are very numerous. In low typhus fever, towards the latter period, it is often a valuable stimulant, especially where the bowels are distended with flatus, there is probably an ulcerated state of the bowels, and low delirium. It has been found serviceable in puerperal fever, or peritonitis, chronic rheumatism, sciatica, lumbago, in epilepsy, tetanus, passive hæmorrhages, particularly from the intestinal canal, in some forms of chronic diarrhœa and dysentery, gleet, leucorrhœa, and in chronic nephritic affections.

As an anthelmintic, it is one of the best remedies for tænia, and for this it is more used than in the treatment of any other morbid condition. It is prescribed in such a way, that it should purge freely, and that it may not be absorbed and irritate the kidneys. It is most likely that it destroys the worm first, and then facilitates its expulsion. It may also be taken for the lumbrici, which it kills, and converts into dead animal matter. The oil is given likewise in dropsies as a diuretic; in amenorrhœa to stimulate the torpid uterine vessels; and might be employed as a local stimulant and carminative in flatulent colic and gout of the stomach. It is pre-

scribed by surgeons in some cases of Iritis, in which it is necessary to abandon the use of mercury.

The dose for ordinary purposes is from fifteen to thirty minims, repeated every third or fourth hour, or in chronic cases three times a day. In rheumatism some have given it in drachm-doses every fourth hour. In tape-worm, it is given in doses of one ounce to two ounces, and should be followed by castor oil, if it does not operate in half an hour. Some give an ounce of castor oil and the same of oil of turpentine together, which is a very good plan. In cases of other worms it may be administered in smaller doses, as half a drachm to two drachms repeated.

In the form of enema, it is very serviceable for the removal of ascarides, also in obstinate constipation or tympanitic distention of the bowels. From half an ounce to two ounces may be used in this way, mixed with gruel or other bland liquid.

Externally applied, it is rubefacient, and when heated even vesicant. As a liniment it is useful in rheumatism and paralytic affections, and various internal inflammations. Generally it should be mixed with some bland oil to moderate its irritating qualities, as it sometimes causes very high inflammation of the skin and an extensive eruption. Mixed with oil, it is dropped into the ear, with great efficacy, in cases of deafness depending upon a viscid state of the cerumen, or deficient secretion of it. It is much employed as an application to extensive burns, especially when the epidermis is removed; and it is remarkable that, instead of producing the most intense pain and smarting, as might be anticipated from its general action, on the contrary, it has a soothing effect, and even feels cool to the parts on which it is applied. In the same cases it is afterwards applied in conjunction with unguentum resinæ, to stimulate the parts to healthy action, and the preparation is named Linimentum Terebinthinæ.

Prep. Lin. Terebinthinæ,—Ol. Terebinthinæ Rectificatum,—Enema Terebinthinæ.

TESTÆ.

The shells of OSTREA EDULIS.—*Common Oyster.*

These shells, according to the analysis of Bucholz and Brandes, consist of

Carbonate of lime	-	98.6
Phosphate of lime	-	1.2
Animal matter	-	0.5
Alumina (accidental)	-	0.2
		<hr/>
		100.5

When these shells are burnt, carbonic acid and animal matter are dissipated. For medical purposes the shells are reduced to powder by trituration, and by elutriation a very fine powder is procured. In this form we have a preparation of carbonate of lime with a little animal matter, which is supposed to make it more suitable for a delicate stomach. It is given like chalk as an antacid, most commonly in diarrhœa.

Dose. Gr. x. to gr. xx.

TIGLII OLEUM.

The oil expressed from the seeds of CROTON TIGLIUM.

This species of Croton is a small tree or shrub, a native of Hindoostan, Ceylon, the Moluccas, and many other parts of India. The fruit is a smooth capsule, about the size of a filbert, with three cells, each containing a single seed; every part of the tree is pervaded by an acrid principle, and the root is sometimes used in the East as a purgative. The wood is also purgative,

diaphoretic, and emetic. The seeds, however, contain the qualities of the tree in the most concentrated form. They were much used many years ago, and were named Molucca grains; but as they acted with great violence, they grew into disuse, till of late years; and now are classed amongst our standard remedies. The oil only of the seeds is officinal.

The seeds are of the size of a grain of coffee; the shell is covered with a yellowish brown epidermis, beneath which, the surface is black and smooth; the epidermis being sometimes partially removed, gives the seeds a mottled appearance; sometimes they appear quite black. The kernel within is of a yellowish brown colour, and abounds in oil. The kernel of one to two seeds is a very efficient purgative.

The oil is procured from the kernel by pressure, after the shell is removed; or it may be separated by decoction in water, or by the assistance of ether, which will dissolve out the oil, and leave it when evaporated. According to Dr. Nimmo the seeds consist of sixty-four parts of kernel, and thirty-six of envelope; and the kernel yields about 60 per cent. of oil.

The oil has usually a reddish yellow tinge, but without heat may be procured almost colourless. It has a peculiar odour, and a hot acrid taste, which is followed by heat in the fauces, likely to last some hours. It is wholly soluble in sulphuric ether and oil of turpentine, partially so in alcohol. Dr. Nimmo found in it two distinct substances, one the acrid purgative principle, amounting to 45 per cent., soluble in cold alcohol, and having an acid reaction, the other a mild oleaginous substance like olive oil, soluble in ether and oil of turpentine, insoluble in cold alcohol. This oil is adulterated sometimes with castor oil, which is detected with difficulty, if in small quantity; and is thought to be mixed when imported with the oil of another purging plant, the *Jatropha Curcas*, the properties of which are similar, but milder.

Medical Properties. Croton oil is a powerful drastic and hydragogue cathartic. In small doses it acts mildly, but in larger ones nauseates, produces vomiting, and hypercatharsis. It is very speedy in its operation, generally commencing before the expiration of half an hour. The stools resulting from it are very liquid, containing a large quantity of serous fluid, mucus, and some bile. It is valuable in cases of mania, apoplexy, and paralysis, placed upon the tongue, when the patient is unable, or will not swallow. In this way, it gradually passes down, and generally suffices for clearing out the bowels. It is an useful adjunct to other purgatives, when we want to increase their activity. When applied to the surface of the body by friction, it occasions an eruption, which becomes pustular. For this object it is prescribed in rheumatism, gout, neuralgia, glandular and other indolent swellings, and some pulmonary diseases. In this way it sometimes purges, if three or four drops are used. As an embrocation, it requires to be diluted with olive oil, or oil of turpentine, or soap liniment.

