PART II.

MATERIA MEDICA.

EVERY substance employed in the cure of disease, whether in its natural state, or after having undergone various preparations, belongs to the Materia Medica, in the extended acceptation of the words. But in most Pharmacopœias, the materia medica is confined to simples, and to those preparations which are seldom prepared by the apothecary himself, but commonly purchased by him, as articles of commerce, from druggists and others.

Systematic authors on this branch of medical knowledge have bestowed much pains in contriving scientific arrangements of these articles. Some have classed them according to their natural resemblances; others according to their active constituent principles; and others according to their real or supposed virtues. Each of these arrangements has its particular advantages. The first will probably be preferred by the natural historian, the second by the chemist, and the last by the physiologist. But every scientific classification hitherto proposed is liable to numerous objections. Accordingly, in the Pharmacopœias published by the colleges of physicians of London, Dublin, and Edinburgh, the articles of the materia medica are arranged in alphabetical order; and the same plan is now almost universally adopted. I have therefore also followed it, subjoining to the name of each article, admitted by any of the British colleges, a short view of its natural, medical, and pharmaceutical history; and in thus forming a Dictionary of Materia Medica, I have generally adopted the nomenclature of the Edinburgh college.

Acacia. Willd. *Lond. Ed.*
Mimosa. Linn. *Dub.*
Polygamia Monoecia, Linnaei Species Plantarum, edit. Willdenow, *g.* 1902.—Nat. ord. *Lomentaceæ.*

Sp. 87. Acacia vera. Willd. *Lond. Ed.*
Mimosa nilotica. Linn. *Dub.*

Sp. 86. Acacia Arabica. *Ed.*
Gum Mimosa.

Officinal.—The gum. Gum-Arabic.
Acaciæ arabicæ gummi. *Ed.*
Acaciæ gummi. *Lond.*
Gummi arabicum. *Dub.*

Gum Arabic is obtained from various species of Acacia, which grow in the sandy deserts of Africa, Arabia Petræa, and Egypt. The greatest quantity of pure gum is furnished by the species named by the Colleges. From these it exudes either spontaneously, or from incisions made into the bark, and afterwards hardens in the air. But a similar gum may be obtained from all the species of Acacia, and from many other trees, such as the Swietenia febrifuga, Melia azadirachta, and the different species of Terminalia. It is remarkable that the barks of all the trees which furnish this bland mucilaginous substance are highly astringent; that of the Acacia itself is used in India for tanning; and in our country, the cherry and plum trees, which sometimes yield a little gum, have very astringent barks.

There are two kinds of gum found in the shops, and often sold promiscuously, but distinguished in commerce by the names of Gum Arabic, and East-India gum. Gum Arabic consists of roundish transparent tears, colourless, or of a yellowish colour, shining fracture, without smell or taste, and perfectly soluble in water. The pieces which are most transparent, and have least colour, are reckoned the best. They are sometimes selected from the Gum Arabic in sorts, and sold for about double the price, under the title of Picked gum. The East-India gum is darker coloured than Gum Arabic, and is not so readily soluble in water. I possess a mass of gum, gathered from an Acacia in New South Wales, by Mr Jamieson. It is darker coloured even than East-India gum, and is also less soluble than it; for when suspended in water, it gives off white films, which float through the mucilage. But its most remarkable property is, that it does not precipitate silicized potass; in which respect it agrees, as far as my experiments go, with gum collected in this neighbourhood from the common cherry and

plum trees. It is also remarkable, that the coarsest gum forms the thickest mucilage; at least Botany-Bay gum forms a thicker mucilage than East-India gum, and this than Gum Arabic.

Gum Arabic was originally brought from Arabia, by the way of Egypt, to Marseilles; and it was not until the beginning of the seventeenth century that the Dutch made the gum of Senegal known in Europe. After the French got possession of that river, they directed their attention to it, as an important object of commerce, and ascertained, by experiments made in the latter half of the seventeenth century, that gum Senegal was superior to the best gum of Arabia; and for about fifty years it has had the preference.

M. Adanson examined all the gum trees of West Africa with great care, and has given the best description of them. They amount to forty in number; but the three great forests which supply the Senegal market consist chiefly of two kinds; one which produces a white gum, called *Vereck*, and another, called *Nebueb*, which yields a red gum.

About the middle of November, that is, after the rainy season, which begins early in July, a gummy juice exudes spontaneously from the trunk and principal branches. In about fifteen days, it thickens in the furrow, down which it runs, either in a vermicular shape, or more commonly assuming the form of round or oval tears, about the size of a pigeon's egg, of different colours, as they belong to the white or red gum-tree. About the middle of December, the Moors encamp on the borders of the forest, and the harvest lasts six weeks. The gum is packed in very large sacks of tanned leather, and brought on camels and bullocks to certain ports, where it is sold to the French and English merchants. About 1787, the annual quantity purchased by the former was about 800,000 pounds, and by the latter 400,000, according to the information of M. Golberry.

Mr Jackson, in his account of the Empire of Morocco, informs us, that from Mogodor they export two sorts of gum, one the common Gum Arabic, the produce of Morocco, and called Barbary gum; the other finer, called Gum Soudan, or Senegal, brought from Timbuctoo by the caravans. He also says, but it must be observed that he is no botanist, that the gum called Morocco or Barbary gum is produced from a thorny tree called *Attaleh*, having leaves similar to the juniper, whereas all the acacias have pinnated leaves. It yields most gum during the hot and parching heat of July and August; and the hotter the weather, and the more sickly the tree ap-

pears, the more gum it yields. A wet winter and a mild summer are unfavourable to gum.

Gum is highly nutritious. During the whole time of the gum harvest, of the journey, and of the fair, the Moors of the desart live almost entirely upon it; and experience has proved that six ounces are sufficient for the support of a man during twenty-four hours.

Medical use.—It possesses the powers of a mucilaginous demulcent in a high degree. It is useful, 1st, in all cases where there seems a natural deficiency of mucus in the intestinal canal, and was therefore recommended by Degner, and Pringle, and others dissolved in milk, barley water, or almond emulsion, to remove the tenesmus and painful stools. Zimmermann gave it in clyster for the same purpose.

2. In cases of acrid poisons, or acrid substances in general, taken into the stomach, to envelop their particles, and mitigate their action. With the same view it is sometimes given along with acrid medicines.

3. In an irritable state of the respiratory passages, as catarrh, hoarseness, and cough. For this purpose it may be either used in substance as a troche, or in a strong solution as a linctus, and may be combined with a little opium.

4. In gonorrhœa and ardor urinæ, probably upon a false analogy.

5. In salivation after mercury, or in small pox.

6. In phthisis pulmonalis, both as supposed to check hæmorrhagy, and as a light nourishment.

Externally it is applied,

1. In powders, to bleeding vessels of a small size, as a styptic, operating by gluing them up.

2. In solution, injected into the urethra, in gonorrhœa.

A scruple or upwards may be given three or four times a day in substance, powder or solution, and it may be combined with syrups, infusions and decoctions in general, but it is decomposed by alcohol, and acetate of lead.

Sp. 73. Acacia catechu. Willd. *Lond. Ed.*
Mimosa catechu. Linn. *Dub.*

Off.—Catechu. The extract of the wood.
Acaciæ catechu extractum *ex ligno*. *Ed.*
Catechu extractum. *Lond.*
Catechu. *Dub.*

This tree is a native of Hindostan. In Bengal, the extract of catechu, which was formerly termed, with peculiar impropriety, Japan Earth, is principally prepared from the internal

coloured part of the wood, by decoction, evaporation, and exsiccation in the sun. But catechu is also prepared in India from several other species of Acacia, and even from the woods, barks, and fruits of other genera. In Mysore, it is chiefly prepared from the nuts of the Areca catechu. The nuts are taken as they come from the tree, and boiled for some hours in an iron vessel. They are then taken out, and the remaining water is inspissated by continued boiling. The process furnishes the Kassu, or the most astringent terra japonica, which is black, and mixed with paddy husks and other impurities. After the nuts are dried, they are put into a fresh quantity of water, boiled again; and this water being inspissated like the former, yields a kind of catechu, called Coury, which has little astringency, but is preferred by the betle eaters. It is yellowish-brown, has an earthy fracture, and is free from the admixture of foreign bodies.

The Bombay catechu is of a uniform texture, and of a red-brown tint, its specific gravity being generally about 1.39. The extract from Bengal is more friable and less consistent. Its colour is like that of chocolate externally; but when broken, its fracture presents streaks of chocolate and of red brown.—Its specific gravity is about 1.28. Their tastes are precisely similar, being astringent, but leaving in the mouth a sensation of sweetness. They do not deliquesce, or apparently change by exposure to the air, and are not fusible.

In the first edition of this Dispensatory, in 1803, I published, as the results of my analysis of catechu, that it consisted chiefly of tannin and extractive. This has been confirmed by the subsequent examination by Sir H. Davy, who states that it contains about one half of its weight of tannin, 35. *per cent.* of extractive, 6 to 8 of mucilage, and 5 to 7 of impurities. This more exact analysis confirms the observations made by me, in the first edition of this Dispensatory.

Medical use.—Catechu is one of the most convenient and powerful astringents we possess, and may be exhibited in every case where astringents are indicated. It is particularly serviceable in diarrhœa, in hoarseness from relaxation of the fauces, ulcers and aphthæ in the mouth, and in excoriations, with lymphatic exudations.

ACETUM; scientific synonime, *Acidum Aceticum impurum. Lond. Ed.*

ACETUM VINI. *Dub.*

Vinegar. Impure acetic acid.

VINEGAR, as obtained by the fermentation of vinous liquors,

besides the pure acetic acid diluted with much water, contains tartaric acid, tartrate of potass, mucilaginous and saccharine matters, a peculiar spiritous liquor described by Mr Chenevix, and sometimes malic and phosphoric acid. Mr Chenevix found that English vinegar of specific gravity 1.0042 contained more water and mucilage, but less acid and spiritous liquor than French vinegar of 1.00721. The best vinegar is that prepared from white wine. Vinegar should be of a pale yellow colour, perfectly transparent, of a pleasant, somewhat pungent, acid taste, but without any acrimony. From the mucilaginous impurities which vinegar always contains, it is apt, on exposure to the air, to become turbid and ropy, and at last vapid. This inconvenience is best obviated by keeping it in bottles completely filled and well corked; and it is said to be of advantage to boil it in the bottles a few minutes before they are corked.

Vinegar is sometimes adulterated with sulphuric acid. Its presence is detected, if, on the addition of a solution of nitrate of baryta, a white precipitate is formed, which is insoluble in nitric acid, after having been burnt in the fire. With the same intention, of making the vinegar appear stronger, different acrid vegetables are occasionally infused in it. This fraud is difficult of detection; but when tasted with attention, the pungency of such vinegar will be found to depend rather on acrimony than acidity.

Vinegar possesses strong antiseptic powers on dead animal and vegetable matters. Hence its employment in pickling. The fine green colour, so much admired in some vegetable pickles, is often improperly given by means of copper. This poisonous addition is easily detected, by the fine blue colour produced, on dropping some carbonate of ammonia into the suspected vinegar.

Medical uses.—Its action on the living body is gently stimulant and astringent. It promotes transpiration and the discharge by urine; and used moderately as a condiment, it facilitates digestion.

Vinegar is employed as a useful addition to drink in inflammatory fevers, in the proportion of about an ounce to a quart. Internally, it is used in ardent fevers and putrid diseases, in plague, in scurvy, and to counteract the effects of narcotic poisons and mephitic vapours. Faintings, hysterical and hypochondriacal complaints, and vomiting, are frequently relieved by vinegar taken into the stomach, or applied to the lips and nostrils. In the form of clyster, it is used in the same diseases, and in obstinate constipation. Externally, it is applied in fomentations and baths, as a stimulant and discutient;

and its vapour is inhaled in putrid sore throat, and diffused through the chambers of the sick, to correct the putrescency of the atmosphere.

ACIDUM CITRICUM CRYSTALLIZATUM. *Ed.*
ACIDUM CITRICUM CRYSTALLIS CONCRETUM. *Dub.*
Citric acid crystallized.

THE simple expressed juice of lemons is extremely apt to spoil, on account of the sugar, extractive, mucilage, and water, which cause it to ferment.

Various means have been proposed and practised, with the intention of rendering it less perishable and less bulky. The juice has been evaporated to the consistence of rob; but this always gives an empyreumatic taste, and does not separate the extractive or mucilage, so that it is still apt to ferment when agitated on board of ship in tropical climates. It has been exposed to frost, and part of the water removed under the form of ice; but this is liable to all the former objections, and besides, where lemons are produced in sufficient quantity, there is not a sufficient degree of cold. The addition of a quantity of alcohol to the inspissated juice separates the mucilage, but not the extractive or sugar. By means, however, of Scheele's process, as reduced to determinate quantities by Proust, we can obtain the acid perfectly pure and crystallized.

It is now manufactured in this country, in large quantities, and sold under the name of Coxwell's Concrete Salt of Lemons; and a formula is given for its preparation, by the London college.

ACIDUM SULPHURICUM. *Lond. Dub. Ed.*
Sulphuric acid, Vitriolic acid.

The London college directs, that in the shops its specific gravity should be to that of water as 1850 to 1000; the Dublin and Edinburgh colleges as 1845 to 1000. This want of uniformity is to be regretted.

The physical and chemical properties of this acid have been already enumerated. As it is prepared by the trading chemist, it is inserted among the materia medica It is obtained in two ways; by distilling off the acid from sulphate of iron, previously deprived of its water of crystallization by heat, or by burning sulphur in large leaden chambers, with an eighth part of nitrate of potass to supply the necessary oxygen. In the first way the strongest acid is obtained, but it is apt to contain iron or copper. By the second process it generally contains lead, which is easily detected by mixing a portion of the acid

with three parts of distilled water, and if the acid be impure, a deposition will be formed. It may be rendered perfectly pure by distillation, filling a retort half full of the common acid, and distilling in a sand-bath, gradually heated as long as any acid comes over. The receiver should not be luted on.

Sulphuric acid acts powerfully on dead animal substances, becoming diluted with water formed by the union of part of their hydrogen and oxygen; another portion of the hydrogen combines with the azote to form ammonia, and the carbon is separated in the state of charcoal. The affinities which regulate this action are so powerful, that it produces the same effects on the living solid, and therefore it acts upon them as a corrosive. But to its employment with this view, its fluidity is an objection, as it cannot be easily managed.

Medical uses.—These will be explained when we treat of the diluted sulphuric acid. The concentrated acid, however, made into an ointment with sixteen times its weight of axunge, has been used in the cure of psora.

ACONITUM.

Willd. *g.* 1062. *Polyandria Trigynia.*—Nat. ord. *Multisiliquæ.*

Species 9. ACONITUM NEOMONTANUM. *Dub.*

Sp. 8. ACONITUM NAPELLUS. *Lond. Ed.*

Large blue Wolfsbane, Monk's-hood, Aconite.

Officinal—The leaves.

ACONITI FOLIA. *Lond. Dub.*

ACONITI NAPELLI FOLIA. *Ed.*

We are assured by Willdenow, that the *Neomontanum* is the species of aconite which has always been used in medicine; although it is almost universally known by the name of Aconitum Napellus, in consequence of a botanical error of Stoerk, who introduced it into practice.

It is a perennial plant, found in the Alpine forests of Carinthia, Carniola, and other mountainous countries in Germany, and cultivated in our gardens.

The fresh plant and root are very violent poisons, producing remarkable debility, paralysis of the limbs, convulsive motions of the face, bilious vomiting, and catharsis, vertigo, delirium, asphyxia, death. The fresh leaves have very little smell, but when chewed have an acrid taste, and excite lancinating pains, and swelling of the tongue. By drying, their acrimony is almost entirely destroyed. For medical use, the plant must be gathered before the stem shoots.

Uses and dose.—When properly administered, it acts as a

penetrating stimulus, and generally excites sweat, and sometimes an increased discharge of urine.

On many occasions it has been found a very effectual remedy in glandular swellings, venereal nodes, stiff joints, spina ventosa, itch, amaurosis, gouty and rheumatic pains, intermittent fevers, and convulsive disorders.

When the powder of the dried leaves is to be used, we may begin by giving one or two grains, and gradually increase the dose; but it is commonly used in the form of an inspissated juice. As soon as the plant is gathered, the juice is expressed, and evaporated, without any previous clarification, to the consistence of an extract. It is to be regretted, that the powers of this medicine vary very much, according to its age, and the heat employed in its preparation. When recently prepared, its action is often very violent; and when kept more than a year, it becomes totally inert. It may therefore be laid down as an universal rule, in the employment of this and of many other similar active medicines, to begin with very small doses, and to increase them gradually to the necessary degree; and whenever we have occasion to begin a new parcel of the medicine, we should again commence with the smallest dose, and proceed with the same caution as at first.

We may begin with giving half a grain of this extract, either formed into a powder with ten grains of white sugar, or made up with any convenient addition into a pill, twice or thrice a-day, and gradually increase the dose; or a tincture of aconite may be prepared, by digesting one part of the dried leaves in six parts of spirit of wine; the dose of which will be at first five or ten drops, and may be gradually increased to forty.

ACORUS CALAMUS. *Ed. Lond. Dub.*
Willd. *g.* 663. *sp.* 1.—Smith. *Flor. Brit. g.* 179. *sp.* 1.—*Hexandria Monogynia.*—Nat. Ord. *Piperitæ.*
Sweet flag.

Officinal—The root.
ACORI CALAMI RADIX. *Ed.*
CALAMI RADIX. *Lond.*
ACORI RADIX. *Dub.*

THIS plant is perennial, and grows plentifully in rivulets and marshy places about Norwich, and other parts of England, in the canals of Holland, in Switzerland, and in other countries of Europe. The shops have been usually supplied from the Levant with dried roots, which do not appear to be superior to those of our own growth.

The root is full of joints, crooked, somewhat flatted on the sides, internally of a white colour, and loose spongy texture; its smell is strong; the taste warm, acrid, bitterish, and aromatic; both the smell and taste are improved by exsiccation. It is generally looked upon as a carminative and stomachic medicine, and as such is sometimes made use of in practice. It is said by some, though erroneously, to be superior in aromatic flavour to any other vegetable that is produced in these northern climes. It is, nevertheless, a sufficiently elegant aromatic. The fresh root candied is said to be employed at Constantinople as a preservative against epidemic diseases. The leaves of this plant have a sweet fragrant smell, more agreeable, though weaker, than that of the roots.

From sixteen ounces of the dried root, Neumann obtained by distillation about two scruples of fragrant volatile oil. It also rose in distillation with water, but not with alcohol. The spiritous extract from two ounces weighed 370 grains, and water extracted from the residuum, 190 grains. The watery extract from two ounces weighed 455 grains, and the residuum gave out to alcohol 43. It contains a volatile oil, extractive, gum, resin and starch.

ADEPS OVILLUS. *Ed.*
SEVUM. *Lond. Dub.*
Off.—Mutton suet.

Mutton-suet is officinal, for the purpose of giving consistency to some ointments and plasters. It is the stiffest and least fusible of the officinal animal fats.

ADEPS SUILLUS. *Dub. Ed.*
ADEPS. *Lond.*
Off.—Hogs-lard.

HOGS-LARD is a very pure animal fat, of a soft consistence. Hence it is emollient, and is a convenient article for the formation of ointments, plasters, and liniments. It is also used without addition to discuss tumours by friction.

ÆSCULUS HIPPOCASTANUM. *Dub.*
Willd. *g.* 717. *sp.* 1.—*Heptandria Monogynia.*—Nat. Ord. *Trihilatæ.*
Horse chesnut.
Officinal—The bark.
ÆSCULI HIPPOCASTANI CORTEX. *Dub.*

THE bark is bitter, and has been proposed as an indigenous substitute for the very expensive and often adulterated Peru-

vian bark. Many successful experiments of its effects, when given internally in intermittent and continued fever, and also when applied externally in gangrene, sufficiently warrant future trials. Although chemical analysis is not yet sufficiently advanced, to enable us to determine from it the medical effects of any substance, I may observe, that the active constituent of this bark is tannin, which is scarcely compatible with the presence of cinchonin, the predominant, and probably the active, constituent of Peruvian bark. In powder, it may be given to the extent of a scruple and a half, or a drachm, for a dose. Buchholz prefers a solution of a drachm of the extract in an ounce of cinnamon water, of which sixty drops are to be given every three hours.

AGRIMONIA EUPATORIA. *Dub.*

Willd. *g.* 951. *sp.* 1.—Smith. *Flor. Brit. g.* 224, *sp.* 1.—*Dodecandria Digynia.*

Agrimony.

Officinal—The herb.

AGRIMONIÆ HERBA. *Dub.*

THE herb, when fresh, has a pleasant smell, which, however, it loses on being dried. Its taste is then bitterish and astringent. Lewis got from it an essential oil of a yellow colour.

ALCOHOL FORTIUS. *Ed.*

SPIRITUS VINOSUS RECTIFICATUS. *Dub.*

SPIRITUS RECTIFICATUS. *Lond.*

Alcohol, rectified spirit of wine.

The specific gravity should be, according to the London and Edinburgh colleges, to that of water as 835 to 1000. The Dublin college order it of the specific gravity 840.

Alcohol is the characteristic principle of vinous liquors. It arises from the decomposition of sugar by fermentation, and is found in greatest quantity in the wines of warm countries, prepared from thoroughly ripened fruit. In our home made wines, sugar is added to compensate for the want of it in our acescent fruits, and some of them, according to Brande's experiments, yield more alcohol than any foreign wine. It is the proportion of alcohol which renders wines more or less generous, and prevents them from becoming sour. The richer a wine is in alcohol, the less malic acid it contains; and therefore the best wines give the best brandy, because they are free from the disagreeable taste which the malic acid imparts to it. Old wines give better brandy than new wines, but less of it.

Alcohol is produced from vinous liquors by distillation; in conducting which, the following rules are to be observed:

1. To heat the whole mass of fluid at once, and equally.
2. To remove all obstacles to the ascent of the vapour.
3. To condense the vapour as quickly as possible.

The distillation is continued until the liquor which comes over is not inflammable.

Baumé mentions a very remarkable fact concerning the preparation of alcohol. He distilled two pounds of alcohol, specific gravity 832, in the water-bath, and filled the refrigeratory with ice, and he obtained two pounds four ounces of an alcohol having only specific gravity 862. This he ascribes to water condensed from the air in the worm by the coldness of the ice; and he assures us, from experience, that to get an alcohol of 827, it is absolutely necessary that the refrigeratory be filled with water of 145° F.

Distillers judge of the strength of spirits by the size and durability of the bubbles they form, when poured from one vessel into another, or on agitating them in a vessel partly filled. Another proof is, by the combustion of gunpowder; some of which is put in a spoon, and then covered with the spirit to be tried, which is set on fire; if the gunpowder be kindled, the spirit is supposed to be strong, and *vice versa*. But a small quantity of spirits will always kindle gunpowder, and a large quantity never. Another proof is by the carbonate of potass, which attracts the water, and dissolves in it, while the alcohol swims above, and the strength of the spirits is judged of by its quantity. But all these are uncertain; and dependence can only be put in the proof by hydrometers, or some other contrivance for ascertaining the weight of a given bulk at a given temperature.