Croton oil is best administered in the form of pill; as in a liquid state it is almost certain to irritate the fauces, and cause a burning sensation which is very annoying. Another good plan is to get some wafer paper, used by confectioners, then take a piece of the size of a crown-piece, and dip it in water; place this upon the hollow of a spoon, and drop upon the centre of it the dose of croton oil, then roll the moist paper around it, and swallow it; it passes down very easily, as much so as an oyster, and the medicine is not in the slightest degree tasted. In the same manner, powders may be given to children or grown-up persons who have a great aversion to the taste of medicine.

Dose. One drop to two or three: for the first time, half a drop is quite sufficient when the oil is good.

TORMENTILLA.

The root of *POTENTILLA TORMENTILLA*.—*Septfoil*.

This plant has an annual herbaceous stem, and a perennial root; is found in many parts of England, and other parts of Europe. The root only is officinal, although similar qualities exist in the other parts of the plant.

The root somewhat resembles bistort-root, but is distinguished by its lighter colour; it is more knotted and irregular in its figure, and has not the pink appearance inside observable in the other root. Its chief active constituent is tannin. Besides this, there is a red colouring principle, soluble in alcohol, but insoluble in water. The root yields its medical virtues to boiling water.

Medical Properties. Tormentil is a mild astringent, adapted to all cases which require similar remedies. It is rarely used except in the form of the compound chalk powder. A decoction of it is a very good and safe injection in gonorrhœa and gleet.

Dose. Of the powder, ʒj to ʒij.

Prep. Pulv. Cret. comp.,—Et idem cum Opio.

TOXICODENDRON.

The leaves of *RHUS TOXICODENDRON*.—*Poison Oak*.

This species of *Rhus* grows in fields and woods from Canada to Georgia, flowering in June and July. It has the form of a shrub, from one to three feet high. The leaves are angularly indented and pubescent beneath. When wounded it emits a milky juice, which becomes black by exposure to air, and leaves a stain upon linen almost indelible. This juice applied to the skin will produce inflammation and vesication. The

same property is possessed by a volatile principle, which escapes from the shrub, and is capable of causing inflammation of the skin in persons who approach it. The poisonous influence of it is sometimes so severe as to endanger life. Similar effects are produced by other varieties of *Rhus*, especially the *R. Vernix*.

All parts of this shrub possess active qualities, although the leaves only are officinal. They are inodorous, have a mawkish acrid taste, and impart their virtues to water. Their leaves have not been accurately analysed, but gallic acid and tannin have been detected in them.

Medical Properties. Toxicodendron is stimulant and narcotic, and also appears to increase the secretions of the skin and kidneys. It is very rarely used in this country on account of the uncertainty of its action, and the serious consequences when taken in excessive doses. The disease in which it is most recommended is paralysis. Its effects appear to resemble those resulting from strychnia.

Dose. Gr. j. to gr. iij.

TRAGACANTHA.

The concrete juice of *ASTRAGALUS VERUS*.

This is a small shrub, two or three feet high. The stem is about an inch thick, branched, and prickly from the scales, which are formed upon it. It yields the gum which is collected in Persia, and transmitted to India and Aleppo. Tragacanth exudes spontaneously during the summer, from the stem and branches upon which it concretes.

This drug varies considerably in its appearance and degree of purity. It is hard and brittle, but pulverized with some difficulty. It has no smell, and little taste. Put into water it swells considerably, and forms a soft adhesive mass, but is not dissolved. This triturated

with some more water, may be thoroughly blended, and on standing a day or two, a great part of it will subside. Tragacanth is wholly insoluble in alcohol. It is classed with gum, but differs in some particulars. With water it forms a much more viscid liquid, being from ten to thirty times more powerful. It appears to be composed of two parts, one soluble in water, resembling gum arabic; the other swells in water, but is insoluble. The latter constitutes about 43 per cent. and has been named *Tragacanthin* or *Bassorin*, and by some chemists is considered to be a modification of cerasin, cherry-tree gum.

Medical Properties. Tragacanth is demulcent, and, on account of the viscid compound it forms with water, is much used to suspend heavy substances in the form of powder. It also enters into the composition of lozenges.

Prep. Pulv. Trag. c.,—Conf. Opii.

TUSSILAGO.

The entire plant of TUSSILAGO FARFARA.—*Coltsfoot*.

This plant is indigenous, and too often a troublesome tenant in our fields, for, when once it is planted, it is eradicated with great difficulty. It flowers early in the year, before the leaves are expanded. The latter only are employed generally. They are cordate and angular, bright green on their upper surface, white and downy beneath.

The flowers have an agreeable odour, which they retain after drying. The leaves and root are inodorous, but have a rough bitter mucilaginous taste. Boiling water extracts all their virtues.

Medical Properties. This herb is a very innocent remedy. It is called expectorant, and as such is occasionally prescribed in coughs, consumption, and chronic diseases of the lungs. It chiefly does good as

a demulcent. The leaves have been dried and smoked like tobacco in some pulmonary affections, with very doubtful benefit. This herb is presumed to enter into the composition of some lozenges, named *Coltsfoot lozenges*.

The best mode of giving it is in decoction, made with two or three ounces of the leaves to a quart of water; of this a tea-cupful may be given three or four times a day.

VALERIANA.

The root of VALERIANA OFFICINALIS, (variety, SYLVESTRIS.)—*Common Valerian*.

This plant has an herbaceous annual stem, and a perennial root. It is common in many parts of the country, growing either in moist meadows, or on elevated dry situations. The plant occupying the latter places is preferred. The root only is officinal.

This root consists of several fibres attached to a caudex. It has a light brown colour, has a strong odour when dry, resembling that which may be perceived where cats congregate. This possibly is the reason that cats have an extraordinary liking for the odour of this drug, for they are attracted to it like a charm from a considerable distance. The taste of the root is rather bitter and aromatic. It yields its virtues to water and alcohol. By analysis Tromsdorff discovered in about 100 parts,

Volatile oil	-	-	-	-	1.2
Extractive matter soluble in water					12.5
Gum	-	-	-	-	18.75
Soft odorous resin	-	-	-	-	6.25
Lignin	-	-	-	-	63

It is supposed that other varieties of valerian yield the root of the shops, which is not of much importance, as they possess similar properties, but in a weaker degree.

Medical Properties. Valerian is a mild stimulant and antispasmodic, rousing the nervous system without cerebral congestion or narcotic symptoms.

The diseases in which it is most given are hysteria, hypochondriasis, epilepsy, hemicrania, low fevers with irregular nervous action, intermittents in combination with cinchona, and in that nervous condition and restlessness which is so often observed in elderly people.

It should be administered either in powder or the tinctures, as infusion or decoction would be less likely to be efficacious, on account of the heat dissipating the volatile oil on which the virtues of the root mainly depend.

Dose. Of the powder, ʒj. to ʒi.
 — tincture, ʒj. to ʒiij.
 — ammoniated tincture, ʒss. to ʒij.

Prep. Tinct. Valerianæ. Tinct. Valer. Ammon.

VERATRUM.

The root of VERATRUM ALBUM.—*White Hellebore.*

This plant has a perennial, somewhat fusiform root, and an annual herbaceous stem. It is a native of the Alps and Pyrenees. All parts of the plant are acrid and poisonous, but the root only is officinal. The root is imported from France and Germany.

The fresh root has a disagreeable odour, which is lost by drying. The taste is at first sweetish, afterwards rather bitter, acrid, burning, and durable. Analyzed by Pelletier and Caventou, it yielded

An oily matter, containing elain, stearin, and a volatile acid.

Supergallate of veratria.

Yellow colouring matter.

Starch.

Gum.

Lignin.

Silica, and salts of lime and potash.

The most active principle is the veratria.

Veratria is white, pulverulent, inodorous, extremely acrid, scarcely at all soluble in cold water, soluble in 1000 parts of boiling water, dissolved freely by alcohol, less so by ether, capable of neutralizing acids, and forming salts, of which none but the sulphate is crystallizable. Veratria may be procured from this root in the following manner: Make a decoction, filter it, and add a solution of acetate of lead as long as any precipitate falls. Then remove the solution containing acetate of veratria, and a little acetate of lead. To this introduce hydrosulphuric acid, to precipitate the lead. The liquid may then be heated to drive off the excess of acid. To this add magnesia, which will combine with the acetic acid, and the veratria will be precipitated. Collect this, wash it with water, dry it, and treat with boiling alcohol, which will dissolve the veratria, and yield it in a solid state by evaporation.

Medical Properties. White hellebore is a powerful emetic and cathartic, too violent to be used without extreme caution. It is also a strong errhine. If it be taken in over-doses it occasions hypercatharsis with bloody stools, and great prostration. It was a favorite remedy with the ancients in mania, dropsy, epilepsy, and some skin diseases. With us it is less favorably viewed. Some have thought that it is an ingredient in the famous Eau Medicinale d'Huissou, and have employed the wine of it, with the wine of opium, as a substitute in the treatment of gout and rheumatism. If a little of the powder be snuffed up the nose, it occasions most powerful sneezing, sometimes attended with danger, and often with vertigo. Such remedies are not now in fashion. If it be used for this purpose it is better to dilute it with 10 times its quantity of starch, and snuff up half a grain or a grain at once. We use it, however, externally, in the treatment of itch, either in decoction or ointment, but with rather questionable success.

Veratria acts upon the body in a very similar manner, and, being very powerful, requires to be given with the utmost caution.

Dose. Of the powder 3j. gradually increased.
—— wine, 3ss. to 3j.

Prep. Decoct. Veratri,—Vinum Veratri,—Ung. Sulph. comp.,—Ung. Veratri.

VINUM XERICUM.

Sherry is the form of wine selected for making the preparations termed wines in the Pharmacopœia. It contains about 20 per cent. of alcohol, and is esteemed for its dryness or freedom from acidity. It is often prescribed in preference to others for invalids during their convalescence.

Prep. Vina varia.

ULMUS.

The bark of ULMUS CAMPESTRIS.—*Common Elm Tree.*

This tree is indigenous, and grows in all parts of the country; the inner bark of the branches is the officinal portion. It is thin, tough, of a yellowish brown colour, inodorous, with a mucilaginous somewhat bitter taste. It imparts its qualities to water. Iodine indicates the presence of starch. Chemists have discovered in it a peculiar vegetable principle, which they name Ulmin, considered to be a constituent of most barks; it is of no decided use in medicine.

Medical Properties. Elm bark is demulcent, possibly diuretic and alterative. It is chiefly employed in skin diseases, in which it will do most service by being a vehicle for something more active. It is given

in decoction, and may be drunk liberally for several days.

Prep. Dec. Ulmi.

U V Æ.

Raisins. The dried berries of *VITIS VINIFERA*.

The grape-vine is too well known to need any description. In warmer climates than our own, the grapes attain a very considerable size, and when prepared in a particular manner, form the raisins of the shops.

Raisins are prepared by partially cutting the stalks of the bunches before they are ripe, and allowing them to dry on the vine; or by picking the ripe fruit and steeping it for a short time in an alkaline solution before desiccation. Those prepared by the first method are preferred. Several varieties of raisins are known in commerce, the best of which are from *Malaga* and *Valentia*. The Turkey raisins are the common kind, used generally in puddings and cakes. They are brought from the coast of Syria.

Raisins contain a much larger proportion of sugar than the fresh grapes. It is so abundant, that it sometimes concretes on their surface, or in separate masses within the substance of the raisin. This sugar differs somewhat from common sugar, being less soluble in water and alcohol.