In this country, alcohol is procured from an infusion of malt, and before its rectification is termed Whisky. In the East Indies, arrack, a spiritous liquor, is distilled from rice; in the West Indies, rum from the sugar-cane; and in France and Spain, brandy from wine. Of all these, the French brandy is the finest spirit; for the others are more or less impregnated with unpleasant essential oils, of which it is almost impossible to free them entirely.

The chemical properties of alcohol have been already mentioned.

Medical uses.—On the living body alcohol acts as a most violent stimulus. It coagulates all the albuminous and gelatinous fluids, and corrugates all the solids. Applied exter-

nally, it strengthens the vessels, and thus may restrain passive hæmorrhagies. It instantly contracts the extremities of the nerves it touches, and deprives them of sense and motion; by this means easing them of pain, but at the same time destroying their use. Alcohol taken undiluted into the stomach, produces the same effects, contracting all the solid parts which it touches, and destroying, at least for a time, their use and office; if the quantity be considerable, a palsy or apoplexy follows, which ends in death. Taken in small quantity, and diluted, it acts as a cordial and tonic, raises the pulse, stimulates the stomach, and promotes digestion; if longer continued, the senses get disordered, voluntary motion is destroyed, and at length the most fatal consequences ensue. Vinous spirits, therefore, in small doses, and properly diluted, may be applied to useful purposes in the cure of diseases; whilst in larger ones they produce deleterious effects. Its habitual use produces the most lamentable consequences,—dyspepsia, hypochondriasis, visceral obstructions, dropsy, tremours and paralysis.

ALCOHOL DILUTIUS. *Ed.*
SPIRITUS VINOSUS TENUIOR. *Dub.*
SPIRITUS TENUIOR. *Lond.*
Diluted Alcohol. Spirit of wine. Proof spirit.

STRONG ALCOHOL mixed with an equal quantity of water. Its specific gravity is to that of distilled water as 935 to 1000 *(Ed.)* The London and Dublin colleges order it of the specific gravity of 930, and the latter adds, "Almost all the spirit sold under the name of *Proof spirit*, is contaminated with empyreumatic oil and unfit for medical use. A spirit of nearly the same specific gravity is prepared by mixing four measures of rectified spirit with three measuers of distilled water, which should always be employed in the preparation of tinctures."

Diluted alcohol should always be prepared, by mixing rectified spirit with water; but it is hardly to be expected that apothecaries will either be at the trouble or expence of preparing it in this manner. Instead of it, an impure spirit of the requisite strength is commonly employed. The diluted alcohol of the Edinburgh college is somewhat weaker than that of the two other colleges; but besides that it is more convenient for their mode of preparing it, this will be attended with no disadvantage, as it is still sufficiently strong for any ordinary purpose.

TABLE *of various mixtures of Alcohol and Water, shewing their Specific Gravities according to Gilpin at 60° and 55°, and their degrees according to Baumé's hydrometer; and also in Clark's hydrometer, which is used by the Revenue.*

Water.	Alcohol.	Sp. Gr. 60°	Sp. Gr. 55°	Baumé 55°	Sp. Gr. 60°	Clark's Hydrom.
0	100	.825	.82736	38	833	Spirit of wine.
10	100	.84568	.84802	34+	858	1 to 2
20	100	.86208	.86441	30—	881	1 to 3
30	100	.87569	.87796	29+	891	1 to 4
40	100	.88720	.88945	27+	896	1 to 5
50	100	.89707	.89933	25+	900	1 to 6
60	100	.90549	.90768	23—	904	1 to 7
70	100	.91287	.91502	22	907	1 to 8
80	100	.91933	.92145	21—	909	1 to 9
90	100	.92499	.92707	20—	910	1 to 10
100	100	.93002	.93208	19—	913	1 to 15
100	90	.93493	.93696	19+	916	1 to 20
100	80	.94018	.94213	18	920	Proof spirit.
100	70	.94579	.94767	17—	926	1 in 20
100	60	.95181	.95357	16—	928	1 in 15
100	50	.95804	.95966	16	932	1 in 10
100	40	.96437	.96575	15	933	1 in 9
100	30	.97074	.97181	14+	934	1 in 8
100	20	.97771	.97847	13	936	1 in 7
100	10	.98654	.98702	12	938	1 in 6
100	0	1.		10	942	1 in 5
					945	1 in 4
					954	1 in 3
					964	1 in 2

ALLIUM.
Willd. g.626.—*Hexandria Monogynia.*—Nat. ord. *Liliaceæ.*
Sp. 14. ALLIUM SATIVUM. *Ed. Dub. Lond.*
Garlic.

Officinal.—The root.
ALLII RADIX. *Lond. Dub.*
ALLII SATIVI RADIX. *Ed.*

GARLIC is a perennial bulbous-rooted plant, which grows wild in Sicily, and is cultivated in our gardens. The root consists of five or six small bulbs called *cloves*, inclosed in one common membranous coat, but easily separable from each other. All the parts of this plant, but more especially the root, have a strong offensive, very penetrating, and diffusible

smell, and an acrimonious, almost caustic taste. The root is full of a limpid juice, of which it furnishes almost a fourth part of its weight by expression.

By Neumann's analysis, it lost two-thirds of its weight by exsiccation, but scarcely any of its smell or taste. By decoction, from 960 parts water extracted 380, and the residuum yielded 27 to alcohol, and was reduced to 40. Alcohol applied first, extracted 123, the residuum yielded 162 to water, and was reduced to 40. In both cases the alcoholic extract was unctuous and tenacious, and precipitated metallic solutions. But the active ingredient is a yellowish thick ropy essential oil, according to Hagen heavier than water, of which the proportion is very small, but in which alone reside the smell, the taste, and all that distinguishes the garlic. By decoction the virtues of garlic are entirely destroyed; but its peculiar virtues are in some degree extracted by alcohol and acetous acid.

Medical use.—Applied externally, it acts successively as a stimulant, rubefacient, and blister. Internally, from its very powerful and diffusible stimulus, it is often useful in diseases of languid circulation and interrupted secretion. Hence, in cold leucophlegmatic habits, it proves a powerful expectorant, diuretic, and, if the patient be kept warm, sudorific; it has also been by some supposed to be emmenagogue. For the same reason, in cases in which a phlogistic diathesis, or irritability, prevails, large doses of it may be very hurtful.

It is sometimes used by the lower classes as a condiment, and also enters as an ingredient into many of the epicure's most favourite sauces. Taken in moderation, it promotes digestion; but in excess, it is apt to produce headach, flatulence, thirst, febrile heat, and inflammatory diseases, and sometimes occasions a discharge of blood from the haemorrhoidal vessels.

In fevers of the typhoid type, and even in the plague itself, its virtues have been much celebrated.

Garlic has been said to have sometimes succeeded in curing obstinate quartans, after cinchona had failed. In catarrhal disorders of the breast; asthma, both pituitous and spasmodic; flatulent colics, hysterical and other diseases, proceeding from laxity of the solids, it has generally good effects: it has likewise been found serviceable in some hydropic cases. Sydenham relates, that he has known the dropsy cured by the use of garlic alone; he recommends it chiefly as a warm strengthening medicine in the beginning of the disease.

It is much recommended by some as an anthelmintic, and has been frequently applied with success externally as a stimu-

lant to indolent tumours, in cases of deafness proceeding from atony or rheumatism, and in retention of urine, arising from debility of the bladder.

Garlic may either be exhibited in substance, and in this way several cloves may be taken at a time without inconvenience, or the cloves cut into slices may be swallowed without chewing. This is the common mode of exhibiting it for the cure of intermittents.

The expressed juice, when given internally, must be rendered as palatable as possible, by the addition of sugar and lemon juice. In deafness, cotton moistened with the juice is introduced within the ear, and the application renewed five or six times in one day.

Infusion in spirit, wine, vinegar, and water, although containing the whole of its virtues, are so acrimonious, as to be unfit for general use; and yet an infusion of an ounce of bruised garlic in a pound of milk was the mode in which Rosenstein exhibited it to children afflicted with worms.

But by far the most commodious form for administering garlic is that of a pill or bolus conjoined with some powder, corresponding with the intention of giving the garlic. In dropsy, calomel forms a most useful addition. It may also sometimes be exhibited with advantage in the form of a clyster.

Garlic made into an ointment with oils, &c. and applied externally, is said to resolve and discuss indolent tumours, and has been by some greatly esteemed in cutaneous diseases. It has likewise sometimes been employed as a repellent. When applied under the form of a poultice to the pubes, it has sometimes proved effectual in producing a discharge of urine, when retention has arisen from a want of due action in the bladder. Sydenham assures us, that among all the substances which occasion a derivation or revulsion from the head, none operates more powerfully than garlic applied to the soles of the feet: with this intention he used it in the confluent smallpox, about the eighth day, after the face began to swell; the root cut in pieces, and tied in a linen cloth, was applied to the soles, and renewed once a day till all danger was over.

Sp. 43. ALLIUM CEPA. *Dub.*
Onion.

Officinal.—The root.
CEPÆ RADIX. *Dub.*

THIS is also a perennial bulbous-rooted plant. The root is a simple bulb, formed of concentric circles. It possesses in

general the same properties as the garlic, but in a much weaker degree. Neumann extracted from 480 parts of the dry root, by means of alcohol, 360, and then by water 30; by water applied first 395, and then by alcohol 30; the first residuum weighed 56, and the second 64. By distillation the whole flavour of the onion passed over, but no oil could be obtained.—Wiegleb says, that all this class of vegetables as well as the acrid cruciform, owe their acrimony to a subtile essential oil, and that they contain combined ammonia, which can be obtained by distillation with a solution of potass. Vauquelin ascribes its acrimony to volatile oil combined with sulphur, and its sweetness to uncrystallizable sugar with mucus, gluten and animo-vegetable matter.

Medical uses.—Onions are considered rather as an article of food than of medicine: by their stimulating quality they tend to excite appetite, and promote the secretions; but when eaten liberally produce flatulence, occasion thirst, headach, and turbulent dreams. By some they are strongly recommended in suppression of urine, and in dropsies. The chief medicinal use of onions in the present practice is in external applications, as a cataplasm for suppurating tumours, &c.

Sp. 2. ALLIUM PORRUM. *Lond.*
Leek.

Off.—The root.
PORRI RADIX. *Lond.*

THE common leek is rather an article of the Materia Alimentaria, than of the Materia Medica. It is milder even than the common onion. A decoction of the beards or filaments of the bulbs is supposed by the vulgar to be lithontriptic.

ALOE.
Willd. g. 659.—*Hexandria Monogynia.*—Nat. ord. *Liliaceæ.*

THE London College now agree with that of Dublin, and with Thunberg, in indicating the *Aloë spicata* as the species which produces the Socotorine aloes; and they assume as the source of the Barbadoes aloes, a species to be described under the name of *Aloë vulgaris*, in the great work of the late Dr Sibthorpe, the Flora Graeca, now preparing for publication by Dr Smith, who informed Dr Powell, the authorised translator and commentator of the London Pharmacopœia, "that the plant described under the above name is asserted by Dr Sibthorpe to be the true *Aloë* of Dioscorides, which is described as producing our Officinal Barbadoes aloes by Sloane, in his history of Jamaica."

Sp. 2. ALOE VULGARIS. *Lond.*
Sp. 5. ALOE SINUATA? *Dub.*

Off.—The gum resin or extract, called Hepatic Aloes.
ALOE HEPATICA; Extractum. *Ed.*
ALOES VULGARIS EXTRACTUM. *Lond.*
ALOE HEPATICA; gummi-resina. *Dub.*

HEPATIC aloes is of two kinds, one from the East Indies, the other from Barbadoes. The former has a light brown, or reddish yellow colour; a clean fracture, and possesses nearly the same medical properties as the socotorine. Barbadoes aloes is not so clear and bright as the foregoing sort; it is also of a darker colour, more compact texture, and for the most part drier, though not so brittle. Its smell is much stronger and more disagreeable; the taste intensely bitter and nauseous, with little or nothing of the aromatic flavour of the socotorine. The best hepatic aloes from Barbadoes is in large gourd shells, and an inferior sort, which is generally soft and clammy, is brought over in casks. In Barbadoes the plant is pulled up by the roots, and carefully cleaned from the earth and other impurities. It is then sliced into small hand-baskets and nets, which are put into large iron boilers with water, and boiled for ten minutes, when they are taken out, and fresh parcels supplied till the liquor is strong and black, which is then strained into a deep vat, narrow at bottom, where it is left to cool and to deposite its feculent parts. Next day the clear liquor is drawn off by a cock, and again committed to a large iron vessel. At first it is boiled briskly, but towards the end it is slowly evaporated, and requires constant stirring to prevent burning. When it becomes of the consistence of honey, it is poured into gourds or calabashes for sale, and hardens by age. Barbadoes aloes is extremely apt to induce haemorrhoids; but it is generally preferred, because it is very difficult to adulterate it without altering its appearance.

Sp. 2. ALOE SPICATA. *Dub. Lond.*

Off.—The gum resin or extract, called Socotorine Aloes.
ALOES SPICATÆ EXTRACTUM. *Lond.*
ALOE SOCOTORINA; gummi-resina. *Dub.*
ALOE SOCOTORINA. *Ed.*

THIS kind of aloes, which is the most esteemed, is brought, wrapt in skins, from the island of Socotora in the Indian Ocean. It is dark coloured, of a glossy clear surface, and in some degree pellucid; in mass of a yellowish red colour, with a purple cast; fracture unequal; easily pulverizable; when reduced to powder, of a bright golden colour.

It is hard and friable in the winter, somewhat pliable in summer, and growing soft between the fingers. Its taste is bitter and disagreeable, though accompanied with some aromatic flavour; the smell is not very unpleasant, and somewhat resembles that of myrrh. It is said not to produce haemorrhoidal affections so readily as Barbadoes aloes.

It is prepared in July, by pulling off the leaves, from which the juice is expressed, and afterwards boiled and skimmed. It is then preserved in skins, and dried in August in the sun. According to others, the leaves are cut off close to the stem, and hung up. The juice, which drops from them without any expression, is afterwards dried in the sun.

During the first four years that the Cape of Good Hope was in possession of the British, more than 300,000 pounds, the produce of that settlement, were imported into England; and as this quantity was infinitely greater than could be required for the purposes of medicine, it is not improbable, that, as Mr Barrow states, its principal consumption was by the London porter brewers.

Fetid, Caballine, or Horse Aloes.

This is easily distinguished from both the foregoing kinds by its strong rank smell; although, in other respects, it agrees pretty much with the hepatic, and is not unfrequently sold in its stead. Sometimes the caballine aloes is prepared so pure and bright, as not to be distinguishable by the eye even from the socotorine; but its offensive smell, of which it cannot be divested, readily betrays it. Its fracture also resembles that of common rosin, with which it is often adulterated, whereas the fracture of socotorine aloes is unequal and irregular.

According to Neumann's analysis, 1000 parts of aloes contain about 7.8 soluble in water only, or analogous to gum, 94. soluble in alcohol only, or resinous matter, and 895 soluble both in alcohol and in water or extractive. Tromsdorff makes them consist of 25 resin and 75 extractive, and Lagrange of 32 resin and 68 extractive. Dr Lewis also remarks, that decoctions of aloes let fall a precipitate, as they cool, probably from extractive being more soluble in boiling than in cold water. He also found the hepatic aloes to contain more resin and less extractive than the socotorine, and this less than the caballine. Also Lagrange found in hepatic aloes 52 extractive, 42 resin and 6 insoluble matter. Tromsdorff, on the contrary, got 81.25 extractive, 6.25 resin, and 12.50 albumen. Boulduc also found in socotorine aloes $\frac{1}{4}$, and in hepatic aloes $\frac{1}{7}$ of resin. The resins of all the sorts,

purified by alcohol, have little smell; that obtained from the socotorine has scarcely any perceptible taste; that of the hepatic, a slightly bitterish relish; and the resin of the caballine, a little more of the aloëtic flavour. The extractive obtained separately from any of the kinds, is less disagreeable than the crude aloes: the extractive of socotorine aloes has very little smell, and is in taste not unpleasant; that of the hepatic has a somewhat stronger smell, but is rather more agreeable in taste than the extract of the socotorine: the extractive of the caballine retains a considerable share of the peculiar rank smell of this sort of aloes, but its taste is not much more unpleasant than that of the extractive obtained from the two other sorts. Fabbroni discovered that the juice expressed from the thick leaves acquired a beautiful purple colour in the air, and furnished a permanent dye.

Medical use.—Aloes is a bitter stimulating purgative, exerting its action chiefly on the rectum. In doses of from 5 to 15 grains it empties the large intestines, without making the stools thin; and likewise warms the habit, quickens the circulation, and promotes the uterine and hæmorrhoidal fluxes. If given in so large a dose as to purge effectually, it often occasions an irritation about the anus, and sometimes a discharge of blood.

It is frequently employed in cases of suppression of the menses, or of the hæmorrhoidal discharge; but it is particularly serviceable in habitual costiveness, to persons of a phlegmatic temperament and sedentary life, and where the stomach is oppressed and weakened. For its use in typhus fever, scarlatina, cynanche maligna, marasmus, chlorosis, haematemesis, chorea, hysteria, and tetanus, Dr Hamilton's excellent work on Purgatives may be consulted. Aloes is also used as an anthelmintic, both given internally and applied to the abdomen in the form of a plaster. Dissolved in alkohol, it is employed to check hæmorrhagies in recent wounds, and as a detergent in ulcers.

Some are of opinion, that the purgative virtue of aloes resides entirely in its resin; but experience has shewn, that the pure resin has little or no purgative quality, and that the extractive part separated from the resinous, acts more powerfully than the crude aloes. If the aloes indeed be made to undergo long coction in the preparation of the gummy extract, its cathartic power will be considerably lessened, not from the separation of the resin, but from an alteration made in the extractive itself by the action of the heat and air. The strongest vegetable cathartics become mild by a similar treatment.

Socotorine aloes, as already observed, contains more extractive than the hepatic; and hence is likewise found to purge more, and with greater irritation. The first sort, therefore, is most proper where a stimulus is required, as for promoting or exciting the menstrual flux; whilst the latter is better calculated to act as a common purge.

Aloes is administered either

a. Simply, or

b. In composition:

1. With purgatives. Soap, scammony, colocynth, rhubarb.
2. With aromatics. Canella.
3. With bitters. Gentian.
4. With emmenagogues. Iron, myrrh.

It is exhibited in the form of

a. Powder; too nauseous for general use.

b. Pill; the most convenient form.

c. Solution in wine or diluted alcohol.

ALTHÆA OFFICINALIS. *Ed. Lond.*

Willd. *g.* 1289, *sp.* 1.—*Smith's Flor. Brit. g.* 316, *sp.* 1.—*Monadelphia Polyandria.* —Nat. ord. *Columnaceæ.*

Marsh-mallow.

Off.—The root and leaves.

a) ALTHÆÆ OFFICINALIS RADIX. *Ed.*
ALTHÆÆ RADIX. *Lond.*

b) ALTHÆÆ OFFICINALIS FOLIUM. *Ed.*
ALTHÆÆ FOLIA. *Lond.*

The marsh-mallow is a perennial indigenous plant, which is found commonly on the banks of rivers, and in salt marshes. The whole plant, but especially the root, abounds with mucilage. The roots are about the thickness of a finger, long and fibrous. When peeled and dried, they are perfectly white.

From 960 parts of the dried root, Neumann extracted by water 650, and afterwards with alcohol 41; by alcohol applied first 360, and afterwards by water 348. Lewis extracted by alcohol only 120, and he observed that the alcoholic extract was sweeter than the watery, and had the smell peculiar to the root. The substance soluble in this instance, both in alcohol and water, is probably saccharine. From 960 parts of the dry leaves Neumann extracted by water 340, and then by alcohol 213: by alcohol first 280, and then by water 218. The residuum of the root was only one-fourth; that of the leaves one-half of the whole. The root is therefore the most mucilagi-

nous. I found that the decoction of the root reddens turnsole, and gelatinizes silicized potass.

Med. use.—It is used as an emollient and demulcent, in diseases attended with irritation and pain, as in various pulmonary complaints, and in affections of the alimentary canal and urinary organs; and it is applied externally in emollient fomentations, gargles, and clysters.

ALUMEN. Sulphas aluminæ et potassæ. *Ed.*
ALUMEN, s. s. Supersulphas aluminæ et potassæ. *Lond.*
ALUMEN, s. s. Supersulphas argillæ alcalisatæ. *Dub.*
Super-sulphate of alumina and potass. Alum.
Sulphate of alumina and potass.

ALUM is obtained principally from schistose clays, which contain iron pyrites, by roasting, exposure to the air, lixiviation, the addition of a proportion of potass ley, evaporation, and crystallization.

The roasting destroys the bituminous matters these clays commonly contain; the exposure to the air acidifies the sulphur of the pyrites; and the addition of alkali is absolutely necessary for the constitution of alum, which is a triple, or even quadruple salt with excess of acid, consisting of sulphuric acid and alumina, with potass or ammonia, or both of them. The properties of alum do not seem to be affected by the nature of the alkali.

Near Whitby there are considerable works where alum is made, by burning a sulphuret of alumina, which is found there in the form of a soft grey clay, lying under a stratum of sand-stone, and by adding muriate of potass to the ley of sulphate of alumina thus obtained.

Alum crystallizes in regular octohedrons, whose sides are equilateral triangles. It has a sweetish but very astringent taste. It is soluble in 15 times its weight of water at 60°, and in three-fourths of its weight at 212°. It reddens vegetable blues. It effloresces slightly in the air. By the action of heat it first undergoes the watery fusion, then loses its water of crystallization, and lastly great part of its acid. It is decomposed by baryta, potass, soda, strontia, and all salts of which these are the bases; by the nitrate, muriate, phosphate, carbonate, borate, and fluate of ammonia; by the nitrate, muriate, phosphate, and carbonate of magnesia; and by the nitrate, muriate, and carbonate of lime. It is also decomposed by the gallic acid, by colouring matters, and by many animal and vegetable substances.

It commonly consists, according to Berzelius, of 37 sulphate of alumina, 18 sulphate of potass, and 45 of water.

Medical use.—Alum is a powerful astringent; it is reckoned particularly serviceable for restraining hæmorrhagies and immoderate secretions; but less proper in intestinal fluxes. In violent hæmorrhagies, it may be given in doses of fifteen or twenty grains, repeated every hour or half hour till the bleeding abates; in other cases, smaller doses are more advisable: large ones being apt to nauseate the stomach, and occasion violent constipations of the bowels. It is used also externally, in astringent and repellent lotions and collyria. Burnt alum, taken internally, has been highly extolled in cases of colic. In such instances, when taken to the extent of a scruple for a dose, it has been said gently to move the belly, and give very great relief from the severe pain.

AMMONIACUM. *Gummi resina. Lond. Dub. Ed.*
Ammoniac, a gum-resin.

AMMONIACUM is a concrete, gummy-resinous juice, brought from the East Indies, usually in large masses, composed of little lumps or tears, of a milky colour, but soon changing, upon being exposed to the air, to a yellowish hue.