Medical Properties. Raisins are only used in medicine on account of their saccharine qualities. Eaten in large quantities they are laxative, but very prone to cause flatulence and severe griping.

Prep. Decoctum Hordei comp., — Tinct. Card. comp., — Tinct. Sennæ comp.

UVA URSI.

The leaves of *ARCTOSTAPHYLOS UVA URSI*.—*Bearberry*.

This is a small evergreen shrub, found in the northern latitudes of Europe, Asia, and America. The leaves of the officinal portion are obovate, acute at the base, entire, with a rounded margin, thick, coriaceous, shining, of a deep green colour on their upper surface, underneath paler and covered with a network of veins. The leaves likely to be mistaken for these, are those of *Diosma Crenata*, and of *Vaccinium vitis idæa*. The leaves of the latter are known by being dotted underneath, having more revolute edges, and somewhat serrated. The fresh *Uva Ursi* leaves are inodorous, but when dried and powdered possess an odour like hay: their taste is bitter, strongly astringent, and ultimately sweetish. Water and alcohol extract the active principles. Amongst the ingredients we find,

Tannin.
Bitter extractive.
Resin.
Gum.
Gallic acid.

The tannin is so abundant, that in Russia the leaves are used for tanning.

Medical Properties. *Uva Ursi* is astringent and tonic, and some even consider it to be diuretic. It has been thought also to be antilithic, and been found serviceable in gravel, probably by giving tone to the digestive organs, and preventing the accumulation of principles which may contribute to a calculous deposit. It is often prescribed in chronic nephritis, or cases in which there is a suspicion of ulceration in the kidneys, ureters, or bladder. The other diseases in which it is

imagined to do good are diabetes, catarrh of the bladder, incontinence of urine, gleet, leucorrhœa, and even phthisis pulmonalis.

Dose. In powder, ℥j. to ʒss.

In the form of decoction, in doses of one to two ounces.

Prep. Dec. Uvæ Ursi.

ZINCUM.

Metallic Zinc. Zinc is never found in a metallic state. The common ores of it are the sulphuret, named Blende; and the carbonate, named Calamine. We generally procure zinc from the latter by the action of heat and the assistance of charcoal. As first obtained, it is very impure, but is subsequently sublimed and received in water, where it concretes and is separated from the impurities: we call this distilled zinc.

As a medicine, pure zinc is not used. It is employed in Pharmacy to prepare that useful salt, the sulphate of zinc.

Sulphate of zinc is tonic and astringent in small doses; in larger ones, emetic. It is used also in collyria, in the quantity of one to three grains in an ounce of water; and in a stronger solution is employed as an injection in gleet and leucorrhœa.

This salt ranks high as an emetic, in cases of poisoning, as it operates promptly, empties the stomach, and does not debilitate the system. It is one of those named tonic and direct emetics. The diseases benefited by it in small doses are chorea, epilepsy, diarrhœa, chronic dysentery, intermittent fever, chronic catarrh, hooping cough, and many others. It is not likely to occasion symptoms of poisoning, as by its emetic qualities it works its own cure. In testing for it, we may remark, that all the precipitates commonly procured have a white colour, even that from hydro-

sulphuric acid. When alkalies are added to its solution, they combine with the acid, and precipitate the white oxide of zinc.

Dose. As a tonic and astringent, gr. j. to gr. iij.
As an emetic, to empty the stomach in disease, gr. x. to gr. xx.
In cases of poisoning, 3ss. to 3j.

Prep. Zinci oxydum,—Liq. Aluminis Compositus.

ZINGIBER.

The rootstock of ZINGIBER OFFICINALIS.—*Ginger-plant.*

This plant has a perennial, creeping, tuberous, rhizome; and an annual stem, which rises two or three feet high. It is a native of Hindoostan, and cultivated in all parts of India; also in the West Indies, whither it was transplanted from the East. The root-stock or rhizome is the part in which the virtues of the plant reside. This is fit to be dug up when a year old. After being properly cleaned it is scalded in boiling water to prevent germination, and is then rapidly dried. Thus prepared, it forms the ordinary or black ginger of commerce. In the West Indies it is prepared by selecting the best root-stocks, depriving them of their epidermis, and drying them separately in the sun. This is called white ginger, and is most highly valued. A preserve is made from ginger by selecting the root-stock while young and tender, depriving it of the cortical covering, and boiling it in syrup. It is imported in this state both from the East and West Indies.

The odour of ginger is aromatic, the taste spicy, pungent, hot, and biting. These qualities are gradually lost by long keeping and exposure of the root. The

virtues of ginger are taken up by water and alcohol. The constituents, according to Mr. Morin, are,

Volatile oil, of a greenish-blue colour.

Resinous matter, soft, acrid, aromatic, soluble in ether and alcohol.

A sub-resin, insoluble in ether.

A little osmazome.

Gum.

Starch.

Sulphur.

Acetic acid, and acetate of potash.

Lignin.

The odour or flavour depends upon the volatile oil, its pungency on the resinous or resino-extractive principle. A considerable quantity of pure white starch may be extracted from it.

Medical Properties. Ginger is a pleasant stimulant and carminative, often given in dyspepsia, flatulent colic, and the weak state of the alimentary canal in atonic gout. It is most used as an adjuvant or corrective of other medicines, to make them more palatable, warmer to the stomach, or to prevent griping. When chewed it irritates the mouth, and if moistened and applied to the skin is rubefacient, and sometimes even blisters. It may be given in powder, infusion, or tincture.

Dose. Gr. x. to gr. xx.

Prep. Conf. Opii,—Conf. Scamm.,—Pil. Camb. comp.,—Pil. Hyd. Iodidi,—Pil. Sagap. comp.,—Pulv. Cinnam. c.,—Pulv. Jal. c.,—Pulv. Scamm. c.,—Syr. Zingib.,—Tr. Cinnam. c.,—Tr. Rhei comp.,—Tinct. Zingib.

TABULAR ARRANGEMENT OF PLANTS

USED MEDICINALLY,

AND OF THOSE MENTIONED IN THE CATALOGUE OF THE
CHELSEA BOTANIC GARDEN.

*With the Classes and Orders according to the Sexual Arrangement of
Linnæus, and the Natural Orders chiefly according to Lindley.*

<i>Botanical Name.</i>	<i>Class.</i>	<i>Order.</i>	<i>Natural Order.</i>
Acacia Catechu	} Polygamia	Monœcia	Leguminosæ
—— Vera			
Acinula Clavus	Cryptogamia	Fungi	Fungacæe
Aconitum Napellus	} Polyandria	Trigynia	Ranunculacæe
—— Paniculatum			
Acorus Calamus	Hexandria	Monogynia	Acoracæe
Æsculus Hippocastanum	Heptandria	Monogynia	Æsculacæe
Agrimonia Eupatoria	Dodecandria	Digynia	Rosacæe
Allium Cepa	} Hexandria	Monogynia	Liliacæe
—— Porrum			
—— Sativum			
Aloe Spicata	} Hexandria	Monogynia	Liliacæe
—— Vulgaris			
Althæa Officinalis	Monadelphica	Polyandria	Malvacæe
Alpinia Cardamomum	Monandria	Monogynia	Zingiberacæe
Amygdalus Communis	Icosandria	Monogynia	Rosacæe
Amyris Elemifera	} Octandria	Monogynia	Amyridacæe
—— Gileadensis			
Anchusa Tinctoria	Pentandria	Monogynia	Boraginacæe
Anethum Fœniculum	} Pentandria	Digynia	Umbellatæ
—— Graveolens			
Angelica Archangelica	} Syngenesia	Superflua	Synantheracæe
Anthemis Nobilis			
—— Pyrethrum			
Arctium Lappa	Syngenesia	Æqualis	Synantheracæe
Arctostaphylos Uva Ursi	Decandria	Monogynia	Ericacæe
Aristolochia Serpentaria	Gynandria	Hexandria	Aristolochiacæe
Arnica Montana	Syngenesia	Superflua	Synantheracæe
Artemisia Abrotanum	} Syngenesia	Superflua	Synantheracæe
—— Absinthium			
—— Maritima			
—— Santonica			
Arum Maculatum	Monœcia	Polyandria	Aracæe
Asarum Europæum	Dodecandria	Monogynia	Aristolochiacæe

<i>Botanical Name.</i>	<i>Class.</i>	<i>Order.</i>	<i>Natural Order.</i>
Aspidium Filix Mas	Cryptogamia	Filices	Filicaceæ
Astragalus Verus	Diadelphia	Decandria	Leguminosæ
Atropa Belladonna	Pentandria	Monogynia	Solanaceæ
Avena Sativa	Triandria	Digynia	Graminaceæ
Balsamodendron Myrrha	Octandria	Monogynia	Burseraceæ
Boletus Ignarius	Cryptogamia	Fungi	Fungaceæ
Boswellia Serrata	Decandria	Monogynia	Burseraceæ
Cephaelis Ipecacuanha	Pentandria	Monogynia	Cinchonaceæ
Canella Alba	Decandria	Monogynia	Clusiaceæ
Capsicum Annuum	Pentandria	Monogynia	Solanaceæ
Cardamine Pratensis	Tetradynamia	Silquosa	Brassicaceæ
Carum Carui	Pentandria	Digynia	Umbellatæ
Caryophyllus Aromaticus	Icosandria	Monogynia	Myrtaceæ
Cassia Fistula	} Decandria	Monogynia	Leguminosæ
— Senna			
Cathartocarpus, vide Cassia.			
Centaurea Benedicta	Syngenesia	Frustranea	Synantheraceæ
Cetraria, vide Lichen.			
Chimaphila Corymbosa	Decandria	Monogynia	Pyrolaceæ
Chironea Centaurium, vel			
Erythræa	Pentandria	Monogynia	Gentianaceæ
Cinchona Cordifolia	} Pentandria	Monogynia	Cinchonaceæ
— Lancifolia			
— Oblongifolia			
Cissampelos Pereira	Diœcia	Monadelphia	Menispermaceæ
Citrus Aurantium	} Polyadelphia	Icosandria	Aurantiaceæ
— Limetta			
— Medica			
Cocculus Palmatus, vide			
Menispermum.			
Cochlearia Armoracia	Tetradynamia	Siliculosa	Brassicaceæ
Cocos Butyracea	Monœcia	Hexandria	Palmaceæ
Colchicum Autumnale	Hexandria	Trigynia	Melanthaceæ
Conium Maculatum	Pentandria	Digynia	Umbellatæ
Convolvulus Scammonia	Pentandria	Monogynia	Convolvulaceæ
Copaifera Officinalis, vel			
Langsdorfii,	Decandria	Monogynia	Amyridaceæ
Coriandrum Sativum	Pentandria	Digynia	Umbellatæ
Crocus Sativus	Triandria	Monogynia	Iridaceæ
Croton Cascarilla	} Monœcia	Monadelphia	Euphorbiaceæ
— Tigllium			
Cucumis Colocynthis	Monœcia	Monadelphia	Cucurbitaceæ
Curcuma Longa	Monandria	Monogynia	Zingiberaceæ
Cuminum Cuminum	Pentandria	Digynia	Umbellatæ
Cusparia Febrifuga, vide			
Galipea.			
Cydonia, vide Pyrus.			
Cytisus Scoparius	Diadelphia	Decandria	Leguminosæ
Daphne Mezereum	Octandria	Monogynia	Thymeleaceæ
Datura Stramonium	Pentandria	Monogynia	Solanaceæ