Gum-ammoniac is now referred by the London and Edinburgh Colleges, on the authority of Willdenow, to the *Heracleum gummiferum*, which he raised from seeds taken out of the Ammoniacum of the shops; and which, he is satisfied, is the plant which yields it, although he has not been able to procure it from the plants raised at Berlin. I regret that I have not been able to see the *Flora Berolinensis*, in which this plant is depicted, as the question might be decided, with great certainty, by comparing it with the figure, unfortunately not the drawing of a botanist, though sufficiently characteristic, published in his account of the empire of Morocco, by Mr Jackson, who was perfectly familiar with it. He gives the following account of it: "*Ammoniacum*, called *Feshook* in Arabic, is produced from a plant similar to the European fennel, but much larger. In most of the plains of the interior, and particularly about El Araiche and M'sharrah Rummillah, it grows ten feet high. The Gum ammoniac is procured by incisions in the branches, which, when pricked, emit a lacteous glutinous juice, which being hardened by the heat of the sun, falls on the ground, and mixes with the red earth below; hence the reason that Gum ammoniac of Barbary does not suit the London market. It might, however, with a little trouble, be procured perfectly pure; but when a prejudice is once established against any particular article, it is difficult to efface it. The gum, in the above-mentioned state, is used in all parts of the country, for

cataplasms and fumigations. The sandy light soil which produces the gum ammoniac, abounds in the north of Morocco. It is remarkable that neither bird nor beast is seen where this plant grows, the vulture only excepted. It is, however, attacked by a beetle, having a long horn proceeding from its nose, with which it perforates the plant, and makes the incisions whence the gum oozes out."

Ammoniacum has a nauseous sweet taste, followed by a bitter one; and a peculiar smell, somewhat like that of galbanum, but more grateful: it softens in the mouth, and acquires a white colour upon being chewed. It softens by heat, but is not fusible; when thrown upon live coals, it burns away in flame: it is in some degree soluble in water and in vinegar, with which it assumes the appearance of milk; but the resinous part, amounting to about one-half, subsides on standing.

Neumann extracted from 480 parts, 360 by alcohol, and then by water 105; by water applied first 410, and then by alcohol 60. Alcohol distilled from it arose unchanged, but water acquired a sweetish taste, and the smell of the ammoniac. More modern chemists say that the spirit drawn from it by distillation smelt strongly of the gum, and that a small portion of a very pungent strong smelling oil could be got from it. The solution in alcohol is transparent; but on the addition of water, becomes milky. It therefore seems to consist principally of a substance soluble both in water and in alcohol, combined with some volatile matter. Braconnot makes it consist of 700 resin, 184 gum, 44 gluten, and 60 water.

Such tears as are large, dry, free from small stones, seeds, or other impurities, should be picked out and preferred for internal use; the coarser kind is purified by solution, colature, and careful inspissation; but unless this be artfully managed, the gum will lose a considerable deal of its more volatile parts. There is often vended in the shops, under the name of strained gum ammoniacum, a composition of ingredients much inferior in virtue.

Medical use.—The general action of gum-ammoniac is stimulant. On many occasions, in doses of from ten to thirty grains, it proves a valuable antispasmodic, deobstruent, or expectorant. In large doses it purges gently, excites perspiration, and increases the flow of urine. It is used with advantage to promote expectoration in some pulmonary diseases, especially asthma and chronic catarrh; in dropsical affections, to augment the flow of urine, and to support the salivation in small pox. It is also an useful deobstruent; and is frequent-

ly prescribed for removing obstructions of the abdominal viscera, and in hysterical disorders, occasioned by a deficiency of the menstrual evacuation. In long and obstinate colics, proceeding from viscid matter lodged in the intestines, this gummy resin has produced good effects, after purges and the common carminatives had been used in vain. Externally, it is supposed to soften and ripen hard tumours, is often applied as a discutient in white swellings of the knee and other indolent tumours. A solution of it in vinegar has been recommended by some for resolving even schirrous swellings.

It is exhibited internally,

a. In solution, combined with vinegar, vinegar of squills, assa fœtida, &c.

b. In pills, with bitter extracts, myrrh, assa fœtida.

c. And externally, combined with turpentine, common plaster, &c.

AMOMUM.

Willd. *g.* 4.—*Monandria Monogynia.*—Nat ord. *Scitamineæ. Sp.* 1. AMOMUM ZINGIBER. Willd. *Ed. Dub.*

ZINGIBER OFFICINALE. Roscoe. *Lond.*

Ginger.

Off. a)—The dried root, the ginger of the shops.

AMOMI ZINGIBERIS RADIX. *Ed.*

ZINGIBERIS RADIX. *Lond.*

b) Preserved ginger imported from the East or West Indies.

ZINGIBERIS RADIX CONDITA. *Dub.*

IN the botanical arrangement of the well-known plant which produces the Ginger, the London College have followed Mr Roscoe of Liverpool, who has given a new classification of the Scitamineous plants in the eighth volume of the Linnæan Society, in which he has separated the Zingiber from the Cardamom. "It has been well remarked by Jussieu," says Mr Roscoe, "that the *Zingibers* flower in a dense spike near to the stem; the *Cardamoms* in a lax panicle at the base of the stem. Such an uniform natural distinction in the habit of these plants, gave great reason to suppose that, by a closer examination, sufficient generic distinctions would be ascertained. This expectation has been fully confirmed. In the plants of the Ginger tribe, it appears that the anthera-bearing filament is extended beyond the anthera, and terminates in an awl-shaped appendage, with a groove or furrow to receive the

style after it has passed between the lobes of the anthera, and which terminates with the stigma, a little beyond the extremity of the filament; but in the plants of the Cardamom, or proper amomum tribe, the anthera-bearing filament terminates in an appendage of three or more lobes, and differs also in other respects, as will be more particularly noticed under the genus *Amomum*.

Ginger is a perennial plant, indigenous in the East Indies, but now cultivated in the West India islands. It is cultivated there very much in the same manner as potatoes are here, and is fit for digging once a-year, unless for preserving in syrup, when it should be dug at the end of three or four months, at which time it is tender and full of sap.

Ginger is distinguished into two sorts, the black and the white. The former is rendered fit for preservation by means of boiling water, the latter by insolation; and as it is necessary to select the fairest and roundest sorts for exposure to the sun, white ginger is commonly one-third dearer than black.

Black ginger consists of thick and knotty roots, internally of an orange or brownish colour, externally of a yellow-grey. White ginger is less thick and knotty, internally of a reddish-yellow, and externally of a whitish-grey or yellow. It is firm and resinous, and more pungent than the black. Pieces which are worm-eaten, light, friable, or soft, and very fibrous, are to be rejected.

Preserved ginger should be prepared in India from the young and succulent roots. When genuine, it is almost transparent. That manufactured in Europe is opaque and fibrous.

Ginger has a fragrant smell, and a hot, biting, aromatic taste. Neumann obtained by distillation with water from 7680 parts of white ginger, about 60 of a volatile oil, having the smell and distinguishing flavour of the ginger, but none of its pungency. The watery extract was considerably pungent, and amounted to 2720, after which alcohol extracted 192 of a very pungent resin. Alcohol applied first extracted 660 of pungent resin, and water afterwards 2160 of a mucilaginous extract, with little taste, and difficultly exsiccated. The black ginger contained less soluble matter than the white.

Medical use.—Ginger is a very useful spice in cold flatulent colics, and in laxity and debility of the intestines; it does not heat so much as the peppers, but its effects are more durable. It may also be applied externally as a rubefacient. Lately, the powder of ginger, taken in very large doses in milk, was supposed to be almost specific in the gout.

Sp. 3. AMOMUM ZEDOARIA. *Dub.*
Long Zedoary.

Off.—The root.
ZEDOARIÆ RADIX. *Dub.*

THE zedoary is perennial, and grows in Ceylon and Malabar. The roots come to us in pieces, some inches in length, and about a finger thick. Externally they are wrinkled, and of an ash-grey colour, but internally they are brownish-red. The best kind comes from Ceylon, and should be firm, heavy, of a dark colour within, and neither worm-eaten nor very fibrous. It has an agreeably fragrant smell, and a warm, bitterish, aromatic taste.

In distillation with water, it yields a volatile oil, heavier than water, possessing the smell and flavour of the zedoary in an eminent degree; the remaining decoction is almost simply bitter. Spirit likewise brings over some small share of its flavour: nevertheless, the spiritous extract is considerably more grateful than the zedoary itself. From 7680 parts Neumann got 2720 of watery extract, and afterwards 140 of almost insipid resin; by applying alcohol first, 720, and water afterwards, 2400, much bitterer than the primary watery extract.

Sp. 7. AMOMUM CARDAMOMUM. *Dub.*
Sp. 10. ——— REPENS. *Ed.*
ELETTARIA CARDAMOMUM. *Lond.*
Lesser Cardamom.

Off.—Lesser cardamom seeds.
AMOMI REPENTIS SEMEN. *Ed.*
CARDAMOMI SEMINA. *Lond.*
CARDAMOMI MINORIS SEMINA. *Dub.*

BOTH of the species of Amomum are natives of India. The Edinburgh College, on the authority of Sonnerat, has supposed these seeds to be the product of the *repens*, while the Dublin College, with Murray, Willdenow, and all the foreign pharmaceutical writers, ascribe them to the *cardamomum*; and to increase the confusion, the London College have referred this last to a new genus. The reason of their doing so is thus stated by Dr Powell: "From an accurate description of the plant producing this valuable aromatic (Lesser Cardamoms) communicated to the Linnæan Society by Mr White, surgeon, Madras, (who, following the example of other botanical writers, improperly refers it to the genus *Amomum*,) it has been thought necessary to place the Cardamom under a new genus, which Dr Maton has named *Elettaria*, from the appellation

of *Ellettari*, originally given to this tribe by Van Reede, in his *Hortus Malabaricus.*"

Cardamom seeds are a very warm, grateful, pungent aromatic, and frequently employed as such in practice: they are said to have this advantage, that, notwithstanding their pungency, they do not, like the peppers, immoderately heat or inflame the bowels. Both water and rectified spirit extract their virtues by infusion, and elevate them in distillation; with this difference, that the tincture and distilled spirit are considerably more grateful than the infusion and distilled water: the watery infusion appears turbid and mucilaginous, the tincture limpid and transparent. From 480 parts Neumann got about 20 of volatile oil, 15 of resinous, and 45 of watery extract. The husks of the seeds, which have very little smell or taste, may be commodiously separated, by committing the whole to the mortar, when the seeds will readily pulverize, so as to be freed from the husk by the sieve: this should not be done till just before using them; for if kept without the husks, they soon lose considerably of their flavour.

AMYGDALUS COMMUNIS. *Ed. Dub. var. β and γ Lond.* Willd. *g.* 981. *sp.* 2. *Icosandria Monogynia.*—Nat. ord. *Pomaceæ.*

The almond tree.

Off. a)—The kernel; sweet almonds.

AMYGDALI COMMUNIS NUCLEI. Amygdalæ dulces ex varietate sativa. *Ed.*

AMYGDALÆ DULCES. *Dub. Lond. var. β.*

b) The kernel; bitter almonds.

AMYGDALÆ AMARÆ. *Lond. var. γ.*

THE almond tree nearly resembles the peach. It originally came from Syria and Barbary, but is now much cultivated in the south of Europe. There is no apparent difference between the trees which produce the sweet and bitter almonds, and very little betwixt the kernels themselves; and it is said, without probability, that the same tree has, by a difference in culture, afforded both.

The almond is a flattish kernel, of a white colour, and of a bland sweet taste, or a strong bitter one. The skins of both sorts are thin, brownish, unpleasant, and covered with an arid powdery substance. They are very apt to become rancid on keeping, and to be preyed on by insects, which eat out the internal part, leaving the almond to appearance entire. To these circumstances regard ought to be had in the choice of them.

Sweet almonds are of greater use in food than as medicine, but they are reckoned to afford little nourishment; and when eaten in substance, are not easy of digestion, unless thoroughly comminuted. They are supposed, on account of their unctuous quality, to obtund acrimonious juices in the primæ viæ: peeled sweet almonds, eaten six or eight at a time, sometimes give present relief in the heartburn.

Bitter almonds have been found poisonous to dogs and smaller animals; and a water distilled from them, when made of a certain degree of strength, has had the same effects. The essential oil obtained by distillation is one of the most virulent poisons known. Nevertheless bitter almonds are every day used in cookery, on account of their agreeable flavour; but there are some habits, in which the smallest quantity produces urticaria, and other unpleasant symptoms. The similarity of the smell induced Mr Schrader to suppose that bitter almonds contained prussic acid, and he found, that this acid exists, but in a particular state, in all the bitter poisonous vegetable substances having the flavour of bitter almonds, and that in its pure state it is eminently poisonous.

Both sorts of almonds yield, on expression, a large quantity, between a third and fourth of fixed oil. It also separates upon boiling the almonds in water, and is gradually collected on the surface.

The oils obtained by expression from both sorts of almonds are in their sensible qualities the same. They should be perfectly free from smell and taste, and possess the other properties of fixed oils.

Medical use.—These oils are also supposed to blunt acrimonious humours, and to soften and relax the solids: hence their use internally, in tickling coughs, heat of urine, pains and inflammations; and externally, in tension and rigidity of particular parts. On triturating almonds with water, the oil and water unite together, by the mediation of the amylaceous matter of the kernel, and form a bland milky liquor, called an emulsion, which may be given freely in acute or inflammatory disorders. As the bitter almond imparts its peculiar taste when treated in this way, the sweet almonds alone are employed in making emulsions.

Several unctuous and resinous substances, of themselves not miscible with water, may, by trituration with almonds, be easily mixed with it into the form of an emulsion; and are thus excellently fitted for medicinal use. In this form camphor, and the resinous purgatives, may be commodiously taken.

AMYLUM. *See* TRITICUM.

AMYRIS.

Willd. *g.* 755. *Octandria Monogynia.*—Nat. ord. *Dumosæ.*

Sp. 2. AMYRIS ELEMIFERA. *Lond. Dub.*

Elemi.

Off.—The resin called Elemi.

ELEMI. Resina. *Lond. Dub.*

THE tree which furnishes elemi grows in Carolina and Spanish America. In dry weather, and especially at full moon, incisions are made in the bark, from which a resinous juice flows, and is left to harden in the sun. It is brought to us in long roundish cakes, generally wrapped up in flag leaves. The best sort is softish, somewhat transparent, of a pale whitish yellow colour, inclining a little to green, of a strong, not unpleasant smell, resembling somewhat that of fennel. Dr Wright says, that on wounding the bursera gummifera, a thick milky liquor flows, which soon concretes into a resin exactly resembling the elemi of the shops. Of one hundred parts ninety-four dissolve in alcohol, and part of its fragrance rises along with this menstruum in distillation: distilled with water it yields 6.4 of pale-coloured, thin, fragrant, essential oil: its only constituents, therefore, are resin and essential oil. It gives name to one of the officinal unguents, and is at present scarcely used in any other way.

Sp. 18. AMYRIS ZEYLANDICA.

THE elemi which comes from the East Indies is said to be the produce of this species.

Sp. 6. AMYRIS GILEADENSIS.

Off.—Balsam of Gilead. A liquid resin.

AMYRIDIS GILEADENSIS RESINA. *Edin.*

THIS substance, which has also had the name of Balsamum Judaicum, Syriacum, de Mecca, Opobalsamum, &c. is a resinous juice, obtained from an evergreen tree, growing spontaneously, particularly on the Asiatic side of the Red Sea, near Mecca. The true opobalsamum, according to Alpinus, is at first turbid and white, of a very strong pungent smell, like that of turpentine, but much sweeter; and of a bitter, acrid, astringent taste: upon being kept for some time, it becomes thin, limpid, of a greenish hue, then of a golden yellow, and at length of the colour of honey.

This balsam is in high esteem among the eastern nations, both as a medicine, and as an odoriferous unguent and cosmetic. But in Europe it is never obtained genuine; and as all

the signs of its goodness are fallacious, it has been very rarely employed. Nor need we regret it; for any of the other resinous fluids, such as the balsam of Canada or Copaiba, will answer every purpose full as well.

The dried berries of this tree were formerly kept under the title of Carpo-balsamum, and the dried twigs under that of Xylo-balsamum. Although Willdenow has inserted the amyris opobalsamum as a distinct species, he thinks they are the same.

ANCHUSA TINCTORIA. *Ed. Dub.*
Willd. *g.* 277. *sp.* 7. *Pentandria Monogynia.*—Nat. ord. *Asperifoliæ.*
Alkanet, or false alkanet.

Off.—The root.
ANCHUSÆ TINCTORIÆ RADIX. *Ed.*
ANCHUSÆ RADIX. *Dub.*

THIS plant is a native of Europe: it is sometimes cultivated in our gardens; but the greatest quantities are raised in France and Germany, particularly about Montpelier and Silesia, from whence the dried roots are usually imported to us. The alkanet root produced in England is much inferior in colour to that brought from abroad; the English being only lightly reddish, the others of a deep purplish red; and it has been suspected, but without sufficient foundation, that the foreign roots owe part of their colour to art. The cortical part of the root is of a dusky red, and imparts an elegant deep red to alcohol, oils, wax, and all unctuous substances, but not to watery liquors.

Alkanet root has little or no smell; when recent, it has a bitterish astringent taste, but when dried scarcely any. Its chief use is for colouring oils, ointments and plasters. As the colour is confined to the cortical part, the small roots are best, having proportionally more bark than the large.

Alkanet root has been analyzed by Mr John of Berlin. The colouring power resides in a peculiar substance, soluble in alcohol, ether and oils, and not soluble in water; distinguished from the resins by not being fusible, and not being precipitated by water from its solution in alcohol. The tincture by evaporation changes from carmine red to blue, and then to greenish, and the dry extract has an indigo blue colour. Acids heighten the red colour of the tincture, and alkalies change it to blue, which is restored to the original colour by acids. The bark yields only about 5.50 *per cent.* of this substance, which John calls *Pseudo-alcannin*, to distinguish it from the unexamined colouring matter of the real alkanet,

which is furnished by the Lawsonia inermis, a native of India, Syria and Egypt.

ANETHUM.

Willd. *g.* 560. Smith, *g.* 151. *Pentandria Digynia.*—Nat. ord. *Umbellatæ.*

Willd. *sp.* 1. ANETHUM GRAVEOLENS. *Lond.*

Dill.

Off.—The seed.

ANETHI SEMINA. *Lond.*

DILL is an annual umbelliferous plant, cultivated in gardens, as well for culinary as medical use. The seeds are of a pale yellowish colour, in shape nearly oval, convex on one side, and flat on the other. Their taste is moderately warm and pungent; their smell aromatic, but not of the most agreeable kind. The seeds are recommended as a carminative in flatulent colics.

Willd. *sp.* 3. Smith, *sp.* 1. ANETHUM FŒNICULUM. *Ed. Lond. Dub.*

Sweet Fennel.

Off.—The root.

a) ANETHI FŒNICULI SEMINA. *Ed.*

FŒNICULI DULCIS SEMINA. *Dub.*

FŒNICULI SEMINA. *Lond.*

THIS is a biennial plant, of which there are four varieties. One of these, the common fennel, is indigenous on chalky cliffs. The sweet fennel, the variety which is officinal, grows wild in Italy, but is also cultivated in our gardens. It is smaller in all its parts than the common, except the seeds, which are considerably larger. The seeds of the two sorts differ likewise in shape and colour. Those of the common are roundish, oblong, flattish on one side, and protuberant on the other, of a dark almost blackish colour; those of the sweet are longer, narrower, not so flat, generally crooked, and of a whitish or pale yellowish colour.

The seeds of both the fennels have an aromatic smell, and a moderately warm pungent taste: those of the *fœniculum dulce* are in flavour most agreeable, and have also a considerable degree of sweetness.

From 960 parts, Neumann obtained 20 of volatile oil, 260 watery extract, and afterwards some alcoholic extract, which could not be exsiccated, on account of its oiliness. By applying alcohol first he got 84 resinous extract, 120 fixed oil, and then by water 129 of a bitter extract.

ANGELICA ARCHANGELICA. *Ed.*
Willd. *g.* 543, *sp.* 1.—Smith, *g.* 138. *sp.* 1.—*Pentandria Digynia.*—Nat. ord. *Umbellatæ.*
Angelica.

Off.—The root.
RADIX ANGELICÆ ARCHANGELICÆ. *Ed.*

ANGELICA is a large biennial umbelliferous plant. It grows spontaneously on the banks of rivers in alpine countries. It has been found wild in England, but it is doubtful whether it be indigenous. For the use of the shops, it is cultivated in gardens.

All the parts of angelica, especially the roots, have a fragrant aromatic smell, and a pleasant bitterish warm taste, glowing upon the lips and palate for a long time after they have been chewed. The flavour of the seeds and leaves is very perishable, particularly that of the latter, which, on being barely dried, lose the greatest part of their taste and smell: the roots are more tenacious of their flavour, though they gradually lose part of it. The fresh root, wounded early in the spring, yields an odorous yellow juice, which slowly exsiccated, proves an elegant gum-resin, very rich in the virtues of the angelica. On drying the root, this juice concretes into distinct moleculæ, which, on cutting it longitudinally, appear distributed in little veins: in this state, they are extracted by alcohol, but not by watery liquors. Angelica roots are apt to grow mouldy, and to be preyed on by insects, unless thoroughly dried, kept in a dry place, and frequently aired. Baumé says, that it is only the roots gathered in the spring that are subject to this inconvenience, and that when gathered in the autumn, they keep good several years. Roots only worm-eaten are as fit as ever for making a tincture, or affording volatile oil.

John analyzed the dried angelica root, and proved that it owed its peculiar properties to a considerable proportion of essential oil, and acrid resin; but it also contained much gum and some inulin.

Angelica is one of the most elegant aromatics of European growth, though little regarded in the present practice. The root, which is the most efficacious part, is used in the aromatic tincture. The stalks make an agreeable sweetmeat, which is frequently presented in deserts to promote digestion.

ANTHEMIS.

Willd. *g.* 1517. Smith, *g.* 376. *Syngenesia Polygamia Superflua.*—Nat. ord. *Compositæ Radiatæ.*

Willd. *sp.* 15. Smith. *sp.* 1. ANTHEMIS NOBILIS. *Ed. Lond. Dub.*

Chamomile.

Off.—The flowers.

FLORES ANTHEMIDIS NOBILIS. *Ed.*

FLORES ANTHEMIDIS. Flores simplices. *Lond.*

FLORES CHAMÆMELI. *Dub.*

CHAMOMILE is a perennial plant, indigenous in the south of England, but cultivated in our gardens for the purposes of medicine. The flowers have a strong, not ungrateful, aromatic smell, and a very bitter nauseous taste.

Their active constituents are bitter extractive, and essential oil. To the latter is to be ascribed their antispasmodic, carminative, cordial, and diaphoretic effects; to the former, their influence in promoting digestion.

Neumann obtained from 480 parts, 180 of alcoholic extract, and afterwards 120 of watery; and reversing the procedure, 240 of watery, and 60 alcoholic.

Med. use.—Chamomile flowers are a very common and excellent remedy, which is often used with advantage in spasmodic diseases, in hysteria, in spasmodic and flatulent colics, in suppression of the menstrual discharge, in the vomiting of puerperal women, in the afterpains, in gout, in podagra, in intermittents, and in typhus.

As chamomile excites the peristaltic motion, it is useful in dysentery, but is not admissible in all cases of diarrhœa. From its stimulating and somewhat unpleasant essential oil, chamomile is also capable of exciting vomiting, especially when given in warm infusion; and in this way it is often used to assist the action of other emetics.

Externally, chamomile flowers are applied as a discutient and emollient, in the form of glyster or embrocation, in colic, dysentery and strangulated hernia, &c.

Chamomile flowers are exhibited,

1. In substance, in the form of powder, or rather of electuary, in doses of from half a drachm to two drachms, either alone, or combined with peruvian bark, as for the cure of intermittent fevers.

2. In infusion, in the form of tea. This may either be drunk warm, for promoting the action of emetics, or cold, as a stomachic.

3. In decoction or extract. These forms contain only the

extractive, and therefore may be considered as simple bitters.

4. The essential oil may be obtained by distillation. This possesses the antispasmodic powers in a higher degree than the simple flowers, but, on the contrary, does not possess the virtues depending on the presence of the bitter extractive.

Sp. 125. ANTHEMIS PYRETHRUM. *Ed. Lond. Dub.*
Pellitory of Spain.

Off.—The root.
RADIX ANTHEMIDIS PYRETHRI. *Edin.*
RADIX PYRETHRI. *Dub. Lond.*

THIS plant, though a native of warm climates, as Barbary, bears the ordinary winters of this country, and often flowers successively from Christmas to May. The roots also grow larger with us than those with which the shops are usually supplied from abroad. They are seldom so big as the little finger, and the best are dry, compact, of a brown colour, and not easily cut with a knife.

Pellitory root has no sensible smell; its taste is very peculiar, exciting a mixed sensation of coldness and acrimony succeeded by a great flow of saliva and durable tremulous pulsations in the tongue and other soft part which it touches, but less so than that of arum; the juice expressed from it has scarcely any acrimony, nor is the root itself so pungent when fresh, as after it has been dried. Neumann obtained from 960 parts of the dry root, only 40 of alcoholic extract, and afterwards 570 of watery, and by a reverse procedure, 600 of watery, and 20 of alcoholic extract. Both the alcoholic extracts were excessively pungent. Its acrimony, therefore, was derived from a resin. John confirmed the conclusions, and found that the greater part of the watery extract consisted of inulin.

Med. use.—The principal use of pellitory is for promoting the salival flux, as a masticatory; by this means it often relieves the toothach, some kinds of pains in the head, and lethargic complaints. A saturated tincture is the nostrum of some dentists. A vinous infusion is also useful in debility of the tongue.

ANTIMONIUM. *Stibium.*

Antimony.

The physical and chemical properties of this metal have been already described.

Antimony is found,

I. In its metallic state, at Stahlberg in Sweden, and Allemont in France.

II. Mineralized with sulphur.
1. Grey antimony.
a. Compact;
b. Foliated;
c. Striated;
d. Plumose.
2. Red antimony.

III. Oxidized. Mongez.
IV. Acidified.
1. Muriated.
2. Phosphated.

The grey ore of antimony is the state in which it is officinal, and also that in which it is most commonly found.

SULPHURETUM ANTIMONII. *Ed. Dub. Lond.*
Sulphuret of antimony.

WHATEVER opinion may be formed of the nomenclature adopted by the Edinburgh College in general, the propriety of the change which they have introduced in this, and similar instances, cannot be disputed; for while chemists, according to rational principles, designated simple substances by simple names, the same names continued to be given by pharmaceutical writers to compound states of these bodies. To have established, therefore, an uniformity of nomenclature in sciences so intimately allied, cannot fail to be considered as an improvement of the greatest importance.

Although sulphuretted antimony be a natural production, yet it is commonly sold in the form of loaves, which have been separated from the stony, and other impurities of the ore, by fusion, and a species of filtration. The ore is melted in conical well-baked earthen pots, having one or more small holes in their apices. The fire is applied round and above these pots; and as soon as the sulphuretted antimony melts, it drops through the holes into vessels placed beneath to receive it, while the stony and other impurities remain behind. As antimony is very volatile, the mouths and joinings of the pots must be closed and luted. The upper part of the loaves thus obtained is more spongy, lighter, and impure, than the lower, which is therefore always to be preferred. These loaves have a dark-grey colour externally, but on being broken they appear to be composed of radiated striæ, of a metallic lustre, having the colour of lead. The goodness of the loaves is estimated from their compactness and weight, from the largeness and distinctness of the striæ, and from their being entirely va-

porizable by heat. Lead has been sold for antimony; but its texture is rather foliated than striated, and it is not vaporizable. The presence of arsenic, which renders the antimony unfit for medical purposes, is known by its emitting the smell of garlic when thrown upon live coals, and by other tests mentioned under arsenic. The presence of manganese or iron is known by their not being volatilized by a red heat.

Antimony is obtained from its ores by gradually detonating in a large crucible four parts of sulphuretted antimony, three of crude tartar, and one and a half of dry nitrate of potash, reduced to a fine powder, and intimately mixed. The detonated mass is then to be fused, and poured into a heated mould, greased with a little fat, in which it is allowed to consolidate. It is then turned out, and the scoriæ are separated from the antimony, which will weigh about one-fourth part of the sulphuret employed. The scoriæ are a mixture of sulphuret of potass and of antimony, and may be preserved for other purposes.

Another method of obtaining antimony, is by melting three parts of sulphuretted antimony with one of iron. The sulphur quits the antimony, and combines with the iron.

Medical use.—Formerly antimony was given internally, but as its action depended entirely on the acid it met with in the stomach, its effects were very uncertain, and often violent. Cups were also made of antimony, which imparted to wine that stood in them for some time, an emetic quality. But both these improper modes of exhibiting this metal are now laid aside.

Sulphuretted antimony was employed by the ancients, in collyria, against inflammations of the eyes, and for staining the eye-brows black. Its internal use does not seem to have been established till towards the end of the fifteenth century; and even at that time it was by many looked upon as poisonous. But experience has now fully evinced, that it may be administered with perfect safety, being often used, particularly in chronic eruptions; that some of the preparations of it are medicines of great efficacy; and that though others are very violent emetics and cathartics, yet even these, by a slight alteration or addition, lose their virulence, and become mild in their operation.

Off. Prep.—Antimony is at present the basis of many officinal preparations, to be afterwards mentioned. But besides those still retained, many others have been formerly in use, and are still employed by different practitioners. The following table, drawn up by Dr Black, exhibits a distinct view of the whole, with the officinal names at that time.

DR BLACK'S TABLE OF THE PREPARATIONS OF ANTIMONY.

Medicines are prepared either from crude antimony, or from the pure metallic part of it called regulus.

From Crude Antimony.

I. By trituration.
Antimonium præparatum. Lond.

II. By the action of heat and air.
Flores antimonii sine addito.
Vitrum antimonii. Ed.
Antimonium vitrificatum. Lond.
Vitrum antimonii ceratum. Ed.

III. By the action of alkalies.
Hepar antimonii mitissimum.
Regulus antimonii medicinalis.
Hepar ad kermes minerale. *Geoffroi.*
Hepar ad tinct. antimonii.
Kermes minerale.
Sulphur antimonii præcipitatum. Ed. et Lond.

IV. By the action of nitre.
Crocus antim. mitissimus, *vulgo Regulus antim. medicinalis.*
Crocus antimonii. Ed. et. Lond.
Antimonii emeticum mitius. Boerh.
Antim. ustum cum nitro, *vulgo* Calx antimonii nitrata. Ed.
Antimonium calcinatum. Lond. *Vulgo Antimonium diaphoret.*
Antim. calcareo-phosphoratum, sive pulvis antimonialis. Ed.
Pulvis antimonialis. Lond.

V. By the action of acids.
Antim. vitriolat. Klaunig.
Antim. cathartic. Wilson.
Antimonium muriatum, *vulgo* Butyrum antim. Ed.
Antimonium muriatum. Lond.
Pulvis algarothi sive *Mercurius Vitæ.*
Bezoardicum minerale.
Antimonium tartarisatum, *vulgo* Tartarus emeticus. Ed.
Antimonium tartarisatum. Lond.
Vinum antimonii tartarisati. Ed. et Lond.
Vinum antimonii. Lond.

From the Regulus.

This metal, separated from the sulphur by different processes, is called *Regulus antimonii simplex*, *Regulus martialis*, *Regulus jovialis*, &c. From it were prepared,

I. By the action of heat and air,
Flores argentei, sive nix antimonii.

II. By the action of nitre.
Cerussa antimonii.
Stomachicum Poterii.
Antihecticum Poterii.
Cardiacum Poterii.

PREPARATIONS, which have their name from ANTIMONY, but scarcely contain any of it.

Cinnabaris antimonii.
Tinctura antimonii.

To this table of Dr Black's, which is left unaltered, I shall add another, of the officinal preparations, not taken from the mode of preparation, but from the nature of the product.

ANTIMONY is exhibited,

I. In its metallic state,
Combined with sulphur.
Sulphuretum antimonii. *E. D. L.*
———————— præparatum. *E. L. D.*

II. Oxidized.
a. Protoxide,
Antimonii oxidum. *L.*
b. Protoxide combined with sulphur,
1. Sulphuretum antimonii præcipitatum. *E.*
2. Sulphur antimoniatum fuscum. *D.*
c. Protoxide combined with muriatic acid,
Oxidum antimonii nitro-muriaticum. *D.*
d. Protoxide combined with tartaric acid and potass,
Tartras antimonii. *E.*
Antimonium tartarisatum. *L.*
Tartarum antimoniatum, sive emeticum. *D.*
Dissolved in wine,
Vinum tartratis antimonii. *E.*
Liquor antimonii tartarisati. *L.*
e. Protoxide combined with phosphate of lime,
Oxidum antimonii cum phosphate calcis. *E.*
Pulvis antimonialis. *L. D.*

THESE are the principal preparations of antimony. In estimating their comparative value, we may attend to the following observations. All the metallic preparations are uncertain, as it entirely depends on the state of the stomach, whether they act at all, or operate with dangerous violence. The sulphuret is exposed, though in a less degree, to the same objections.

The preparations in which antimony is in the state of peroxide, are perfectly insoluble in any vegetable or animal acid, and are also found to be inert when taken into the stomach.

The remaining preparations of antimony, or those in which it is in the state of protoxide, are readily soluble in the juices of the stomach, aud act in very minute doses. Of its saline preparations, only those can be used internally which contain a vegetable acid; for its soluble combinations with the simple

acids are very acrid and corrosive. In general, the surest and best preparations of antimony are those which contain a known quantity of the metal in its state of protoxide.

The general effects of antimonials are, in small doses, diaphoresis, nausea; in large doses, full vomiting and purging. Some allege that antimonials are of most use in fevers when they do not produce any sensible evacuation, as is said to be the case sometimes with James's powder. They therefore prefer it in typhus, and emetic tartar in synochus, in which there is the appearance at first of more activity in the system, and more apparent cause for evacuation.

AQUA.
Water.

WATER does not enter the list of materia medica of any of the colleges, but it is so important an agent, both in the cure of diseases, and in the practice of pharmacy, that a brief account of its varieties and properties can scarcely be considered as superfluous.

The chemical properties of water have been already enumerated. Water should be perfectly transparent, and have neither smell nor taste, but it is never found perfectly pure; and, if green from iron, blue from copper, or brown from vegetable impregnation, it is unfit for the use of man. *Atmospheric water* comprehends snow and rain water. When collected in the open fields, it is the purest natural water: that which falls in towns, or is collected from the roofs of houses, is contaminated with soot, animal effluvia, and other impurities, although after it has rained for some time, the quantity of these diminishes so much, that Morveau says that it may be rendered almost perfectly pure by means of a little barytic water, and exposure to the atmosphere. Snow water is supposed to be unwholesome, but it is not very apparent upon what principle. Atmospheric water, after it falls, either remains on the surface of the earth, or penetrates through it until it meet with some impenetrable obstruction to its progress, when it bursts out at some lower part, forming a spring or well. The water on the surface of the earth, either descends along its declivities in streams, which gradually wearing channels for themselves, combine to form rivers, which at last reach the sea, or remain stagnant in cavities of considerable depth, forming lakes or ponds, or on nearly level ground forming marshes.

The varieties of spring water are exceedingly numerous; but they may be divided into the soft, which are sufficiently pure to dissolve soap, and to answer the purposes of pure wa-

ter in general; the hard, which contain earthy salts and decompose soap, and are unfit for many purposes, both in domestic economy and in manufactures; and the saline, which are strongly impregnated with soluble salts. When spring waters possess any peculiar character, they are called mineral waters. The purest springs are those which occur in primitive rocks, or in beds of gravel, or filter through siliceous strata. In general large springs are purer than small ones. Wells are in fact artificial springs and are more impure, as the soil which forms their filter contains more soluble matter. Hence our old wells contain finer water than new ones, as the soluble particles are gradually washed away. River water is in general soft, as it is formed of spring water, which by exposure becomes more pure, and of running surface water, which, although turbid, from particles of clay suspended in it, is otherwise very pure. It is purest when it runs over a rocky soil, and its course is rapid, and it is well adapted for the brewing of malt liquor, and other purposes which require great solvent power. Lake water is similar to river water. The water of marshes, on the contrary, is exceedingly impure, and often highly fetid, from the great proportion of animal and vegetable matters which are constantly decaying in them.

Mineral waters derive their peculiarity of character, in general, either from containing carbonic acid, or soda, not neutralized, sulphuretted hydrogen, purging salts, earthy salts, or iron; or from their temperature exceeding in a greater or less degree that of the atmosphere. The following are the most celebrated.

a. Warm springs.—Bath, Bristol, Buxton, Matlock, in England. Barege, Vichy, &c. in France. Aix-la-Chapelle, Borset, Baden, Carlsbad, and Toeplitz in Germany; and Pisa, Lucca, Baia, and many others, in Italy.

b. Carbonated springs.—Pyrmont, Seltzer, Spa, Cheltenham, Scarborough.

c. Alkaline.—Carlsbad, Aix-la-Chapelle, Barege, Toeplitz.

d. Sulphureous.—Enghien, Lu, Aix-la-Chapelle, Kilburn, Harrowgate, Moffat, and many in Italy.

e. Purging.—Sea water, Lemington Priors, Harrowgate, Lu, Carlsbad, Moffat, Pitcaithly, Toeplitz, Epsom, Seidlitz, Kilburn, and all brackish waters.

f. Calcareous.—Matlock, Buxton, and all hard waters.

g. Chalybeate.—Hartfell near Moffat, Peterhead, Denmark, Cheltenham, Pyrmont, Spa, Tunbridge, Bath, Scarborough, Vichy, Carlsbad, Lemington Priors.

Medical use.—Water is an essential constituent in the organization of all living bodies; and as it is continually expended during the process of life, that waste must be also continually supplied, and this supply is of such importance that it is not left to reason or to chance, but forms the object of an imperious appetite. When taken into the stomach, water acts by its temperature, its bulk, and the quantity absorbed by the lacteals. Water about 60° gives no sensation of heat or cold; between 66° and 45° it gives a sensation of cold, followed by a glow and increase of appetite and vigour; below 45° the sensation of cold is permanent and unpleasant, and it acts as an astringent and sedative; above 60° it excites nausea and vomiting, probably by partially relaxing the fibres of the stomach, for when mixed with stimulating substances it has not these effects. In the stomach and in the intestines it acts also by its bulk, producing the effects arising from the distention of these organs; and as the intestinal gases consist of hydrogen gas, either pure or carbonated, or sulphuretted, or phosphuretted, it is probably in part decomposed in them. It likewise dilutes the contents of the stomach and intestines, thus often diminishing their acrimony. It is absorbed by the lacteals, dilutes the chyle and the blood, increases their fluidity, lessens their acrimony, and produces *plethora ad molem*. Its effects in producing plethora and fluidity are however very transitory, as it at the same time increases the secretion by the skin and kidneys. Indeed, the effects of sudorifics and diuretics depend, in a great measure, on the quantity of water taken along with them.

Mineral waters have also a specific action depending on the foreign substances which they contain. It is however necessary to remark, that their effects are in general much greater than might be expected from the strength of their impregnations, owing, probably, to the very circumstance of their great dilution, by which every particle is presented in a state of activity, while the lacteals admit them more readily than they would in a less diluted state.

Carbonic acid gas gives to the waters which are strongly impregnated with it a sparkling appearance, and an agreeable degree of pungency. In its effects on the body it is decidedly stimulant, and even capable of producing a certain degree of transient intoxication. It is of great service in bilious complaints, atony of the stomach, nausea, and vomiting, and in all fevers of the typhoid type.

Alkaline waters produce also a tonic effect on the stomach, but they are less grateful. They are particularly serviceable

in morbid acidity of the stomach, and in diseases of the urinary organs.

Sulphureous waters are chiefly used in cutaneous and glandular diseases. Their effects are stimulant and heating, and they operate by the skin or bowels.

Purging waters derive their effects from the neutral salts they contain, especially the muriates of soda, lime, and magnesia, and the sulphates of soda and magnesia. They are much more frequently used for a length of time to keep the bowels open by exciting the natural action, than to produce full purging. Used in this way, instead of debilitating the patient, they increase his appetite, health, and strength.

Chalybeate waters are used as tonics. They stimulate considerably, and increase the circulation; but as they also generally contain neutral salts, they act as gentle laxatives. They are used in all cases of debility, cachexia, chlorosis, fluor albus, amenorrhœa, and in general in what are called nervous diseases.

The external use of water depends almost entirely on its temperature, which may be,

1. Greater than that of the body, or above 97° F. The hot bath.
2. below the temperature of the body.
   a. From 97 to 85, the warm bath.
   b. From 85 to 65, the tepid bath.
   c. From 65 to 32, the cold bath.

The hot bath is decidedly stimulant in its action. It renders the pulse frequent, the veins turgid, the skin red, the face flushed, the respiration quick, increases animal heat, and produces sweat. If the temperature be very high, the face becomes bathed in sweat, the arteries at the neck and temples beat with violence, anxiety and a sense of suffocation are induced, and, if persisted in, vertigo, throbbing in the head, and apoplexy, are the consequences. It is very rarely employed in medicine, except where there are hot springs, as at Baden in Switzerland. The Russians, and some other nations, use the hot bath as an article of luxury.

The effects of the affusion of hot water have not been ascertained, and it is probable that when the heat is not so great as to destroy the organization of the skin, the very transient application of the water would be more than counteracted by the subsequent evaporation.

With regard to the action arising from their temperature, all baths below 97° differ only in degree, as they all ultimately abstract caloric from the surface, but with a force inversely as their temperature.

The warm bath excites the sensation of warmth, partly because our sensations are merely relative, and partly because its temperature, though less than that of the internal parts of the body, is actually greater than that of the extremities, which are the chief organs of touch. But as water is a much better conductor of caloric than air, and especially than confined air, as much caloric is abstracted from the body by water, which is only a few degrees lower than the internal temperature of the body, as by air of a much lower temperature. The warm bath diminishes the frequency of the pulse, especially when it has been previously greater than natural, and this effect is always in proportion to the time of immersion. It also renders the respiration slower, and lessens the temperature of the body, relaxes the muscular fibre, increases the bulk of the fluids by absorption, removes impurities from the surface, promotes the desquamation and renewal of the cuticle, and softens the nails and indurations of the skin.

The stimulant power of the warm bath is therefore very inconsiderable, and its employment in disease will be chiefly indicated by preternatural heat of the surface and frequency of the pulse, rigidity of the muscular fibre, and morbid affections of the skin. It has accordingly been found serviceable in many cases of pyrexia, both febrile and exanthematous, in many spasmodic diseases, and in most of the impetigines. It is contra-indicated by difficulty of breathing, and internal organic affections, and should not be used when the stomach is full.

The affusion of warm water very generally produces a considerable diminution of heat, a diminished frequency of pulse and respiration, and a tendency to repose and sleep; but its effects are not very permanent, and its stimulus is weak. It is recommended in febrile diseases depending on the stimulus of preternatural heat, and in those attended with laborious respiration, and in the paroxysms of hectic fever.

As the tepid bath and affusion produce effects intermediate between those of warm and cold water, it is unnecessary to enumerate them.

The cold bath produces the sensation of cold, which gradually ceases, and is succeeded by numbness. It excites tremors in the skin, and shivering. The skin becomes pale, contracted, and acquires the appearance termed *cutis anserina*. The fluids are diminished in volume, the solids are contracted, the caliber of the vessels is lessened, and therefore numbness and paleness are induced, and the visible cutaneous veins become smaller. There is a sense of drowsiness and inactivity, the joints become rigid and inflexible, and the limbs are affected with pains and spasmodic contractions. The respira-

tion is rendered quick and irregular, the pulse slow, firm, regular, and small; the internal heat is at first diminished, but gradually and irregularly returns nearly to its natural standard; the extremities, however, continue cold and numb, or swollen and livid; the perspiration is suppressed, and the discharge of urine is rendered more frequent and copious. If the cold be excessive on its application, long-continued violent shiverings are induced, the pulse ceases at the wrist, the motion of the heart becomes feeble and languid, there is a sensation of coldness and faintness at the stomach, and a rapid diminution of animal heat; and at last, delirium, torpor, and death, are the consequences. If the application of the cold bath be not carried to an excessive length, on emerging from the water, the whole body is pervaded by an agreeable sensation of warmth, and the patient feels refreshed and invigorated.

The primary action of the cold bath is stimulant, and the degree of this action is in proportion to the lowness of its temperature. This opinion is indeed directly opposite to a theory of cold which has been advanced with the confidence of demonstration. "Heat is a stimulus; cold is the abstraction "of heat; therefore cold is the abstraction of stimulus, or is "a sedative." To this we might oppose another theory, equally syllogistic, and nearer the truth: Free caloric is a stimulus; cold is the sensation excited by the passage of free caloric out of the body; therefore cold is a stimulus. But, in fact, the action of cold is by no means so simple. It is complicated, and varies according to its intensity, duration, and the state of the system to which it is applied. It acts at first as a stimulant, in exciting sensation; then as a tonic, in condensing the living fibre; and, lastly, however parodoxical it may appear, as a sedative, by preventing that distribution of blood in the minute and ultimate vessels, which is necessary for the existence of sensibility and irritability, and by the abstraction of the stimulus of heat.

The cold bath may be therefore so managed as to procure any of these effects by regulating the length of time for which it is applied.

Cold affusion, or the pouring of cold water over the body, is a very convenient way of applying the cold bath in many cases. In this way cold is very suddenly applied to the surface, its operation is instantaneous and momentary, but may be continued by repeated affusions for any length of time, and so as to produce its extreme effects. Where the effects of cold affusion may be thought too severe, sponging the body with cold water, or water and vinegar, may be substituted.