<i>Botanical Name.</i>	<i>Class.</i>	<i>Order.</i>	<i>Natural Order.</i>
Daucus Carota, vel Sylvestris,	Pentandria	Digynia	Umbellatæ
Delphinium Staphysagria	Polyandria	Trigynia	Ranunculaceæ
Dianthus Caryophyllus	Decandria	Digynia	Silenaceæ
Digitalis Purpurea	Didynamia	Angiospermia	Scrophulariaceæ
Diosma Crenata	Pentandria	Monogynia	Rutaceæ
Dolichos Pruriens	Diadelphia	Decandria	Leguminosæ
Dorema Ammoniacum	Pentandria	Monogynia	Umbellatæ
Dorstenia Contrajerva	Tetrandria	Monogynia	Urticaceæ
Erythræa, vide Chironia.			
Eryngium Maritimum	Pentandria	Digynia	Umbellatæ
Euphorbia Officinalis	Dodecandria	Trigynia	Euphorbiaceæ
Ferula Assafœtida	Pentandria	Digynia	Umbellatæ
Ficus Carica	Polygamia	Diœcia	Urticaceæ
Fœniculum Vulgare, vide Anethum.			
Fucus Vesiculosus	Cryptogamia	Algæ	Algaceæ
Galbanum Officinale	Pentandria	Monogynia	Umbellatæ
Galipea Cusparia	Diandria	Monogynia	Rubiaceæ
Gentiana Lutea	Pentandria	Digynia	Gentianaceæ
Geoffrea	Diadelphia	Decandria	Leguminosæ
Geum Urbanum	Icosandria	Polygynia	Rosaceæ
Glycyrrhiza, vide Liquiritia.			
Gratiola Officinalis	Diandria	Monogynia	Scrophulariaceæ
Guaiacum Officinale	Decandria	Monogynia	Zygophyllaceæ
Hæmatoxylon Campechianum	Decandria	Monogynia	Leguminosæ
Helleborus Fœtidus	} Polyandria	Polygynia	Ranunculaceæ
——— Officinalis			
Helonias Officinalis	Hexandria	Trigynia	Melanthaceæ
Heracleum Gummiferum	Pentandria	Digynia	Umbellatæ
Hordeum Distichon	Triandria	Digynia	Graminaceæ
Humulus Lupulus	Diœcia	Pentandria	Urticaceæ
Hyoscyamus Niger	Pentandria	Monogynia	Solanaceæ
Hyssopus Officinalis	Didynamia	Gymnospermia	Labiata
Inula Helenium	Syngenesia	Superflua	Synantheraceæ
Ipomœa Jalapa	Pentandria	Monogynia	Convolvulaceæ
Iris Florentina	Triandria	Monogynia	Iridaceæ
Juniperus Communis	} Diœcia	Monadelphia	Pinaceæ
——— Lycia			
——— Sabina			
Krameria Triandria	Tetrandria	Monogynia	Polygalaceæ
Lactuca Sativa	} Syngenesia	Æqualis	Synantheraceæ
——— Virosa			
Laurus Camphora	} Enneandria	Monogynia	Lauraceæ
——— Cassia			
——— Cinnamomum			
——— Nobilis			
——— Sassafras			
Lavendula Spica	Didynamia	Gymnospermia	Labiata
Leontodon Taraxacum	Syngenesia	Æqualis	Synantheraceæ

<i>Botanical Name.</i>	<i>Class.</i>	<i>Order.</i>	<i>Natural order.</i>
Lichen Islandicus	} Cryptogamia	Lichenes	Lichenaceæ
—— Roccella			
Linum Catharticum	} Pentandria	Pentagynia	Linaceæ
—— Usitatissimum			
Liquiritia Officinalis	Diadelphia	Decandria	Leguminosæ
Lobelia Inflatia	Pentandria	Monogynia	Lobeliaceæ
Lythrum Salicaria	Dodecandria	Monogynia	Salicariæ
Malva Sylvestris	Monadelphia	Polyandria	Malvaceæ
Maranta Arundinacea	Monandria	Monogynia	Marantaceæ
Marrubium Vulgare	Didynamia	Gymnospermia	Labiatae
Melaleuca Cajuputi, vel minor	Polyadelphia	Icosandria	Myrtaceæ
Melissa Officinalis	Didynamia	Gymnospermia	Labiatae
Menispermum Palmatum	Diœcia	Dodecandria	Menispermaceæ
Mentha Piperita	} Didynamia	Gymnospermia	Labiatae
—— Pulegium			
—— Viridis			
Menyanthes Trifoliata	Pentandria	Monogynia	Gentianaceæ
Momordica Elaterium	Monœcia	Monadelphia	Cucurbitaceæ
Morus Nigra	Monœcia	Tetrandria	Urticaceæ
Mucuna Pruriens	Diadelphia	Decandria	Leguminosæ
Myristica Moschata	Diœcia	Monadelphia	Myristicaceæ
Myroxylon Peruiferum	Decandria	Monogynia	Amyridaceæ
Myrtus Pimenta	Icosandria	Monogynia	Myrtaceæ
Nicotiana Tabacum	Pentandria	Monogynia	Solanaceæ
Olea Europea	Diandria	Monogynia	Oleaceæ
Origanum Marjorana	Didynamia	Gymnospermia	Labiatae
—— Vulgare			
Ornus Europæa	Diandria	Monogynia	Oleaceæ
Oxalis Acetosella	Decandria	Pentagynia	Oxalidaceæ
Papaver Rhæas	} Polyandria	Monogynia	Papaveraceæ
—— Somniferum			
Pastinaca Opopanax	Pentandria	Digynia	Umbellatæ
Pimpinella Anisum	Pentandria	Digynia	Umbellatæ
Pinus Abies	} Monœcia	Monadelphia	Pinaceæ
—— Balsamea			
—— Larix			
—— Sylvestris	} Diandria	Trigynia	Piperaceæ
Piper Cubeba			
—— Longum			
—— Nigrum	} Diœcia	Pentandria	Anacardiaceæ
Pistacia Lentiscus			
—— Terebinthus	Diadelphia	Octandria	Polygalaceæ
Polygala Senega	Octandria	Trigynia	Polygonaceæ
Polygonum Bistorta	Icosandria	Polygynia	Rosaceæ
Potentilla Tormentilla	Icosandria	Monogynia	Amygdaleæ
Prunus Domestica	} Diadelphia	Decandria	Leguminosæ
Pterocarpus Erinaceus			
—— Santalinus	Icosandria	Monogynia	Myrtaceæ
Punica Granatum	Icosandria	Pentagynia	Pomeæ
Pyrus Cydonia	Icosandria	Pentagynia	Pomeæ