The application of cold may be employed in fevers and fe-

brile paroxysms, when the heat is steadily above the natural standard, and in many diseases arising from relaxation and debility. It is contra-indicated when the heat of the body is below 97°, when there is any notable perspiration from the surface, and when there is general plethora. Irritable habits should be defended from the violence of its action, by covering the body with flannel.

In ardent fever, especially in those cases in which the heat of the skin is excessive, it is particularly useful, and ought to be long continued. In phrenitis, and other local inflammations, it promises to be of advantage. In gout its effects are doubtful, being in some instances salutary, in others destructive. A criterion, to enable us to determine when it ought or ought not to be resorted to in this disease, is much wanted. In inflammatory rheumatism and rheumatic gout it is decidedly useful. It is of advantage in all the hæmorrhagies and exanthemata; in tetanus, colic, cholera, hysteria, mania, ischuria, and in burns; and in general in all those local diseases in which solutions of acetate of lead, of muriate of ammonia, &c. are usually employed; for the good effects of these depend almost entirely on their diminished temperature.

ARBUTUS UVA URSI. *Ed. Dub. Lond.*

Willd. *g.* 871, *sp.* 7. Smith, *g.* 203, *sp.* 3.—*Decandria Monogynia.*—Nat. ord. *Bicornes.*

Whortleberry. Red-berried trailing arbutus.

Officinal.—The leaves.

FOLIA ARBUTI UVÆ URSI. *Ed.*

FOLIA UVÆ URSI. *Lond. Dub.*

THIS is a very small evergreen shrub. The leaves are oval, not toothed, and their under surface is smooth and pale green. It grows wild in the woods, and on sand hills in Scotland, and in almost every country in Europe. It is also very common in New England and other parts of America. The *green* leaves alone, Dr Bourne says, should be selected and picked from the twigs, and dried by a moderate exposure to heat. The powder, when properly prepared, is of a light brown colour, with a shade of greenish yellow, has nearly the smell of good grass hay, as cut from the rick, and to the taste is at first smartly astringent and bitterish, which sensations gradually soften into a liquorice flavour. Digested in alcohol they give out a green tincture, which is rendered turbid by water, and when filtered passes transparent and yellow, while a green resin remains on the filter. They are powerfully astringent, approaching, in the deepness of the colour which they give to red sulphate of iron, more nearly to nutgalls

than any substance I have tried. Indeed, in some parts of Russia they are used for tanning.

Medical use.—The medical effects of this medicine depend entirely on its astringent and tonic powers. It is therefore used in various fluxes arising from debility, menorrhagia, fluor albus, cystirrhœa, diabetes, enuresis, diarrhœa, dysentery, &c. It has been strongly recommended in phthisical complaints by Dr Bourne, and in diseases of the urinary organs by De Haen, particularly in ulcerations of the kidneys and bladder. With this view it is a popular remedy in America, and Dr Barton recommends it strongly in nephritic complaints and in gleet. It certainly alleviates the dyspeptic symptoms accompanying nephritic complaints. It is commonly given in the form of powder, in doses of from 20 to 60 grains three or four times a-day.

ARCTIUM LAPPA. *Ed. Dub.*

Willd. *g.* 1429, *sp.* 1. Smith, *g.* 352. *sp.* 1. *Syngenesia Polygamia Æqualis.*—Nat. ord. *Compositæ Capitatæ.*

Burdock. Clit-bur.

Officinal.—The root.

RADIX ARCTII LAPPÆ. *Ed.*

RADIX BARDANÆ. *Dub.*

THIS is a perennial plant, which grows wild in uncultivated places. The seeds have a bitterish subacrid taste; they are recommended as very efficacious diuretics, given either in the form of emulsion, or in powder, to the quantity of a drachm. The roots taste sweetish, with a light austerity and bitterishness: they are esteemed aperient, diuretic, and sudorific, and are said to act without irritation, so as to be safely ventured upon in acute disorders. Decoctions of them have been used in rheumatic, gouty, venereal, and other disorders, and are preferred by some to those of sarsaparilla.

ARGENTUM. *Ed.*

ARGENTUM; Argentum purificatum. *Lond.*

ARGENTUM in laminas extensum. *Dub.*

Silver. Silver leaf.

THE chemical and physical properties of silver have been already enumerated.

Silver is found,

I. In its metallic state;
   1. Pure.
   2. Alloyed with gold. Auriferous silver ore.
   3. ——— antimony.

4. Alloyed with iron and arsenic.
5. ——— bismuth.

II. Combined with sulphur;
1. Sulphuretted silver. Vitreous silver ore.
2. ——— with antimony, iron, arsenic, and copper. Black or brittle silver ore.
3. Sulphuretted silver, with copper and antimony. Black silver ore.
4. ——— with lead and antimony. White silver ore.

III. Oxidized;
1. Combined with carbonic acid and antimony.
2. ——— muriatic acid.
   a. Corneous silver ore.
   b. Earthy silver ore.
   c. Sooty silver ore.
3. Combined with sulphur and oxide of antimony. Red silver ore.

——— molybdic acid.

ARISTOLOCHIA SERPENTARIA. *Ed. Lond. Dub.*
Gynandria Hexandria.—Willd. *g.* 1609, *sp.* 27. Nat. ord. *Sarmentosæ.*
Virginian Snake-root.

Officinal.—The root.
RADIX ARISTOLOCHIÆ SERPENTARIÆ. *Ed.*
RADIX SERPENTARIÆ. *Lond.*
RADIX SERPENTARIÆ VIRGINIANÆ. *Dub.*

THIS is a small, light, bushy root, consisting of a number of strings or fibres matted together, issuing from one common head; of a brownish colour on the outside, and paler or yellowish within. It has an aromatic smell, like that of valerian, but more agreeable; and a warm, bitterish, pungent taste, very much resembling that of camphor. I find that, treated with alcohol, it affords a bright green tincture, which is rendered turbid by water; by filtration a small portion of a green matter is separated, but its transparency is not restored. It neither precipitates tannin or gelatin, nor affects the salts of iron or tincture of turnsole. When the diluted tincture is distilled, the spirit and tincture pass over milky, strongly impregnated with its peculiar flavour.

Medical use.—Its virtues are principally owing to the essential oil with which it abounds. Its general action is heating and stimulant; its particular effects, to promote the discharge by the skin and urine. In its effects it therefore coincides with camphor, but seems to be a more permanent stimulus.

It is recommended,

1. In intermittent fevers, especially when the paroxysms do not terminate by sweating, and to assist the action of Peruvian bark in obstinate cases. In America, its tincture or infusion is the common morning dram in agnish situations.
2. In typhus and in putrid diseases, to support the *vis vitæ*, and to excite gentle diaphoresis.
3. In exanthematous diseases, when the fever is of the typhoid type, to support the action of the skin and keep out the eruption.
4. In gangrene. Externally it is used as a gargle in the putrid sore throat.

It is exhibited,

1. In powder, which is the best form, in doses of twenty or thirty grains.
2. In infusion with wine or water. By decoction its powers are entirely destroyed.

It is often combined with Peruvian bark, or with camphor.

ARNICA MONTANA. *Ed. Dub.*

Willd. *g.* 1491, *sp.* 1. *Syngenesia Polygamia superflua.*—Nat. ord. *Compositæ radiatæ.*

German Leopard's-bane.

Officinal.—The flowers and root.

a) FLORES ARNICÆ MONTANÆ. *Ed.*
FLORES ARNICÆ. *Dub.*

LEOPARD'S-BANE is a very common perennial plant in the alpine parts of Germany, in Sweden, Lapland, and Switzerland. The flowers, which are of a yellow colour, and compound, consisting entirely of tubular florets, are distinguished from similar flowers, with which they are often mixed, from ignorance or fraud, by the common calyx, which is shorter than the florets, and consists entirely of lancet-shaped scales, lying parallel, and close to each other, of a green colour, with purple points. The calyx of the different species of Inula is composed of bristle-shaped scales, reflected at the points, and beset with hairs. The florets of the genus Hypochæris are strap-shaped.

These flowers have a weak bitterish taste, evidently combined with a degree of acrimony; and when rubbed with the fingers have a somewhat aromatic smell. Their active constituents are not sufficiently ascertained. Mercier has endeavoured to shew that they owe their acrimony to the agency of

insects upon them, and that naturally they contain aromatic principle, and modified tannin. But in their ordinary state they contain also an acrid resin and an unexamined peculiar vegetable principle, as pointed out by Weber.

Medical use.— In their effects they are stimulating, and supposed to be discutient. In small doses, and properly administered, they possess very beneficial effects, in raising the pulse, in exciting the action of the whole sanguiferous system, in checking diarrhœas, in promoting expectoration, and, most particularly, in removing paralytic affections of the voluntary muscles; but their use is frequently attended with no sensible operation, except that in some cases of paralysis, the cure is said to be preceded by a peculiar prickling, and by shooting pains in the affected parts. When given improperly, or in too large doses, they excite an insupportable degree of anxiety, shooting and burning pains, and even dangerous hæmorrhagies, vomiting, vertigo, and coma. For these dangerous symptoms, vinegar is said to be the best remedy.

They have been recommended,

1. In paralytic disorders, in chronic rheumatism, in retention of the urine, from paralysis of the bladder, in amaurosis.
2. In intermittent fevers, combined with Peruvian bark.
3. In dysentery and diarrhœa, but in some cases they have had bad effects.
4. In putrid diseases.
5. In typhoid inflammations.
6. To promote the uterine discharge.
7. And in internal pains, and congestions from bruises.

In the countries where they are indigenous, the flowers of the leopard's-bane have long been a popular remedy in these accidents.

They are contra-indicated by an inflammatory diathesis, a predisposition to haemorrhagies, and internal congestions.

They are best exhibited in the form of infusion. One or two scruples may be infused with half a pound of water, and drunk at proper intervals. The flowers should be wrapt up in a piece of linen, as otherwise their down is apt to be diffused in the liquid, and to cause violent irritation of the throat.

Officinal.—The root.

b) Radix arnicæ. *Dub. Ed.*

The dried root of this plant is about the thickness of a small quill, and sends out fibres along on one side. Externally it is rough, and of a red brown colour, internally of a dirty white. Its taste is acrid, and slightly bitter. Neumann ex-

tracted from 960 parts 840 watery extract, and 5 alcoholic; and inversely 270 alcoholic, and 540 watery.

Medical use.—It is exhibited in the same manner and circumstances as the flowers, but is more apt to excite vomiting.

In powder its dose is from five to ten grains.

ARSENICUM.

Arsenic.

THE general properties of this metal have been already enumerated.

Arsenic is found,

I. In its metallic state:
   1. Alloyed with iron. Native Arsenic.
   2. ———— iron and gold.
   3. ———— cobalt.
   4. Combined with iron and sulphur. Arsenical pyrites.
   5. ———— iron, sulphur, and silver. White arsenical pyrites.

II. Oxidized:
   1. Uncombined. White oxide of arsenic. Arsenious acid.
   2. Combined with sulphur.
      a. Oxide of arsenic 90, sulphur 10. Orpiment. Yellow sulphuretted arsenic.
      b. Oxide of arsenic 84, sulphur 16. Realgar. Red sulphuretted arsenic.

III. Acidified and combined:
   1. With lime.
   2. With copper.
   3. With iron.
   4. With lead.
   5. With nickel.
   6. With cobalt.

OXIDUM ARSENICI. *Ed. s. s. Oxydum arsenici album. Lond.*

ARSENICUM; Oxydum album. *Dub.*

Oxide of arsenic. Arsenious acid, Fourcroy.

THIS substance, which was formerly named, improperly, Arsenic, is most generally obtained in the process of roasting the ores of cobalt in Saxony. The roasting is performed in a kind of reverberatory furnace, with which a very long chimney is connected, lying in a horizontal direction. The arsenious acid is condensed in it in the form of a loose grey powder, which,

by a second sublimation with a little potash, and in a great degree of heat, coalesces into a firm vitreous sublimate, which gradually becomes opaque by exposure to the air. In this state it is the white arsenic of commerce, or, as it should be termed, the arsenious acid. For internal use, the lumps of a shining appearance and dazzling whiteness should be chosen; but it is generally offered to sale in the form of powder, which is very often mixed with chalk or gypsum. The fraud is easily detected by exposing it to heat. The arsenious acid is entirely sublimed, and the additions remain behind.

As this substance is one of the most virulent poisons, we shall give a full account of its properties. It is white, compact, brittle, and of a glassy appearance. Its taste is sweetish, but acrid, and slow in manifesting itself. It sublimes entirely when exposed to 383° Fahrenheit. When the operation is performed in close vessels, the arsenious acid sublimes in dense white fumes, which concrete into tetrahedrons, but the crystals become gradually opaque on exposure to the air. Arsenious acid is soluble in 80 waters at 60°, and in 15 at 212°. This solution has an acrid taste, and reddens vegetable blues. It is also soluble in 80 times its weight of boiling alcohol. From either solution it may be obtained regularly crystallized in tetrahedrons. From its solutions a white precipitate is thrown down by lime-water, a yellow precipitate by sulphuretted hydrogen, or water impregnated with it, or by any alkaline sulphuret or hydro-sulphuret, and, still more characteristically, a fine green precipitate by a solution of sulphate of copper, and a copious yellow precipitate by a solution of nitrate of silver. But as the addition of an alkali, in order to saturate the acid, is necessary to the success of these metallic tests, the liquid ammoniarets of copper and of silver are preferable, and indeed the best fluid tests we possess. Mixed with a little sulphur, it sublimes of an orange or red colour. When treated with nitric acid, the arsenious acid is converted into arsenic acid. But by far the surest test of the presence of arsenic, is its reduction by carbonaceous substances. With this view, a small quantity of any suspected substance may be mixed with some carbonaceous or fatty or oily matter, and introduced within a tub closed at the bottom, and exposed to a red heat; if arsenic be present in any state, it will be sublimed in the form of brilliant metallic scales. By means of a small tube and a blowpipe, a very small quantity may be detected in this way. If arsenic be reduced between copper-plates, or in contact with copper-filings, it whitens them, and, lastly, the fumes of reduced arsenic have a strong alliaceous smell.

Arsenious acid is used by the dyers, as a flux in glass making, in docimastic works, and in some glazes. Arsenious sulphurets are much used by painters, but these advantages are not able to compensate for its bad effects. In mines, it causes the destruction of numbers who explore them; being very volatile, it forms a dust, which affects and destroys the lungs, and the unhappy miners, after a languishing life of a few years, all perish sooner or later. The property which it possesses of being soluble in water, increases and facilitates its destructive power; and it ought to be proscribed in commerce, by the strict law which prohibits the sale of poisons to unknown persons. Arsenious acid is every day the instrument by which victims are sacrificed, either by the hand of wickedness or imprudence. It is often mistaken for sugar, and these mistakes are attended with the most dreadful consequences. The only symptoms which characterize this poison are, extreme pains in the stomach and bowels, vomiting of glairy and bloody matter, purging, with cold sweats and trembling. Sometimes there is no pain, only debility and fainting, with vomiting and purging.

On dissection, the stomach and bowels are sometimes found to be inflamed, gangrenous, and corroded or corrugated. The lungs are frequently marked with livid spots. Sometimes there is no morbid appearance to be discovered. The state of the blood is very various, as well as the external appearance of the body, which is sometimes perfectly natural. When the quantity is so very small as not to prove fatal, tremors, palsies, and lingering hectics succeed.

Mucilaginous drinks have been long ago given to persons poisoned by arsenic. Milk, fat, oils, and butter, have been successively employed. M. Navier has proposed, as a more direct counter-poison, one drachm of sulphuret of potass to be dissolved in a pint of water, which the patient is directed to drink at several draughts; the sulphur unites to the arsenic, and destroys its causticity and effects. When the first symptoms are alleviated, he advises the use of sulphureous mineral waters. He likewise approves the use of milk, but condemns oils. Vinegar, which dissolves arsenic, has been recommended by M. Sage. According to Hahneman, a solution of soap is the best remedy. One pound of soap may be dissolved in four pounds of water, and a cupful of this solution may be drunk lukewarm every three or four minutes. But M. Orfila agrees with Renault in thinking, that no antidote has yet been discovered. Bloodletting has lately been recommended in cases of poisoning from arsenic, on the idea that it kills by inducing inflammation.

Medical use.—Notwithstanding the very violent effects of arsenious acid, it has, however, been employed in the cure of diseases, both as applied externally, and as taken internally.

Externally, it has been chiefly employed in cases of cancer. Justamond used an ointment composed of four grains of white oxide of arsenic, ten grains of opium, and a drachm of cerate, spread very thin upon linen. But its action is tedious. He also fumigated cancerous sores with sulphuret of arsenic, with a view to destroy their intolerable fetor, with great success. Le Febure washed cancerous sores frequently, in the course of the day, with a solution of four grains of arsenious acid in two pounds of water. Arnemann recommends an ointment of one drachm of arsenious acid, the same quantity of sulphur, an ounce of distilled vinegar, and an ounce of ointment of white oxide of lead, in cancerous, and obstinate ill-conditioned sores, and in suppurated scrofulous glands. The arsenious acid has even been applied in substance, sprinkled upon the ulcer. But this mode of using it is excessively painful, and extremely dangerous. There have been even fatal effects produced from its absorption.

The principal thing to be attended to in arsenical applications is to diminish their activity to a certain degree. They then cause little irritation or pain, but rather excite a gentle degree of inflammation, which causes the diseased parts to be thrown off, as if they were foreign substances, while they have the peculiar advantage of not extending their operation laterally.

No other escharotic possesses equal powers in cancerous affections; but, unfortunately, its good effects often do not go beyond a certain length; and if in some cases it effects a cure, in others it must be allowed that it does harm. While it has occasioned very considerable pain, it has given the parts no disposition to heal, the progress of the ulceration becoming even more rapid than before.

Internally, it may be exhibited in the form,

1. Of arsenious acid dissolved in distilled water, in the proportion of four grains to a pint. A table spoonful of this solution, mixed with an equal quantity of milk, and a little syrup of poppies, is directed to be taken every morning fasting, and the frequency of the dose gradually increased until six table spoonfuls be taken daily. M. Le Febure's method of curing cancer.
2. Of arsenite of potass. Sixty four grains of arsenious acid, with an equal quantity of carbonate of potass, are to be boiled together until the arsenious acid be dissol-

ved, when as much water is to be added as will increase the solution to one pound. Of this, from two to twelve drops may be given once, twice, or oftener, in the course of a day. Dr Fowler's method of curing intermittent fever.

3. Of arseniate of potass. Mix well together equal quantities of nitrate of potass, and of pure arsenious acid; put them into a retort, and distil it first with a gentle heat, and afterwards with so strong a heat as to redden the bottom of the retort. In this process the nitric acid is partly decomposed, and passes over into the receiver in the state of nitrous acid. The arsenious acid is at the same time converted into arsenic acid, and combines with the potass. The product, which is arseniate of potass, is found in the bottom of the retort, and may be obtained in the form of crystals, of a prismatic figure, by dissolving it in distilled water, filtering the solution through paper, evaporating, and crystallizing. A preparation of M. Macquer's.
4. Arsenious acid, in substance, to the extent of an eighth of a grain for a dose, combined with a little sublimed sulphur, has been said to be exhibited in some very obstinate cases of cutaneous diseases, and with the best effect.
5. Combined with six times its weight of black pepper, it is given by the native physicians in the East Indies for the cure of the Persian fire (syphilis,) and a species of elephantiasis, called juzam.

The internal use of arsenic has been lately much extended, in consequence of the observations of Dr Fowler, Mr Jenkinson, Dr Bardsley, Dr Kellie, Mr Hill, &c. Before Dr Fowler wrote, it was indeed in use empirically, for the cure of cancers, and even as a popular remedy, in various countries; as in the East Indies, against cutaneous affections; and in the fens of Hungary and Lincolnshire, against the ague. But Dr Fowler first, by that inductive method of ascertaining its effects which he so successfully practised, recommended it to the notice of regular practitioners. He confined himself to the advantages derived from it in periodical diseases; and Mr Jenkinson has, more recently, extended the use of it to certain painful affections of the bones, cases of "very long standing, attended with great debility, and local affections, not "of the muscles and integuments, but of the ends of the bones, "cartilages, or ligaments, or of all three together." He thinks it hurtful in recent affections, except where there are regular

intermissions, and in the disease described by Dr Haygarth, under the title of nodosity of the joints. For a complete list of the diseases in which it has been tried, Mr Hill's paper in the Edinburgh Medical Journal may be consulted.

The great difficulty attending the exhibition of so very active a remedy, is regulating the dose so as to produce the full effect, without carrying it farther than is absolutely necessary. Dr Kellie has accurately pointed out the precautions to be observed with this view. He always gives arsenic immediately after meals, under the idea that it will be less apt to affect the stomach when full than when empty. "From all I have observed, I have little apprehension of risk in a guarded and judicious use of the arsenical solution. It will always be proper to begin with the smallest doses, in order to ascertain how it agrees with the stomach. Having suited the dose to this, the feeling of swelling and stiffness of the palpebræ and face, heat, soreness, and itching of the tarsi, or tenderness of the mouth, are proofs that the medicine is exerting its specific effects on the constitution; that the dose has been carried to a sufficient length; and that it is time to decrease the dose, and attentively to watch its future effects. On the appearance of erythema, or salivation, it is time to interrupt altogether, for a while, the exhibition of arsenic; if necessary, it may be resumed when these symptoms have vanished. If pain of the stomach, nausea, or vomiting supervene; if the head be affected with pain or vertigo; or should a cough, with any signs of irritation of the pulmonary organs, be observed, the use of arsenic should be totally and for ever abandoned."

ARTEMISIA.

Willd. *g.* 1743, *Syngenesia Polygamia superflua.*—Nat. ord. *Compositæ discoideæ.*

Sp. 8. ARTEMISIA ABROTANUM. *Dub.*
Southernwood.

Off.—The leaves.
FOLIA ABROTANI. *Dub.*

THIS is a perennial shrub, which grows readily in our gardens, though a native of the south of Europe.

Southernwood has a strong smell, which to most people is not disagreeable; it has a pungent, bitter, and somewhat nauseous taste. These qualities are very completely extracted by alcohol, and the tincture is of a beautiful green colour. They are less perfectly extracted by watery liquors, the infusion being of a light brown colour.

Med. use.—Southernwood, as well as some other species of

the same genus, has been recommended as an anthelmintic: and it has also been sometimes used as stimulant, detergent, and sudorific. Externally, it has been employed in discutient and antiseptic fomentations; and, under the form of lotion and ointment, for cutaneous eruptions, and for preventing the hair from falling off. But it is at present very rarely used in any way.

Sp. 42. ARTEMISIA MARITIMA. *Dub.*
Sea Wormwood.

Off.—The tops.
CACUMINA ABSYNTHII MARITIMI. *Dub.*

THIS species of artemisia is perennial and herbaceous. It grows wild in salt marshes, and in several parts about the sea-coasts. In taste and smell, it is weaker and less unpleasant than the common wormwood, and is now almost rejected from practice.

Sp. 26. ARTEMISIA SANTONICA. *Ed. Dub.*
Wormseed.