<i>Botanical Name.</i>	<i>Class.</i>	<i>Order.</i>	<i>Natural order.</i>
Quassia Excelsa —— Simarouba	} Decandria	Monogynia.	Simarubaceæ
Quercus Infectoria —— Pedunculata —— Robur	} Monœcia	Polyandria	Corylaceæ
Rhamnus Catharticus	Pentandria	Monogynia	Rhamnaceæ
Rheum Palmatum —— Undulatum	} Enneandria	Trigynia	Polygonaceæ
Rhododendron	Decandria	Monogynia	Rhododendra
Rhus Toxicodendron	Pentandria	Trigynia	Anacardiaceæ
Ricinus Communis	Monœcia	Monadelphina	Euphorbiaceæ
Roccella, vide Lichen.			
Rosa Canina —— Centifolia —— Gallica	} Icosandria	Polygynia	Rosaceæ
Rosmarinus Officinalis	Diandria	Monogynia	Labiatae
Rubia Tinctorum	Tetrandria	Monogynia	Rubiaceæ
Rumex Acetosa —— Aquaticus	} Hexandria	Digynia	Polygonaceæ
Ruta Graveolens	Decandria	Monogynia	Rutaceæ
Saccharum Officinarum	Triandria	Digynia	Graminaceæ
Sagus Rumphii	Monœcia	Hexandria	Palmaceæ
Salix Alba —— Caprea —— Fragilis	} Diœcia	Diandria	Salicaceæ
Salvia Officinalis	Diandria	Monogynia	Labiatae
Sambucus Nigra	Pentandria	Trigynia	Caprifoliaceæ
Scilla Maritima	Hexandria	Monogynia	Liliaceæ
Scrophularia Nodosa	Didynamia	{ Angios- permia	} Scrophulariaceæ
Secale Cereale	Triandria	Digynia	Graminaceæ
Simaruba Officinalis	Decandria	Monogynia	Simarubaceæ.
Sinapis Alba —— Nigra	} Tetradynamia	Siliquosa	Brassicaceæ
Sium Nodiflorum	Pentandria	Digynia	Umbellatæ
Smilax Officinalis	Diœcia	Hexandria	Smilacæ
Solanum Dulcamara —— Tuberosum —— Nigrum	} Pentandria	Monogynia	Solanaceæ
Solidago Virgaurea	Syngenesia	Superflua	Synantheraceæ
partium Scoparium	Diadelphia	Decandria	Leguminosæ
Spigelia Marilandica	Pentandria	Monogynia	Spigeliaceæ
Stalagmitis Cambogioides	Polygamia	Monœcia	Guttiferæ
strychnos Nux Vomica	Pentandria	Monogynia	Apocynaceæ
styrax Benzoin —— Officinale	} Decandria	Monogynia	Styraceæ
Swietenia	Decandria	Monogynia	Clusiaceæ
Tamarindus Indica	Monadelphina	Triandria	Leguminosæ
Tanacetum Vulgare	Syngenesia	Superflua	Synantheraceæ

<i>Botanical Name.</i>	<i>Class.</i>	<i>Order.</i>	<i>Natural order.</i>
Teucrium Marum ——— Chamædrys	} Didynamia	{ Gymnospermia	} Labiatae
Tormentilla Erecta	Icosandria	Polygynia	Rosaceæ
Triticum Hybernum	Triandria	Digynia	Graminaceæ
Tussilago Farfara	Syngenesia	Superflua	Synantheraceæ
Ulmus Campestris	Pentandria	Digynia	Ulmaceæ
Valeriana Officinalis	Triandria	Monogynia	Valeraniaceæ
Veratrum Album	Polygamia	Monœcia	Melanthaceæ
Veronica Beccabunga	Diandria	Monogynia	Scrophulariaceæ
Viola Odorata	Pentandria	Monogynia	Violaceæ
Vitis Vinifera	Pentandria	Monogynia	Vitaceæ
Wintera Aromatica	Polyandria	Tetragynia	Winteraceæ
Zingiber Officinale	Monandria	Monogynia	Zingiberaceæ.

FINIS.