Off.—The tops.
CACUMINA ARTEMISII SANTONICI. *Ed.*
CACUMINA SANTONICI. *Dub.*

THE Edinburgh and Dublin Colleges have given this species as the plant which produces these seeds; but the fact is by no means ascertained. They have been ascribed by different writers to other species of the same genus, the Judaica, the Contra, and the Austriaca, and are even said by Saunders to be the produce of a species of Chenopodium.

The seeds themselves are small, oblong, smooth, and of a greenish or greyish yellow colour. As the whole head is gathered after the seeds are ripe, they are mixed with the scales of the calices, and bits of stalks. Their taste is bitter, and somewhat acrid; their smell strong and disagreeable. Those which come from Aleppo are esteemed the best, and those from Barbary the worst. When they have no smell, and a less intensely bitter taste, and are discoloured, and mixed with a longer kind of seed, they are to be rejected. They are also adulterated with the seeds of tansy and wormwood. The latter are easily known, by having a light yellow colour, and resembling powdered hay more than seeds. Neumann obtained from 480 parts, 213 of alcoholic extract, and 110 watery; and inversely, 260 watery, and 28 alcoholic. It gave a slight flavour to water distilled from it, but no oil.

Med. use.—Wormseed, although recently rejected by the

London College, is one of the oldest and most common anthelmintics, especially in the lumbrici of children. On account of their essential oil, they are heating and stimulating.

They are given to children,

1. In substance, to the extent of ten grains, or half a drachm, finely powdered, and strewed on bread and butter; or made into an electuary with honey or treacle; or candied with sugar; or diffused through milk, and taken in the morning, when the stomach is empty.
2. In infusion or decoction; but to these forms their bitterness is a strong objection.

After they have been used for some days, it is customary to give a cathartic, or they are combined, from the beginning, with rhubarb, jalap, calomel, sulphate of iron, or muriate of ammonia.

Sp. 63. ARTEMISIA ABSINTHIUM. *Ed. Dub. Lond.*
Common wormwood.

Off.—The leaves and flowering heads.

a) ABSINTHIUM. *Lond.*
FOLIA ABSINTHII VULGARIS. *Dub.*
FOLIA ARTEMISIAE ABSINTHII. *Ed.*

b) CACUMINA ABSYNTHII VULGARIS. *Dub.*
SUMMITATES ARTEMISIAE ABSYNTHII. Summitates florentes. *Ed.*

THIS perennial herb grows by the road-sides, and on rubbish, in many parts of Britain: and about London it is cultivated for medical use. Its smell is strong and disagreeable; its taste intensely bitter. Its active constituents are bitter extractive and essential oil. It is used in stomach complaints, and is of great service to hypochondriasts. It is also employed in intermittent fevers, in cachectic and hydropic affections, in jaundice, and against worms. The herb is used in antiseptic fomentations, and macerated in water is applied to bruises to prevent the swelling and discolouration. Many persons cannot suffer the disagreeable smell of wormwood, which is apt to occasion headach; but it may be freed from it in a great measure by decoction. The extract is a pure and simple bitter. The essential oil is of a dark green colour, and contains the whole flavour of the plant. It is stimulating, and is supposed to be a powerful antispasmodic and anthelmintic. Wormwood was formerly much used for the preparation of medicated wines and ales.

ARUM MACULATUM. *Dub.*

Monœcia Polyandria. Willd. *g.* 1705, *sp.* 17. Smith, *g.* 402, *sp.* 1.—Nat. ord. *Piperitæ.*

Wake robin.

Officinal.—The recent root.

RADIX RECENS ARI. *Dub.*

THIS is a perennial solid bulbous-rooted-plant, which grows wild in shady situations, and by the sides of banks, in many parts of Britain. The root is knotty, roundish, and white. When collected in spring, before the leaves shoot, or in autumn, after flowering, it contains a very acrid milky juice. Applied to the tongue, it causes a burning heat, which lasts for many hours, and excites considerable thirst. These disagreeable symptoms may be relieved by butter-milk or oily fluids. Rubbed between the fingers, it blisters and excoriates them; it is therefore a corrosive vegetable poison. By drying, it loses the greatest part of its acrimony, and becomes simply amylaceous. It is also rendered perfectly mild by frequent washing with water. Its acrimony does not rise in distillation, either with alcohol or with water, and is not contained in its extract, although the root is thereby deprived of it. Neumann obtained from 480 of the dry root, 20 of alcoholic extract, and about 180 watery. The former had some slight pungency, the latter none. Its acrimony is therefore easily destructible; and as it does not arise from the presence of an essential oil, it depends upon a vegetable principle, different from all others, and not well understood.

Medical use.—In the recent root, the degree of acrimony is so very uncertain, and often so excessive, that its effects, as an internal remedy, cannot be depended on. The dried root is perfectly inert, so much so, that the French prepare from it the harmless but high-priced cosmetic, called *Cypress powder:* but the fresh root may be kept in a state fit for medical use for a year, by burying it in a cellar in sand. It is given in chlorotic cachectic cases, and in a relaxed state of the stomach supposed to arise from an accumulation of phlegm, and in some rheumatic affections, in the dose of ten or fifteen grains, three times a-day, in the form of a conserve or bolus.

ASARUM EUROPÆUM. *Ed. Dub. Lond.*

Willd. *g.* 925. *sp.* 1. Smith, *g.* 222. *sp.* 1. *Dodecandria Monogynia.*—Nat ord. *Sarmentaceæ.*

Asarabacca.

Officinal.—The leaves.

FOLIA ASARI EUROPÆI. *Ed.*

FOLIA ASARI. *Lond. Dub.*

THIS perennial plant is a native of some places of England, although the dried roots are generally brought from the Levant. It grows in moist and shady situations. It produces only two leaves, which are reniform and very obtuse. The root is fibrous, of a grey-brown colour externally, but white within. Both the roots and leaves have a nauseous, bitter, acrimonious, hot taste; their smell is strong, and not very disagreeable.

In its analysis, it is said by Neumann to agree with ipecacuanha, but it seems to contain, besides its odorous principle, which is probably camphor, a portion of the same acrid principle which has been noticed when speaking of arum. Upon this its virtues depend; and as this principle is not fixed, we find that asarabacca loses much of its activity by decoction and long keeping.

Medical use.—Given in substance from half a drachm to a drachm, it evacuates powerfully both upwards and downwards. It is said, that alcoholic tinctures possess both the emetic and cathartic virtues of the plant: that the extract obtained by inspissating these tinctures acts only by vomiting, and with great mildness: that an infusion in water proves cathartic, rarely emetic: that aqueous decoctions made by long boiling, and the watery extract, have no purgative or emetic quality, but prove good diaphoretics, diuretics, and emmenagogues.

We principally use this plant as a sternutatory. The root of asarum is perhaps the strongest of all the vegetable errhines, white hellebore itself not excepted. Snuffed up the nose, in the quantity of a grain or two, it occasions a copious evacuation of mucus, and ptyalism. The leaves are considerably milder, and may be used in the quantity of three, four, or five grains. Geoffroy relates, that after snuffing up a dose of this errhine at night, he has frequently observed the discharge from the nose to continue for three days together, and that he has known a paralysis of the mouth and tongue cured by one dose. He recommends this medicine in stubborn disorders of the head, proceeding from viscid tenacious matter, in palsies, and in soporific distempers.

ASPIDIUM FILIX MAS. *Lond. Ed.* Willd. *g.* 1962, *sp.* 94. Smith, *g.* 429, *sp.* 4.

POLYPODIUM FILIX MAS. *Dub.*

Male fern. Male shield fern.

Off.—The root.

RADIX ASPIDII FILICIS MARIS. *Ed.*

RADIX FILICIS MARIS. *Dub.*

RADIX FILICIS. *Lond.*

This fern is perennial, flowers in June and July, and is found in great abundance in our woods. The root consists of many egg-shaped knots, closely compressed together, forming a crooked mass of a blackish colour, and covered with brown scales.

When chewed, its taste is somewhat mucilaginous and sweet, and afterwards slightly astringent and bitter. Its smell is also weak.

Medical use.—This root was used as an anthelmintic in the days of Dioscorides. It gradually became neglected; but its use was again revived at different times by Madame Nuffer, Herrenschwand, and others, who frequently succeeded in killing and expelling the tænia, both lata and cucurbitina, by the exhibition of secret remedies, of which the fern powder was, or rather was supposed to be, the principal ingredient; for there is much reason to believe, that the active purgatives with which it was always combined, were really the remedies which effected the cure.

The same, or nearly a similar secret, has been bought by different potentates, and published for the benefit of those suffering under this obstinate disease.

The internal solid part of the root only is to be powdered, and the powder should have a reddish colour; and as the dose and exhibition of the remedy must be regulated according to the age, sex, and constitution of the patient, it should always be given under the direction of an experienced practitioner.

Astragalus tragacantha. *Ed. Dub.*

Willd. *g.* 1379, *sp.* 154. *Diadelphia Decandria.*—Nat. ord. *Papilionaceæ.*

Astragalus verus. *Lond.*

Tragacanth.

Off.—Gum Tragacanth.

Gummi astragali tragacanthæ, *ex variis astragali speciebus. Ed.*

Gummi tragacantha. *Dub.*

Tragacantha. *Lond.*

Gum tragacanth is produced by a very thorny shrub, which grows on the island of Candia, and other places in the Levant; but it is now stated, on the authority of Olivier, that the *Astragalus verus* is the species which furnishes the chief part of the Gum tragacanth of commerce. His words are, "This gummy substance is formed from the month of July to the end of September, on the trunks of several species of

Astragalus, which grow in Natolia, Armenia, Curdistan, and all the north of Persia. Tournefort has described one of these, which also furnishes tragacanth, which he found on Mount Ida in Crete; and La Billardiere has described and figured another which he saw in Syria. The Astragalus, which appears to us the most common, and that from which almost all the Tragacanth of commerce is derived, has not been described by any botanist. It differs essentially from the two species which we have mentioned, in its habits and its flowers." In a note upon the description, which it is unnecessary to insert, he characterises it as "*Astragalus verus*, fruticosus, foliolis villosis, setaceis, subulatis; floribus auxillaribus, aggregatis, luteis." After finishing the description, he continues, "Tragacanth exudes naturally, either from wounds made in the shrub by animals, or from fissures occasioned by the force of the *succus proprius*, during the great heats of summer. According as the juice is more or less abundant, Tragacanth exudes in tortuous filaments, which sometimes assume the form of a small worm, or of a pretty thick worm, elongated, rounded, or compressed, rolled up upon itself, or twisted. The finest and purest Tragacanth assumes this form. It is almost transparent, whitish, or of a yellowish white. It also exudes in large tears, which preserve more or less of the vermicular form. This is more of a reddish colour, and more contaminated with impurities. It sometimes adheres so strongly to the bark, as to bring part of it with it in gathering it. The quantity of tragacanth furnished by Persia is very considerable. Much is consumed in that country in the manufacture of silk, and the preparation of comfits. It is exported to India, Bagdad, and Bussorah. Russia also gets some by the way of Bakou."

Tragacanth is difficultly pulverizable, unless when thoroughly dried, and the mortar heated, or in frost. According to Neumann, it gives nothing over in distillation, either to water or alcohol: alcohol dissolves only about 10 parts of 480, and water the whole. Lewis, however, more accurately observes, that it cannot be properly said to be dissolved; for, put into water, it absorbs a large proportion of that fluid, increasing immensely in volume, and forming with it a soft, but not fluid mucilage; and although it is easily diffused through a larger proportion of water, after standing a day or two, the mucilage subsides again, the supernatant fluid retaining little of the gum.

Besides these remarkable differences from gum-arabic in regard to brittleness, insolubility, and the quantity of water which it thickens, I find that tragacanth is not precipitated by silicized potass, and is precipitated by sulphate of copper and acetate of lead.

In pharmacy it is employed for forming powders into troches, and rendering tough cohesive substances, such as colocynth, pulverizable, by beating them with mucilage of tragacanth, and then drying the mass. For electuaries it is improper, as it renders them slimy on keeping.

ATROPA BELLADONNA. *Ed. Lond. Dub.*

Willd. *g.* 381. *sp.* 2. Smith, *g.* 100, *sp.* 1.—*Pentandria Monogynia.*—Nat. ord. *Solanaceæ.*

Deadly nightshade.

Off.—The leaf.

FOLIA ATROPÆ BELLADONNÆ. *Ed.*

FOLIA BELLADONNÆ. *Lond. Dub.*

THE deadly nightshade is a perennial plant, with a herbaceous stem, which is indigenous both in mountainous and woody situations in this country, and often cultivated in gardens. The whole plant is poisonous, and the berries, from their beautiful appearance, have sometimes proved fatal to children. The symptoms excited are, dryness of the mouth, trembling of the tongue, very distressing thirst, difficulty of swallowing, fruitless efforts to vomit, and great anxiety about the præcordia. Delirium then comes on, with gnashing of the teeth, and convulsions. The pupil remains dilated, and is not sensible even to the stimulus of light. The face becomes tumid, and of a dark red colour. The jaws are frequently locked. Inflammation attacks the œsophagus, stomach, and intestines, sometimes extending to the mesentery, lungs, and liver, accompanied with violent pains in the abdomen. The stomach is very insensible to stimulus, and the peristaltic motion of the intestines is destroyed. General relaxation, palsy, especially of the lower extremities, convulsions, vertigo, blindness, coma, and death succeed. The body soon putrifies, swells, and becomes marked with livid spots; blood flows from the nose, mouth, and ears, and the stench is insufferable. On dissection the blood is found to be fluid, the intestines are inflated and inflamed, or eroded and gangrenous. The best method of cure is to excite vomiting as soon as possible, by emetics, and tickling the fauces; to evacuate the bowels by purgatives and glysters; and to give largely, vinegar, honey, milk, and oil. In some children who recovered by this treatment, the delirium was succeeded by a profound sopor, accompanied with subsultus tendinum; the face and hands became pale and cold, and the pulse small, hard, and quick. Their recovery was slow, and the blindness continued a considerable time, but at last went off.

By distillation in the vapour bath, Geoffroy procured from the recent leaves a slightly acrid liquor, and the residuum by destructive distillation yielded carbonate of ammonia.

Medical use.—Yet this virulent poison, under proper management, may become an excellent remedy. Besides its narcotic power, it promotes all the excretions; but its exhibition requires the greatest caution; for it is apt, when continued for any length of time, even in small doses, to cause dryness and tension of the throat and neighbouring parts, vertigo, dimness of sight, and even temporary blindness. When any of these symptoms occur, its use must be suspended for some time, and afterwards resumed in smaller doses.

Deadly nightshade has been exhibited,

1. In several febrile diseases; in obstinate intermittents; and in the plague.
2. In inflammations: the gout.
3. In comatose diseases; in palsy, and loss of speech from apoplexy.
4. In spasmodic diseases; in chorea, epilepsy, chincough, hydrophobia, melancholy, and mania.
5. In cachectic affections; in dropsies, and obstinate jaundice.
6. In local diseases; in amaurosis, ophthalmia, in scirrhus, and cancer.

Deadly nightshade is best exhibited in substance, beginning with a very small dose of the powdered leaves or root, such as the fourth or eighth part of a grain for children, and one grain for adults, to be repeated daily, and gradually increased. In hydrophobia, Munch gave the powdered root every second morning, to the extent of from one to five grains to children, and fourteen or fifteen grains to adults.

The watery infusion is also a powerful remedy. One scruple of the dried leaves is infused in ten ounces of warm water, and strained after cooling. At first two ounces of this may be given daily to adults, and gradually increased, until the tension of the throat shews that it would be imprudent to go farther.

The watery extract is not a judicious preparation.

Externally, the powdered leaves are applied as a narcotic to diminish pain, and to cancerous and ill-conditioned sores. From its effect, in dilating the pupil for some time, Professor Reimarus proposed, and tried with success, the dropping a little of the infusion into the eye, a few hours before performing the extraction for the cataract, with a view of facilitating the operation. It has since been used in other diseases of the eye.

AVENA SATIVA. *Ed.*

Willd. *g.* 142, *sp.* 13. *Triandria Digynia.*—Nat. ord. *Gramina.*

Oats.

Off.—The husked seed; groats and the meal.

a) SEMINA AVENÆ SATIVÆ. Semina decorticata. *Ed.*
SEMINA AVENÆ. *Lond.*

b) FARINA AVENÆ SATIVÆ ex seminibus. *Ed.*

THIS is a well-known annual plant, which is very generally cultivated in northern countries, and in many places furnishes the principal subsistence of the people. When simply freed from the husks, this grain gets the name of groats, but it is more frequently ground into meal. Groats are made use of in broths. Oatmeal is baked with salt and water into cakes, or, with the same additions, is boiled to form porridge, two very important articles of food in this country. An infusion of the husks in water, allowed to remain till it becomes acidulous, is boiled down to jelly, which is called sowins. In all these forms it is nutritious, and easy of digestion.

Vauquelin found in the ashes of oats, phosphate of lime and silica.

Med. use.—Gruels or decoctions, either of groats or oatmeal, either plain or acidified, or sweetened, form an excellent drink in febrile diseases, diarrhœa, dysentery, &c. and from their demulcent properties, prove useful in inflammatory disorders, coughs, hoarseness, roughness, and exulcerations of the fauces. Porridge is also frequently applied to phlegmonous swellings, to promote their suppuration.

BARYTÆ CARBONAS. *Ed.*

Carbonate of baryta, Barytes. Heavy spar.

CARBONATED BARYTA is rarely found in nature. It was first discovered by Dr Withering, and hence Mr Werner gave it the name of Witherite. Its colour is greyish-white, sometimes inclining to milk white, and sometimes with a slight tinge of yellow, from a mixture of iron, seldom greenish, often invested with a red ochrey crust. It is found in solid masses, sometimes filling an entire vein, sometimes interpersed with sulphated baryta, frequently rounded, or affecting that form, seldom crystallized. Texture fibrous; fracture conchoidal; fragments, long splinters; specific gravity 4.3 to 4.338. Although it has no sensible taste, it is poisonous. In medicine it is only used for preparing the muriate of baryta. It is found in Lancashire, Cumberland, Scotland, and Sweden, but is not common.

Barytæ sulphas. *Ed.*
Sulphate of baryta. Ponderous spar.

This salt is found in great abundance. The foliated is in general the purest. Its specific gravity is from 4.4 to 4.865. It is insoluble in water. It is soluble in boiling concentrated sulphuric acid. It decrepitates when suddenly heated. By being formed into a thin cake with flour and water, and being afterwards heated to redness, it becomes phosphorescent. Heated to redness with charcoal, it is converted into a sulphuret, and it may be decomposed by the carbonates of potass and of soda.

Bitumen petroleum. *Ed.*
Petroleum. *Lond.*
Petroleum barbadense, s. s. *Bitumen Petroleum. Dub.*
Rock oil. Barbadoes tar.

Bitumen is now employed as the generic name for several inflammable bodies of different degrees of consistency, from perfect fluidity to that of a brittle but very fusible solid, and of little specific gravity. They are insoluble in alcohol or in water, combine with essential oils and sulphur, decompose only a small proportion of nitrate of potass by deflagration, and on inflammation leave little or no residuum. Bitumen in its various states is found in various parts of the world, in the Tauride, at Burmah, Zante, Barbadoes and Trinidad.

Sp. 1. Naphtha. It is nearly as colourless, transparent, and fluid as water. Specific gravity 0.729 to 0.847, of a highly penetrating, yet not disagreeable smell, somewhat like that of rectified oil of amber, very volatile, and remaining fluid at zero Fahrenheit.

Sp. 2. Petroleum. Not so fluid, transparent, or colourless, as the former; smell less pleasant. Specific gravity 0.878.

Sp. 3. Mineral tar. Viscid; of a dark colour; smell sometimes strong, but often faint. Specific gravity 1.1.

Sp. 4. Mineral pitch.—Maltha. Brittle in cold weather; of a dark colour; opaque. Specific gravity probably 1.07.

Sp. 5. Asphaltum. Very brittle; fracture conchoidal; glassy lustre; no smell unless when melted or heated. Specific gravity 1.07 to 1.65. Fusible and inflammable.

According to Mr Kirwan and Mr Hatchett, the first species, by exposure to the air, and gradual decomposition, passes successively through the intermediate states, till at last it is converted into asphaltum. When partially decomposed,

the remaining naphtha may be separated by distillation from the superabundant charcoal.

The first species is very rare. It is found in Persia and in the Dutchy of Modena. The second is the officinal article, and comes from Barbadoes and other tropical islands.

Medical use.—If the finer kinds could be procured genuine, they seem to deserve some notice. They are more agreeable than the oil of amber, and milder than that of turpentine, of the virtues of both of which they participate. They are principally recommended by authors for external purposes, against pains and aches, in paralytic complaints, and for preventing chilblains. For these intentions, some of the more common mineral oils have been made use of with good success. An oil extracted from a kind of stone coal has been extolled among the common people, under the name of British oil, for rheumatic pains, &c.; even this is often counterfeited by a small portion of oil of amber added to the common expressed oils.

The Barbadoes tar is found in several of the West-India islands, where it is highly esteemed by the inhabitants as a sudorific and in disorders of the breast and lungs; though in cases of this kind, attended with inflammation, it is certainly improper; they likewise apply it externally as a discutient, and for preventing paralytic disorders.

BOLETUS IGNIARIUS. *Ed.*

Cryptogamia, Fungi.—Nat. ord. *Fungi.*

Female agaric, or agaric of the oak, called, from its being very easily inflammable, Touchwood or Spunk.

THIS fungus is indigenous, and is frequently met with on different kinds of trees, especially the cherry and plumb. The medullary part, beaten soft, and applied externally, has been much celebrated as a styptic, and said to restrain not only venous but arterial hæmorrhagies, without the use of ligatures. It does not appear, however, to have any real styptic power, or to act otherwise than dry lint, sponge, or any other soft, fungous application. It is best when gathered in August or September.

It has been analysed by Bouillon Lagrange, who found it to contain, 1. An extractive matter soluble in water, sulphate of lime, and muriate of potass. 2. The residuum incinerated gave phosphates of lime, magnesia, and iron. 3. Alcohol extracted very little resin. The alkalies also indicated the presence of an animal matter, but in less quantity than in the boletus agaricus, which also differed in containing a free acid and much resin. But it probably consists chiefly of that

highly azotized principle discovered by Braconnot, and called *Fungin.*

BONPLANDIA TRIFOLIATA. *Ed.*
CUSPARIA FEBRIFUGA. *Lond.*
Willd. *g. sp. Pentandria Monogynia.* Ord. naturalis, *Quassiæ*, Jussieu.

Off.—The bark, called Angustura bark.
CORTEX BONPLANDIÆ TRIFOLIATÆ. *Ed.*
CORTEX ANGUSTURÆ. *Dub.*
CORTEX CUSPARIÆ. *Lond.*

THE natural history of this bark was long but imperfectly known. The first portion of it was imported from Dominica in July 1788, with an account, "that it had been found superior "to Peruvian bark in the cure of fevers." Subsequent importations from the Spanish West Indies, either directly, or through the medium of Spain, rendered it probable that it was the produce of South America. This has been fully established by the late travels of Humboldt in that country. He gave to Willdenow a dried specimen of the tree of which it is the bark, and that eminent botanist discovered it to be a new genus, to which he gave the name of BONPLANDIA, in honour of the botanical companion of Humboldt's travels.