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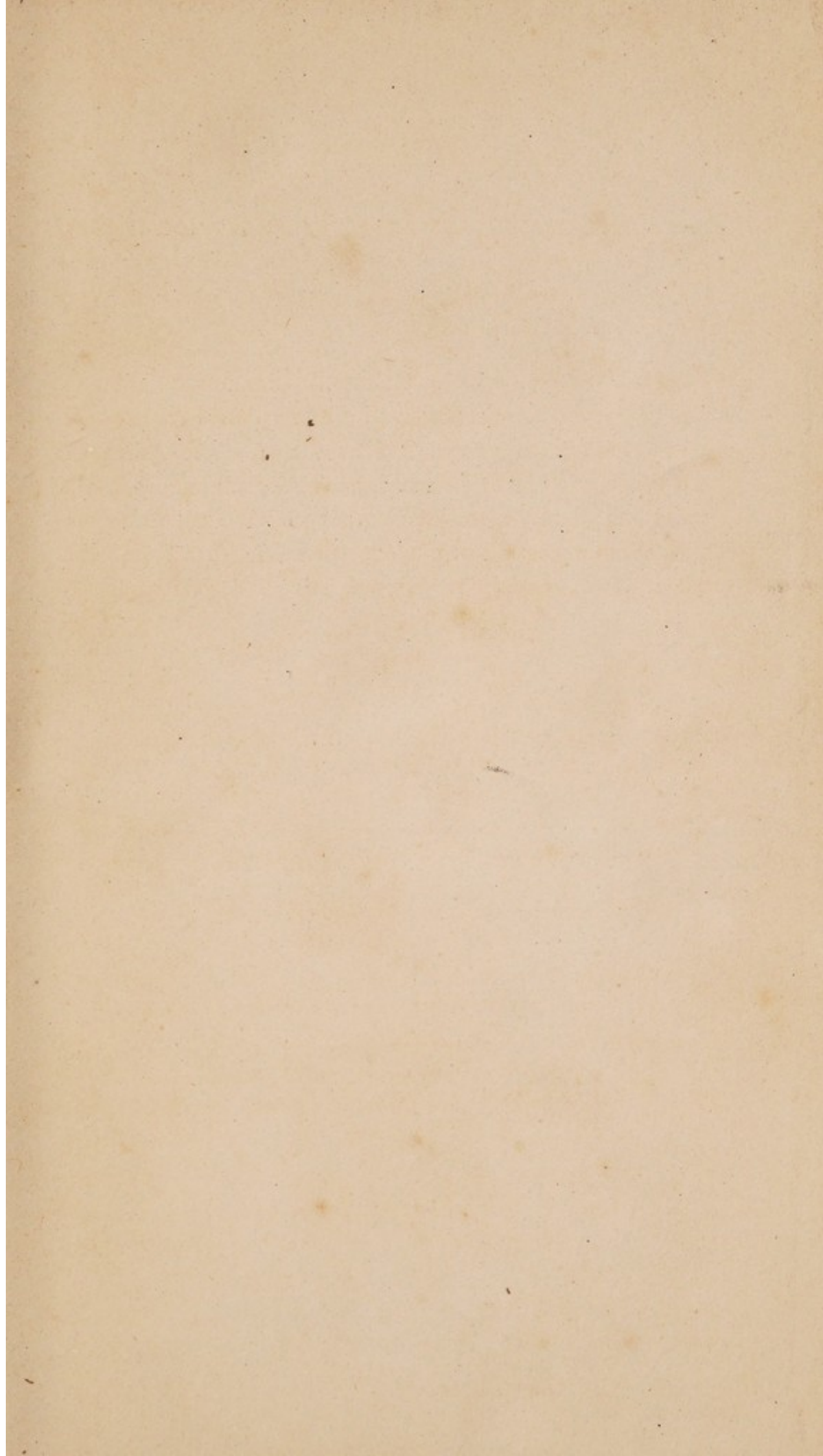
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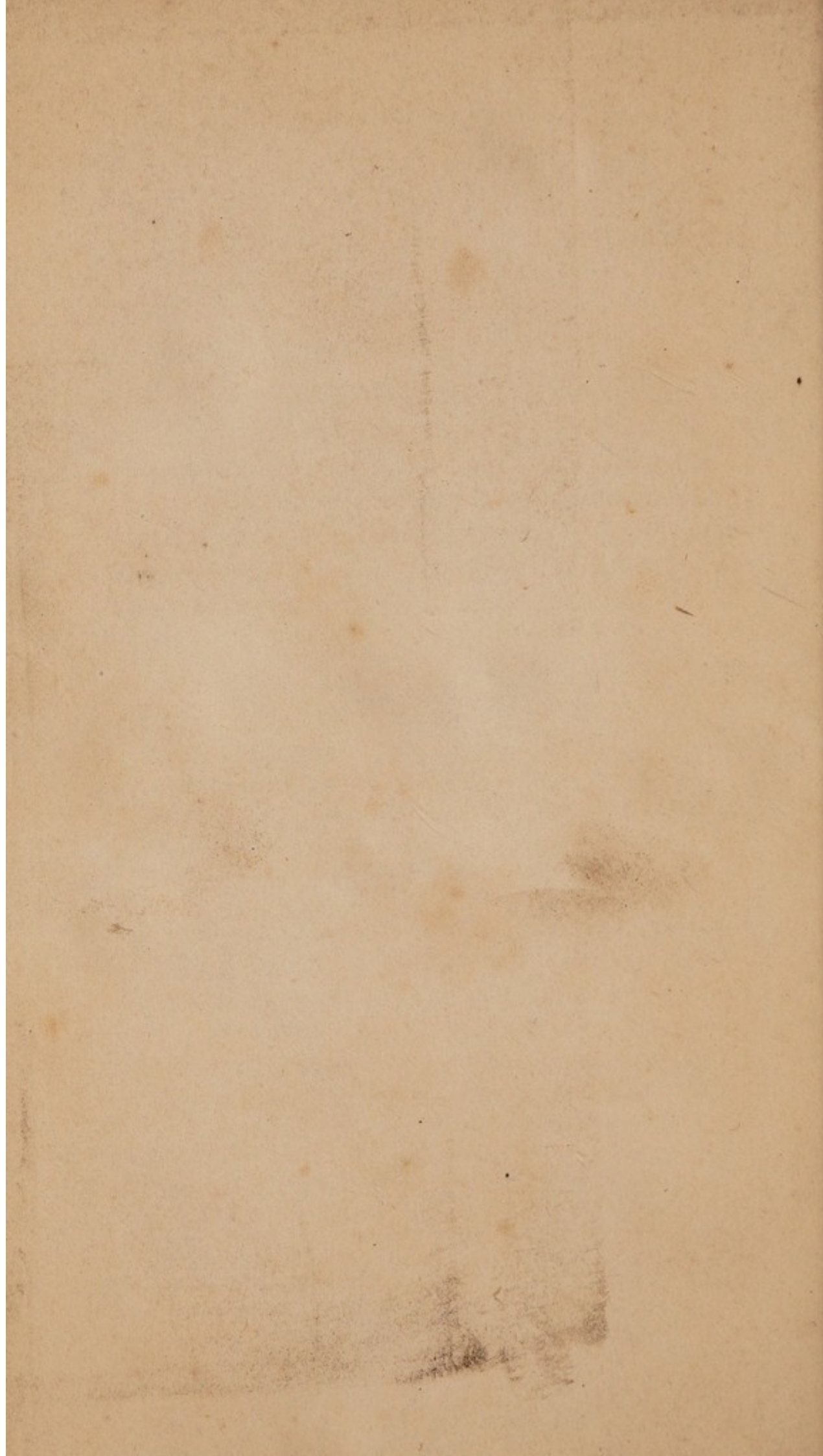
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