The London college, however, give this tree the name of Cusparia Febrifuga, derived from *Cuspa*, the native appellation of the tree; but this name must be abandoned, for although it was inserted by Humboldt in the chart belonging to his geography of plants, that of Bonplandia Trifoliata is adopted by him in his Plantæ Æquinoctiales. The name Angustura bark is derived from the Spanish denomination, *cascarilla*, or *corteza del Angostura*, which is the vulgar name of the town of St Thomas, near the Straits of the Orinoco, where it forms a considerable article of commerce.

The appearance of the bark varies, according as it has been taken from larger or smaller branches. It is only one or two lines in thickness, and is sometimes cracked externally. The outer surface is more or less wrinkled, and of a greyish colour, and the inner surface is of a dull brown. The bark of the younger branches is of a fine green colour, dotted with greyish tubercles. Its substance is of a yellowish-brown colour. Its fracture is short and resinous. Its taste is intensely bitter, and slightly aromatic, leaving a strong sense of heat and pungency in the throat and fauces. The odour is peculiar. The powder is yellow.

According to the experiments related by Mr Brande, from 3840 parts of angustura, there were extracted by alcohol, 144

of resin, and 300 of an acrid unctuous substance; the residuum yielded to water 1500 of dry gummy extract. Treated first with water, it gave 2110 grains of a clear brown extract, bitter, but not acrid, and afterwards 161 of a resin of a light brown colour, and extremely acrid. By distillation it gave 26 of essential oil. The tincture is of a deep yellow colour, reddens infusion of turnsole, and becomes turbid and white on admixture with water. By repeated filtration a brownish resin is separated, and the transparent fluid has a pale yellow colour. I find that it is not precipitated by solution of gelatin, but by infusion of galls. It therefore does not contain tannin, but cinchonin, and it has the peculiar property of acquiring a deep red colour with red sulphate of iron, and depositing a purplish slate-coloured precipitate, remarkably different from what I have seen any other substance produce. Vauquelin says this precipitate is yellow; but in every other respect his analysis confirms mine. As it appears that the angustura of commerce is of different kinds, and often mixed, these experiments require to be repeated with genuine specimens.

Dr Rambach of Hamburgh first observed poisonous effects from some angustura bark, and his observations have been fully confirmed by other accidents and by experiments on animals. The Austrian Government, on this account, ordered all the angustura bark in the kingdom to be destroyed, and interdicted its future importation; and other states have followed its example. As it, however, still has a place in the British Pharmacopœias, it becomes necessary to point out fully the means of distinguishing the genuine from the spurious sort, which Planche has called *Angustura pseudo-ferruginæa*.

Genuine.

The produce of the *Bonplandia trifoliata* of Humboldt, a native of South America.

Size from ½ to ¾ of an inch broad; 2, 3, or 4 inches long; half a line thick. Outer surface uniform greyish-white, as if covered with an uneven mealy coat, which is easily removed, and exposes a brown surface beneath. Inner surface greyish-yellow, or light-brown. Texture fine; very brittle. Fracture even;

Spurious.

Unknown. Said by some to come from the East Indies; and one kind suspected by *Planche*, but contrary to probability, to be got from a variety of the *Cinchona magnifolia* of Bonpland.

Size generally of greater breadth than length; two lines thick. Outer surface covered with a web of distinct small white warts, not easily removed, or with an uniform rust-coloured lichen-like covering. Inner surface, dirty yellowish-white, or grey, or most commonly black, without visible fibres

Genuine.	*Spurious.*
much darker and browner than the inner surface; somewhat shining, and evidently resinous.	Texture coarse; very brittle. Fracture even; partly, white, or yellowish-white, or even clear brownish; not shining and resinous, but more mealy, and partly exhibiting two distinct layers.
Smell aromatic; somewhat nauseous.	Smell resembling somewhat that of the genuine kind.
Taste aromatic bitter, but not at all disgustingly bitter, or astringent, succeeded in some degree by an aromatic flavour like mace.	Taste in the highest degree disgustingly bitter; very durable, and not at all aromatic, or astringent.
Bark, on being chewed, becomes dark-brown yellow. Powder, when fresh, yellow, like good rhubarb, becoming paler by keeping, with a more aromatic smell than the bark.	Bark on being chewed becomes paler. Powder clearer yellow.
Concentrated infusion clear, of a fine reddish-brown or orange colour, and a bitter, only slightly acrid taste.	Concentrated infusion, not so clear, more of a dirty-brown colour, and of a most disgustingly bitter taste.
Diluted with water, its colour becomes yellow.	When diluted, it does not become yellow.
On the addition of an alkaline carbonate, it is changed to dark red, and after some time deposites a clear citron yellow, somewhat flocculent precipitate.	On the addition of an alkaline carbonate, it becomes greenish, and deposites a flocculent greyish-yellow precipitate, and the supernatant liquor becomes gradually dark-brown, beginning at the surface.
A solution of persulphate or permuriate of iron imparts to it a higher red colour, and after some time throws down a rose-coloured precipitate.	A solution of persulphate or permuriate of iron imparts to it a dark green colour, and soon throws down a copious sattin black precipitate, verging somewhat to ash-grey, which is perfectly redissolved by nitric acid, and forms an olive solution.
Is not rendered turbid by solution of gelatine.	Is not rendered turbid by solution of gelatine.
Saturated decoction of a fine red-brown, on cooling becomes turbid, and deposites a deep-yellow powder.	Saturated decoction, brownish-yellow, and, on cooling, deposites a very copious grey-brown precipitate.
Saturated tincture, dark-red-brown, becoming very turbid by the addition of distilled water, and depositing a clear yellow resin.	Saturated tincture, much paler; and, on the addition of distilled water, only gets a pale-yellowish opaline appearance, without becoming red, or depositing any precipitate.

The spurious angustura belongs to the same class of poisons as the Faba St Ignatii, upas tieuté, &c.

Med. use.—As an aromatic bitter, it acts as a tonic and stimulant of the organs of digestion. It increases the appetite for food, removes flatulence and acidity arising from dyspepsia, and is a very effectual remedy in diarrhœa proceeding from weakness of the bowels, and in dysentery; and it possesses the singular advantage of not oppressing the stomach, as cinchona is apt to do. It does not cure intermittents.

It is exhibited,

1. In powder, in doses of from 5 to 20 grains, either alone or with rhubarb, magnesia, or carbonate of lime.
2. In infusion: the infusion of one drachm in four ounces of water may be used daily.
3. In tincture: one or two drachms in dyspepsia.
4. In watery extract. Humboldt informs us, that the Catalonian Capuchins, who possess the missions of Carony, prepare with great care an extract of this bark, which they distribute to the convents of Catalonia.

BORAX. *See* SODÆ SUB-BORAS.

BUBON GALBANUM. *Ed. Dub. Lond.*

Willd. *g.* 546, *sp.* 2.—*Pentandria Digynia.*—Nat. ord. *Umbellatæ.*

Off.—The gum-resin called Galbanum.

GUMMI RESINA BUBONIS GALBANI. *Ed.*

GALBANUM; gummi resina. *Dub.*

GUMMI RESINA GALBANI. *Lond.*

THIS plant is perennial, and grows in Africa. It abounds with a milky juice, which sometimes exudes from the joints of the old plants, but is more frequently obtained by cutting them across some inches above the root. The juice which flows from the wound soon hardens, and is the galbanum which is brought to us from Syria and the Levant.

The best sort of galbanum consists of pale-coloured pieces, about the size of a hazel nut, which, on being broken, appear to be composed of clear white tears, of a bitterish acrid taste and a strong peculiar smell. But it most commonly occurs in agglutinated masses, composed of yellowish or reddish and clear white tears, which may be easily torn asunder, of the consistence of firm wax, softening by heat, and becoming brittle by cold, and mixed with seeds and leaves. What is mixed with sand, earth, and other impurities, and is of a brown

or blackish colour, interspersed with no white grains, of a weak smell, and of a consistence always soft, is bad.

Galbanum is almost entirely diffusible in water, but the solution is milky; nor does wine or vinegar dissolve it perfectly. It is not fusible, but furnishes a considerable proportion of essential oil when distilled with water. Neumann obtained from a pound of galbanum by distillation with water six drachms of oil, besides what remained dissolved in the water. The watery extract amounted to about three ounces. It was somewhat nauseous, but could not have been recognised as a preparation of galbanum. From the same quantity alcohol extracted upwards of nine ounces and a half of a hard, brittle, insipid, inodorous substance (resin?)

Medical use.—Galbanum agrees in virtue with gum ammoniacum; but is generally accounted less proper in asthmas, and more so in hysterical complaints. It is exhibited in the form of pills or emulsion, to the extent of about a drachm. Applied externally, it is supposed to resolve and discuss tumours, and to promote suppuration.

BUTEA FRONDOSA. *Dub.*

Willd. *sp. plant. t.* 3, *p.* 917. *Diadelphia Monogynia. Roxburgh's Coromandel Plants, vol.* 1, *p.* 22. *t.* 21. *Plaso Rheed. Malab.* 6. *p.* 29. *tab.* 16, 17. *The* Maduga *of the Telingas.*

Leafy Butea.

Officinal.—Kino.

KINO. *Dub.*

I HAVE introduced this article, because the Dublin College have quoted it as furnishing the kino of the shops, though certainly erroneously; for not only is it well known that the greatest part of the kino of the shops is the product of the eucalyptus resinifera of Botany Bay, but Dr Roxburgh, whom they quote as their authority, distinctly mentions that the concrete juice of the maduga differs from kino. To prevent the error from being repeated or propagated, and still more, as the article seems worthy of further examination, I shall quote his own words.

"This is a middle-sized, or rather a large tree, not common in the low lands of this coast, but very common among the mountains; casts its leaves during the cold season, which come out again with the flowers about the months of March or April; seed ripe in June and July.

"From natural fissures and wounds made in the bark of this tree during the hot season, there issues a most beautiful red juice, which soon hardens into a ruby-coloured, brittle,

astringent gum; but it soon loses its beautiful colour if exposed to the air. To preserve the colour, the gum must be gathered as soon as it becomes hard, and closely corked up in a bottle. This gum held in the flame of a candle swells, and burns away slowly, without smell or the least flame, into a coal, and then into fine light ashes; held in the mouth it soon dissolves; it tastes strongly, but simply astringent; heat does not soften it, but rather renders it more brittle. Pure water dissolves it perfectly, and the solution is of a deep, clear, red colour. It is in a great measure soluble in spirits, but the solution is paler, and a little turbid; the watery solution also becomes turbid when spirit is added, and the spiritous more clear by the addition of water: diluted vitriolic acid renders both solutions turbid; mild caustic (?) vegetable alkali changes the colour of the watery solution to a clear, deep, fiery blood red; the spiritous it also deepens, but in a less degree; *sal martis* changes the watery solution into a good durable ink."

"These are, I think, proofs that it contains a very small proportion of resin; in which *it differs from the gum resin called kino, or gummi rubrum astringens Gambiense*, which the Edinburgh College has taken into their materia medica. I have used the recent gum in making my experiments, which may make some difference; but as this can be most perfectly dissolved in a watery menstruum, it may prove of use, where a spiritous solution of kino (being the most complete) cannot be properly admitted; consequently it may prove a valuable acquisition."

The butea superba, a very large twining shrub, yields a similar juice.

CALX, recens usta. *Dub. Ed.*
Quicklime recently burnt.

THE properties of lime have been already enumerated. It is scarcely found in nature uncombined, but is easily prepared from any of its carbonates, either mineral or animal, by the action of fire, which first expels the water, then destroys any animal matters which may be present, and, lastly, expels the carbonic acid. This process is improperly termed the burning of lime. The product is lime, or, as it is commonly called, quicklime.

If about half its weight of water be poured upon lime, a great increase of temperature takes place, steam is produced, and the lime crumbles down into a dry powder, somewhat increased in weight by the presence of part of the water, which has been solidified by the lime: and to the caloric of fluidity, which is expelled during the conversion of the water into a

solid, the great increase of the temperature is owing. Lime in this state is said to be slacked. If more water be poured upon slacked lime, there is no new evolution of caloric; but if the water amount to 700 times the weight of the lime, the lime is completely dissolved. The solution is termed Lime-water.

As lime quickly attracts moisture and carbonic acid from the atmosphere, it should be always recently prepared; and it should be preserved in very close bottles. Lime should not effervesce with acids, and should be entirely soluble in water.

Medical use.—On the living body lime acts as an escharotic, and as such it was formerly applied to ill-conditioned and obstinate sores. Dissolved in water, it is sometimes given internally as a tonic or astringent in scrofula and various fluxes, and formerly it enjoyed considerable reputation as a lithontriptic. It is extremely useful in removing the scabby crusts in tinea capitis.

CARBONAS CALCIS.
Carbonate of lime.

Carbonate of lime is obtained from both the mineral and animal kingdoms. It is the most common of all minerals, is found under a great variety of forms, and has various names, as chalk, limestone, marble, spar. In form it is either amorphous, stalactical, or crystallised. When amorphous, its texture is either foliated, striated, granular, or earthy. The primitive form of its crystals is a rhomboidal parallelopiped. Hardness, lustre, and transparency, various: when transparent, it causes double refraction; specific gravity from 2.315 to 2.78; colour, when pure, white; effervesces violently with muriatic acid, and dissolves in it entirely, or nearly so, forming a colourless solution.

The officinal varieties of mineral carbonate of lime are,

a) CRETA ALBA, Carbonas calcis mollior. *Ed.*
CRETA, Carbonas calcis friabilis. *Lond.*
CRETA, Carbonas calcis. *Dub.*
Soft carbonate of lime. Chalk.

b) MARMOR ALBUM, Carbonas calcis durior. *Ed.*
LAPIS CALCAREUS, Carbonas calcis dura. *Lond.*
Indurated carbonate of lime. Marble.

They contain about 45 parts of carbonic acid, and 55 of lime.

In medicine it is given to correct acidity in the primæ viæ,

especially when accompanied with looseness. Powdered chalk has been externally applied with success to scalds and burns.

Carbonate of lime occurs in the animal kingdom in the shells and rudiments of shells of some of the crustaceous insects. Of these some are still officinal, *Crabs claws*, *Crabs stones*, vulgarly called crabs eyes, and *Oyster shells*.

c) CHELÆ CANCRORUM ex cancro paguro. *Ed.*
CHELÆ CANCRORUM. *Dub.*
Crab claws from the black clawed-crab.

The species of crab which furnishes this article inhabits the North Sea. Its claws are yellow, tipt with black.

They consist of carbonate of lime, combined with a little phosphate of lime and gelatine. The quantity of the two last is too small, and their action on the human body too inconsiderable, to make any considerable difference in medical properties, between these concretions and soft carbonate of lime, as it occurs in the mineral kingdom.

d) LAPILLI CANCRORUM ex cancro astacho. *Ed.*
CALCULI CANCRORUM, Oculi dicti. *Dub.*

CRABS stones are generally about the size of peas, or larger; somewhat hemispherical in their shape, and laminated in their texture; of a white colour, but sometimes reddish or bluish.

These concretions are found in the stomach of the craw-fish, one on each side, at the time when the animal changes its shell, and renews the inner membrane of the stomach, which commonly happens in the month of August. The stones afterwards gradually disappear, and none are found after the new shell has acquired its full degree of firmness. They therefore seem to furnish the materials for the induration of the new shell. They are brought in great numbers from Poland and Russia, especially from the province of Astracan, where the craw-fish are either bruised with wooden mallets, or laid up in heaps to putrefy, when the flesh is washed away with water, and the stones picked out.

Crab stones are said by most writers on the materia medica to be frequently counterfeited with tobacco-pipe clay, or compositions of chalk with mucilaginous substances. This piece of fraud, if really practised, may be very easily discovered: the counterfeits wanting the leafy texture, which is observed upon breaking the genuine; more readily imbibing water; adhering to the tongue; and dissolving in vinegar, or the

stronger acids, diluted with water, either entirely or not at all, or by piece-meal; whilst the true crab stones, digested in these liquors, become soft and transparent, their original form remaining the same, as the organization of the gelatine is not altered by the acid.

e) Testæ ex ostrea eduli. *Lond.*
Oyster-shells.

The oyster is a very nutritious article of diet, and in some diseases not only admissible, but even advantageous. Their shells, which are officinal, are composed, like all other mother-of-pearl shells, of alternate layers of carbonate of lime, and a thin membranous substance, which exactly resembles coagulated albumen in its properties. By burning, this membrane is destroyed, and the shells are converted into lime, which, although very pure, possesses no advantage over that of the mineral kingdom.

Camphora ex lauro camphora. *Ed.*
Camphora, concretum sui generis distillatione paratum. *L.*
Camphora, resina. *Dub.*
Camphor.

The camphor laurel grows in great abundance, and to a very considerable size, in the forests of Japan. It is not uncommon in greenhouses in England. Every part of the tree smells strongly of camphor, which is obtained from the trunk, branches, and root, by distillation. They are cut down into small pieces, and put into a still, with a proportion of water. After the water has been kept boiling forty-eight hours, the camphor is found adhering to the straw with which the head of the still is lined. In this state it is imported by the Dutch, and is called crude camphor. It is very impure, consisting of small brownish or dirty grey grains, mixed with straw, wood, hair, and other impurities. From these it is purified, in Holland, by a second sublimation in glass vessels; being previously mixed with quicklime, to combine with and prevent any empyreumatic oil with which it may be contaminated from subliming, while the camphor concretes in the upper part of the vessel into cakes, convex on the one side, and concave on the other, about two or three inches thick, thinner at the edges, and generally perforated in the middle.

Pure camphor is lighter than water, very white, pellucid, somewhat unctuous to the touch, brittle, yet tough and elastic, so as to be scarcely pulverizable; shining in its fracture, and crystalline in its texture; of a bitterish, aromatic, pungent taste, yet accompanied with a sense of coolness, of a

strong and very penetrating smell; very volatile, inflammable, burning entirely away, without leaving any coal or ashes; capable of combining with the resins and balsams, soluble in alcohol, ether, fixed and volatile oils, and the concentrated sulphuric, nitric, muriatic, fluoric, and acetic acids; separable from these alcoholic and acid solutions by water; insoluble in water, alkalis, and the weaker acids; decomposed by heat, when mixed with alumina, into an essential oil and charcoal; and by treating it with a sufficient quantity of nitric acid, forming a portion of camphoric acid; and by treating it with sulphuric acid, forming artificial tannin.

But the production of camphor is not confined to the laurus camphora, although it furnishes almost all the camphor of commerce; it is found in very great purity in interstices among the woody fibres of an unknown tree in Borneo; it is also contained in the roots of the laurus cinnamomum and cassia, alpinia galanga, amomum zedoaria, &c.; in the seeds of the amomum cardamomum, piper cubeba, &c.; and in many indigenous plants, as in the thymus serpyllum and vulgaris, juniperus communis, rosmarinus officinalis, salvia officinalis, mentha piperita, &c. and may be separated from the essential oils of rosemary, lavender, marjoram, and sage. An artificial camphor, differing from common camphor, in not being soluble in weak nitric acid, nor being precipitated by water from its solution in strong nitric acid, may also be prepared, by directing a stream of muriatic acid gas into oil of turpentine. Camphor is now universally considered to be a peculiar principle of vegetables, and not a resin, as incorrectly stated by the Dublin College.

Medical use.—Camphor is a very active substance, when taken into the stomach. It increases the heat of the body considerably, and gives a tendency to diaphoresis, but without quickening the pulse. At first it raises the spirits, but produces a subsequent depression, and facilitates voluntary motion. In excessive doses it causes syncope, anxiety, retchings, convulsions and delirium. These violent effects of camphor are most effectually counteracted by opium.

In a morbid state of the body, camphor allays inordinate actions. When the pulse is hard and contracted, it renders it fuller and softer. It removes spasms, and flitting pains arising from spasms; and in delirium, when opium fails of procuring sleep, camphor will often succeed. It is also said to correct the bad effects of opium, mezereon, cantharides, and the drastic purgatives and diuretics.

The most general indication for the use of camphor is the

languor or oppression of the *vis vitæ*. It may therefore be given with advantage,

1. In all febrile diseases of the typhoid kind, especially when attended with delirium.
2. In inflammations with typhoid fever, as in some cases of peripneumonia and rheumatism.
3. In eruptive diseases, to favour the eruption, or to bring it back to the skin, if from any cause it has suddenly receded, as in small-pox, measles, &c.
4. In many spasmodic diseases, especially mania, melancholy, epilepsy, hysteria, chorea, hiccough, &c.
5. In indolent local inflammations, not depending upon an internal cause, to excite action in that part.

As, from its great lightness, it is apt to swim upon the contents of the stomach, and to occasion pain at its upper orifice, it is necessary that it be always exhibited in a state of minute division. In order to reduce it to powder, it must be previously moistened with a little alcohol. It may then be given,

1. In powder, with sugar, magnesia, and nitrate of potass.
2. In pills, with the fetid gums and mucilage.
3. In solution, in alcohol, oil, or acetic acid.
4. Suspended in the form of an emulsion, by means of mucilage, sugar, yolk of egg, almonds, vinegar, &c.

Internally, it may be given in small doses, of from one to five grains, repeated at short intervals, as its effects are very transient; or in large doses, of 20 grains and upwards.

CANELLA ALBA. *Lond. Ed. Dub.*

Willd. *g.* 942, *sp.* 1.—*Dodecandria Monogynia.*—Nat. ord. *Oleraceæ.*

Canella alba.

Off.—The bark.

CORTEX CANELLÆ ALBÆ. *Ed.*

CORTEX CANELLÆ. *Lond.*

CANELLA ALBA. *Dub.*

THE canella alba is a tall tree, which is very common in Jamaica, and other West-India islands.

The canella is the interior bark, freed from the epidermis, which is thin and rough, and dried in the shade. There are two sorts of canella in the shops, differing from each other in the length and thickness of the quills; they are both the bark of the same tree, the thicker being taken from the trunk, and the thinner from the branches.

It was introduced into Europe, according to Clusius, in

1605, and is brought to us rolled up in long quills, or flat pieces, thicker than cinnamon, and both outwardly and inwardly of a whitish colour, slightly inclining to yellow. It is a warm pungent aromatic, and in distillation with water it yields a large proportion of a very active volatile oil, of a yellow or rather reddish colour, and of a sweet odour, approaching to that of cinnamon. It must not be confounded with the bark of the Wintera aromatica.

Medical use.—Canella alba is sometimes employed where a warm stimulant to the stomach is necessary. In America it is considered to be a powerful antiscorbutic. It is also added as a corrigent to other medicines.

CANTHARIS VESICATORIA. *Ed.*
LYTTA VESICATORIA. *Lond.*
MELOE VESICATORIUS. *Dub.*
Insecta Cleoptera, Vesicantia. Syst. Nat. Gmelin, g. 2013.
Spanish fly. Blistering fly.

Off.—The insect.
LYTTA. *Lond.*
CANTHARIS VESICATORIA. *Ed.*
CANTHARIS. *Dub.*

These insects have a longish, green, and gold-shining body, with flexible green-striped elytera, which cover the whole back of the body, and conceal brown membranous wings. On their head they have two black articulated feelers. They are found on the fraxinus, sambucus, salix, ligustrum, &c. in Spain, Italy, France, and Germany. The largest come from Italy, but the Spanish cantharides are preferred. They are gathered by shaking the trees on which they are, and catching them on a cloth spread beneath it. They are then killed by the fumes of vinegar, and dried carefully in a stove. The melolontha vitis is sometimes found mixed in considerable numbers with the cantharides. They are easily distinguished by their almost square body; and as they do not stimulate the skin, they should be picked out before the cantharides are powdered. In the East Indies the *Meloë trianthema* is used as a substitute.

The analysis of cantharides is still imperfect. Neumann got from 1920 grains, 920 watery, and afterwards 28 alcoholic extract; and inversely, 400 alcoholic, and 192 watery. Lewis ascertained that their active constituent is entirely soluble, both in water and in alcohol; for extracts made with each of these solvents blistered, as far as could be judged, equally, and as effectually as cantharides in substance. Both

the residua were inactive. Thouvenel considered the vesicating power to reside in a green matter of an oily nature. Beaupoil in two substances, one yellow and the other black, both soluble in water, but separable by alcohol. Lastly, Robiquet, in a very detailed analysis, says, that neither of these three principles blisters of itself; but that this property resides essentially in a particular white crystalline substance, soluble in warm alcohol, separating as it cools, in small scaly crystals, soluble in oils, and insoluble in water. He also found free acetic acid, phosphate of magnesia, a reddish-yellow oil insoluble in alcohol, and, lastly, uric acid.

Medical use.—Cantharides have a peculiar nauseous smell, and an extremely acrid burning taste. Taken internally, they often occasion a discharge of blood by urine, with exquisite pain. If the dose be considerable, they seem to inflame and ulcerate the whole intestinal canal; the stools become mucous and purulent; the breath fetid and cadaverous; intense pains are felt in the lower belly; the patient faints, grows giddy, delirious, and dies. Applied to the skin, they first inflame, and afterwards excoriate the part, raising a more perfect blister than any of the acrid vegetables, and occasioning a more plentiful discharge of serum; but even the external application of cantharides is often followed by a strangury, accompanied with thirst and feverish heat.

The inconveniences arising from the use of cantharides, whether taken internally, or applied externally, are best obviated by drinking plentifully of bland emollient liquids, such as milk, emulsions, &c. The specific property of counteracting cantharides ascribed to camphor has no foundation.

The internal use of cantharides is at all times doubtful, and requires the most prudent management. They have, however, been sometimes employed with success in dropsy, and in diseases of the urinary organs, arising from debility, especially gleet and leucorrhœa. They are given in substance, in very small doses, or in tincture.

Applied externally, they are one of our best and most powerful remedies. By proper management, they may be regulated so as to act as a gentle stimulus, as a rubefacient, or as a blister.

Blisters are applied,

1. To increase the activity of the system in general, by means of their irritation;
2. To increase the activity of a particular organ;
3. To diminish morbid action in particular organs, by means of the irritation which they excite in the parts to which they are applied.

They may be employed with advantage in almost all diseases accompanied with typhus fever, especially if any important viscus, as the brains, lungs, or liver, be at the same time particularly affected. In these cases, the blisters cannot be applied to the diseased organs themselves, but as near them as may be convenient. When we wish to excite action in any organ, the blisters are, if possible, applied directly to the diseased organ.

CAPSICUM ANNUUM. *Ed. Dub. Lond.*
Willd. *g.* 384, *sp.* 1. *Pentandria Monogynia.*—Nat. ord. *Solanaceæ.*
Cockspur pepper.

Off.—The fruit or berry.
FRUCTUS CAPSICI ANNUI. *Ed.*
FRUCTUS CAPSICI. *Dub.*
BACCÆ CAPSICI. *Lond.*

THIS is an annual plant, a native of South America, cultivated in large quantities in our West-India islands, and even frequently in our gardens, for the beauty of its pods.

The pods of this species are long, pointed, and pendulous, at first of a green colour, and, when ripe, of a bright orange red. They are filled with a dry loose pulp, and contain many small, flat, kidney-shaped seeds. The taste of Capsicum is extremely pungent and acrimonious, setting the mouth, as it were, on fire.

The principle on which its pungency depends, I find, is soluble in water and in alcohol, is not volatile, reddens infusions of turnsole, and is precipitated by infusion of galls, nitrate of mercury, muriate of mercury, nitrate of silver, sulphate of copper, sulphate of zinc, red sulphate of iron, (but the precipitate is neither blue nor green,) ammonia, carbonate of potass, and alum, but not by sulphuric, nitric, or muriatic acid, or silicized potass.

Cayenne pepper is an indiscriminate mixture of the powder of the dried pods of many species of capsicum, but especially of the *capsicum frustescens*, or bird pepper, which is the hottest of all. Cayenne pepper, as it comes to us in powder from the West Indies, changes infusion of turnsole to a beautiful green, probably owing to the muriate of soda, which is always added to it, and to red oxide of lead, with which it is said to be adulterated.

Medical use.—These peppers have been chiefly used as a condiment. They prevent flatulence from vegetable food, and have a warm and kindly effect on the stomach, possessing all

the virtues of the oriental spices, without, according to Dr Wright, producing those complaints in the head which the latter are apt to occasion. An abuse of them, however, is supposed to occasion visceral obstructions, especially of the liver. In the practice of medicine, they constitute one of the simplest and strongest stimulants which can be introduced into the stomach; their action not being followed by any narcotic effects. Dr Wright says, that in dropsical and other complaints, where chalybeates are indicated, a minute portion of powdered capsicum forms an excellent addition; and he recommends its use in lethargic affections. It has also been successfully employed as a gargle in cynanche maligna, when it has resisted the use of cinchona, wine, and the other remedies commonly employed. Coma and delirium are commonly attendants of tropical fevers; and in such cases, cataplasms of capsicum have a speedy and happy effect. They redden the parts, but seldom blister, unless when kept on too long. In ophthalmia from relaxation, the diluted juice of capsicum is a sovereign remedy. Dr Adair gave in cachexia Africana six or eight grains for a dose, made into pills; or he prepared a tincture, by digesting half an ounce of the pepper in a pound of alcohol, the dose of which was one or two drachms diluted with water.

CARDAMINE PRATENSIS. *Ed. Dub. Lond.*
Willd. *g.* 1257, *sp.* 19. Smith, *Flor. Brit. g.* 304. *sp.* 4. *Tetradynamia Siliquosa.*—Nat. ord. *Siliquosæ.*
Meadow ladies smock. Cuckow flower.

Off.—The flowers.
FLORES CARDAMINES. *Lond.*
FLOS CARDAMINES. *Dub.*
FLORES CARDAMINES PRATENSIS. *Ed.*

LADIES SMOCK is a perennial plant, which grows in meadow grounds, and produces purplish flowers in the spring. In its sensible qualities it resembles the *sisymbrium nasturtium.*

Medical use.—Long ago it was employed as a diuretic; and it has been again introduced in nervous diseases, as epilepsy, hysteria, chorea, asthma, &c. A drachm or two of the powder is given twice or thrice a-day. It has little sensible operation, except that it sometimes acts as a diaphoretic.

CARUM CARUI. *Ed. Dub. Lond.*
Willd. *g.* 561, *sp.* 1.—Smith, *Flor. Brit. g.* 152, *sp.* 1. *Pentandria Digynia.*—Nat. ord. *Umbellatæ.*
Common caraway.

Officinal. The seeds.
SEMINA CARUI. *Dub. Lond.*
SEMINA CARI CARUI. *Ed.*

CARAWAY is a biennial umbelliferous plant, cultivated in our gardens, both for culinary and medicinal use. The seeds have an aromatic smell, and warm pungent taste, and yield much essential oil.

Med. use.—They are employed as stomachic and carminative in flatulent colics.

CASSIA.
Willd. *g.* 813. *Decandria Monogynia.*—Nat. ord. *Lomentaceæ.*
Sp. 18. CASSIA FISTULA. *Ed. Dub. Lond.*
Cassia tree.

Off.—The fruit and its pulp.
PULPA CASSIÆ. Lomentorum pulpa. *Lond.*
PULPA FRUCTUS CASSIÆ FISTULARIS. *Dub.*
FRUCTUS CASSIÆ FISTULÆ. *Ed.*

THIS tree is indigenous in India and Egypt, and is cultivated in Jamaica. It rises to about thirty feet high, and has long flower spikes, with yellow papilionaceous blossoms.

Its fruit is a cylindrical pod, scarcely an inch in diameter, a foot or more in length; the outside is a hard brown bark; the inside is divided by thin transverse woody plates, covered with a soft black pulp, of a sweetish taste, with some degree of acrimony. There are two sorts of this drug in the shops; one brought from the East Indies, the other from the West (Cassia Javanica?) The canes or pods of the latter are generally large, rough, thick-rinded, and the pulp nauseous; those of the former are smaller, smoother, the pulp blacker and of a sweeter taste, and is preferred to the other. Such pods should be chosen as are heavy and new, and do not make a rattling noise, from the seeds being loose within them, when shaken. The pulp should be of a bright, shining, black colour, and have a sweet taste, neither harsh, which happens from the fruit being gathered before it was fully ripe, nor sourish, which it is apt to become upon keeping, nor at all mouldy, which is frequently the case from its being kept in damp cellars, or moistened, in order to increase its weight. Greatest part of the pulp dissolves both in water and in alcohol, and may be extracted from the pod by either. The shops boil the bruised pod in water, and afterwards evaporate the solution to a due consistence.

Vauquelin has analyzed this pulp, and found it to consist of parenchyma, gluten, gelatin, gum, extractive and sugar.

Med. use.—The pulp of cassia, from its saccharine and extractive constituents, is a gentle laxative medicine, and is frequently given, in a dose of some drachms, in costive habits. Some direct a dose of two ounces, or more, as a cathartic, in inflammatory cases, where the more acrid purgatives are improper; but in these large quantities it generally excites nausea, produces flatulence, and sometimes gripings of the bowels, especially if the cassia be not of a very good kind: these effects may be prevented by the addition of aromatics, and by exhibiting it in a liquid form.

Sp. 24. Cassia Senna. *Ed. Lond. Dub.*
Senna.

Off.—The leaves.
Folia cassiæ senna. *Ed.*
Folia sennæ. *Lond. Dub.*

This species of cassia is annual, although in its mode of growth it resembles a shrub, and sends out hollow woody stems, to the height of four feet. It grows principally in Upper Egypt, from whence the leaves are brought, dried, and picked from the stalks, to Alexandria in Egypt, and thence imported into Europe. They are of an oblong figure, sharp-pointed at the ends, about a quarter of an inch broad, and not a full inch in length, of a lively yellowish green colour, a faint, not very disagreeable smell, and a sub-acrid, bitterish, nauseous taste. Some inferior sorts are brought from other places: these may be easily distinguished by their being either narrower, longer, and sharper-pointed, from Mocha: or larger, broader, and round pointed, with small prominent veins, from Italy; or large and obtuse, of a fresh green colour, without any yellow cast, from Tripoli.

It has been customary to reject the pedicles of the leaves of senna, as causing gripes and pains in the bowels; but this is a mere prejudice, for both leaves and pedicles act in the very same way. Neumann, from 480 parts of senna, got 143 alcoholic extract, and afterwards 140 watery; and inversely, 245 watery, and only 20 alcoholic, so that it seems to consist chiefly of mucilage and extractive. Bouillon Lagrange found in 100 parts of a watery extract 31.19 of extractive, 14.57 of sulphate of potash, and 4.16 of talc.

Medical use.—Senna is a very useful cathartic, operating mildly, and yet effectually; and, if judiciously dosed and managed, rarely occasioning the bad consequences which too

frequently follow the exhibition of the stronger purges. The only inconveniences complained of in this drug are, its being apt to gripe, and its nauseous flavour.

These are best obviated by adding to the senna some aromatic substance, as ginger, cinnamon, &c. and by facilitating its operation by drinking plentifully of any mild diluent.

Senna may be given in substance to the extent of about a drachm, but this is rather too bulky, and it is therefore better to divide it into two doses, and to take one half at night, and the other in the morning. It is more conveniently given in the form of infusion, which is generally made by pouring about six ounces of boiling water upon from two to six drachms of senna leaves in a tea-pot, and letting it stand about an hour. Senna ought never to be ordered in decoction, Gren says, because it becomes perfectly inert, from the total dissipation of the nauseous and volatile principles on which its purgative effects depend. The tincture, on account of the menstruum, cannot be given in doses large enough to purge.

CASTOR FIBER. *Ed. Dub. Lond.*
Mammalia Rodentia, Cuvier.
The beaver.

Off.—Castor, a substance collected in follicles near the anus.
CASTOREUM. *Ed.*
a) CASTOREUM ROSSICUM. *Dub.*
CASTOREUM, concretum sui generis. *Lond.*
b) CASTOREUM CANADENSE. *Dub.*

THE beaver is an amphibious quadruped, strongly characterised by its flat, horizontal, scaly tail. It is found in the northern parts of Europe, Asia, and America, on the banks of lakes and rivers. In inhabited countries it is a solitary slothful animal, but in desert regions it lives in society; their remarkable manners in this state, and the immense works effected by the united labours of the individuals of their republic, have rendered the natural history of this animal familiar to every one. In both sexes, between the anus and pudendum, there are four follicles, of an oblong shape, smaller above, and larger below, formed of a tough membrane, almost resembling leather. The two largest and undermost of these, which are also connected, and lie parallel and close to each other, contain an oily fluid secretion, which is the substance known by the name of Castor. It is preserved by cutting out the entire bags, and drying them in the smoke.

The best castor comes from Russia, Prussia, and Poland. The cods should be dry, gibbous, roundish, heavy, solid, and

filled with a solid substance contained in membranous cells, somewhat tough, but brittle, of a dark-brown colour, of a peculiar disagreeable, narcotic smell, and a nauseous, bitter, acrid taste. The Canadian castor is of an inferior quality; the cods are smaller, thin, oblong, and much corrugated, and the castor itself has much less smell and taste: what is very old, quite black, and almost destitute of smell and taste, is unfit for use, as well as the counterfeited castor, which is a mixture of various gummy resins and other substances, with a little real castor, artificially interspersed with membranes, and stuffed into the scrotum of a goat. This imposition is easily detected, by the weaker degree of its smell and taste, by chemical analysis, and even by mere external examination; for to the real bags, the two smaller and upper follicles, filled with a fatty matter, are always attached.

Neumann got from 480 parts of castor, 140 alcoholic extract, and afterwards 80 watery; and inversely, 140 watery, and 20 alcoholic. The first alcoholic extract retained the whole flavour of the castor, as none of it rose in distillation with the alcohol. The distilled water, on the contrary, contained the whole flavour, and the watery extract was merely bitter. Cartheuser obtained from it a volatile oil by distillation. Bouillon Lagrange says it is composed of a resin, adipocere, volatile oil and extractive, and Laugier has discovered benzoic acid in it. Borm of Amsterdam analysed fresh castor, and found it to consist of one-third of volatile oil, one-half of adipocere, and a little resin; one-sixth of membrane, and one-fourth of carbonate of lime. It lost by drying 40 *per cent.* The essential oil therefore seems either to be dissipated by drying, or converted into resin by the absorption of oxygen.

Med. use.—Castor is an excellent antispasmodic. It is very little heating, and acts particularly on the uterine system.

It is given with advantage,

1. In typhoid fevers.
2. In spasmodic diseases, especially in hysteria and epilepsy, and in cases of difficult parturition, from a spasmodic contraction of the mouth of the uterus after the membranes have burst.
3. In amenorrhœa.

It is exhibited most advantageously in the form of powder, in doses of from 10 to 20 grains, and in clysters, to a drachm. Diluted alcohol extracts its virtues; therefore it may be also given in the form of tincture. But its exhibition in the form of extract or decoction is improper.

CENTAUREA BENEDICTA. *Ed. Dub.*
Willd. *g.* 1548, *sp.* 89. *Syngenesia Polygamia frustanea.*—Nat. ord. *Compositæ capitatæ.*
Blessed Thistle.

Off.—The leaves or plant.
HERBA CENTAUREÆ BENEDICTÆ. *Ed.*
FOLIA CARDUI BENEDICTI. *Dub.*

THIS is an annual plant, indigenous in the Grecian islands, and cultivated in our gardens. It flowers in June and July, and perfects its seeds in the autumn. The herb should be gathered when in flower, quickly dried, and kept in a very dry airy place to counteract its tendency to rot, or grow mouldy. The leaves have a penetrating bitter taste, not very strong or very durable, accompanied with an ungrateful flavour, from which they are in a great measure freed by keeping. Water extracts, in a little time, even without heat, the lighter and more grateful parts of this plant; but if the digestion be continued for some hours, the disagreeable parts are taken up. A strong decoction is very nauseous and offensive to the stomach. Rectified spirits acquire a very pleasant bitter taste, which remains uninjured in the extract.

Neumann got from 1920 parts 270 alcoholic, and afterwards 390 watery extract; and inversely, 600 watery, and 60 alcoholic.

Med. use.—The virtues of this plant seem to be little known in the present practice. The nauseous decoction is sometimes used to provoke vomiting, and a strong infusion to promote the operation of other emetics. But this elegant bitter, when freed from the offensive parts of the herb, may be advantageously applied to other purposes. Excellent effects have been frequently experienced from a slight infusion of carduus, in loss of appetite, where the stomach was injured by irregularities. A stronger infusion, made in cold or warm water, if drunk freely, and the patient kept warm, occasions a plentiful sweat, and promotes the secretions in general.

The extract prepared by evaporating the expressed juice, with the addition of a little alcohol, to prevent it from becoming mouldy, has been strongly recommended in the catarrh of children.

The seeds of this plant are also considerably bitter, and have been sometimes used with the same intention as the leaves.

CERA FLAVA. *Ed. Lond. Dub.*
Yellow wax.

For this useful substance we are indebted to the common

honey bee (*apis mellifica*), an insect belonging to the class of *Hymenoptera mellita* of Cuvier. It is, however, a vegetable production, and is collected by the bees from the surface of leaves, and the antheræ of flowers. They employ it to form the combs in which the honey and larvæ are deposited.

It is found in the shops in round cakes, which are formed by melting the combs in hot water, after all the honey has been expressed from them. The wax swims above, and the impurities either sink to the bottom, or are dissolved in the water. When recent, it is tenacious, but brittle, of a yellow colour, and sweet honey-like smell; dry, not greasy, to the feel; insoluble in water, and in cold alcohol, or ether; soluble in boiling alcohol and ether, in the fat oils and alkalies; fusible and inflammable. In selecting it, we should observe that the cakes be brittle, have a pleasant yellow colour, and agreeable smell, no taste, do not adhere to the teeth when chewed, and burn entirely away. When adulterated with resin, the fraud is detected by its taste, and the action of alcohol, which dissolves the resin. When mixed with pease-meal or earthy substances, it is more brittle, of a paler colour, and may be separated from them by liquefaction and straining. When combined with tallow, it becomes less brittle, and softer, and has an unpleasant smell.

Cera alba. *Lond. Ed. Dub.*
White wax.

The yellow colour of bees wax, and its peculiar smell, may be destroyed by the combined action of water, air, and the sun's rays. In the process of bleaching wax, we therefore extend its surface as much as possible, by melting it, and forming it into thin plates, which are fully exposed to the sun's rays, upon linen stretched in frames, and repeatedly moistened until they acquire the whiteness desired. It is then usually melted into thin discs. White wax is more brittle, less fusible, and heavier than yellow wax. It is sometimes mixed with white oxide of lead, or with tallow. For medical use, it has no advantage over yellow wax.

Medical use.—When taken internally, wax agrees in its effects with the fat oils, and though less frequently prescribed in this way, it is preferable, being less apt to become rancid. Poerner recommends it as an excellent remedy in diseases of the intestines, attended with pain, excoriation, and obstinate diarrhœa. He gave a scruple, or half a drachm of wax, three or four times a-day, in the form of an emulsion, by melting it first with some fixed oil, and then mixing it with a decoction of groats, by trituration with the yolk of an egg. But

its principal use is in the formation of cerates, ointments, plasters, &c.

CEREVISIÆ FERMENTUM. *Lond. Ed.*
Barm or yeast,

BARM or yeast has lately been much extolled as an antiseptic remedy in putrid fevers. A table spoonful is recommended to be given as a dose, in porter, or wine and water. It is also applied externally, in the form of a poultice, to foul and putrid sores.

CERVUS ELAPHUS. *Ed. Dub. Lond.*
Mammalia ruminantia.
The stag, or hart.
Off.—The horns.
CORNU CERVI ELAPHI. *Ed.*
CORNU CERVINUM. *Dub.*
CORNUA. *Lond.*

THE male has two round solid horns on his forehead, with several conical branches, the number of which ascertains the age of the animal to which they belong. These horns fall off, and are renewed every year. When first produced, they are soft, full of blood-vessels, and covered with velvety skin; but they soon lose their covering, and become hard, compact, and bony

In their nature they do not seem to differ from bone, except in containing a larger proportion of cartilage. They afford a very considerable quantity of gelatine, by decoction with water, and hartshorn shavings are still employed in domestic economy, for furnishing a nutritious and demulcent jelly. By the action of fire, their products are the same with those of animal substances in general; and they were formerly so much used for the preparation of ammonia, that it was commonly called Salt or Spirit of Hartshorn. By burning, they are totally converted into phosphate of lime.

CHIRONIA CENTAURIUM. *Ed. Dub. Lond.*
Willd. *g.* 394, *sp.* 9. Smith. *Flor. Brit. g.* 102. *sp.* 1. *Pentandria Monogynia.*—Nat. ord. *Rotaceæ.*
Smaller centaury.
Off.—The flowering heads.
SUMMITATES CHIRONIÆ CENTAURII. *Ed.*
CACUMINA CENTAURII. *Lond.*
CACUMINA FLORENTIA CENTAURII MINORIS. *Dub.*

THIS plant is annual, and grows wild in many parts of Eng-

land on barren pastures. It flowers between June and August. The corolla is said to have no taste; and therefore the herb, which is intensely bitter, should be preferred to the flowering tops, which derive their virtues only from the stalks connected with them. It agrees in every respect with other pure bitters.

Neumann got from 480 parts 210 alcoholic, and 140 watery extract, and inversely 320 watery, and 40 alcoholic.

CINCHONA.

Willd. g. 346. *Pentandria Monogynia.*—Nat. ord. *Contortæ.*

Sp. 1. CINCHONA OFFICINALIS. *Dub.*
Sp. CINCHONA CORDIFOLIA. *Lond. Ed.*
Sp. CINCHONA LANCIFOLIA. *Lond. Ed.*
Sp. CINCHONA OBLONGIFOLIA. *Lond. Ed.*

Off.—The bark, commonly called *Peruvian bark*, of which there are three varieties, the *pale*, the *yellow* and the *red*.

CORTEX PERUVIANUS. *Dub.*
a) CORTEX COMMUNIS CINCHONÆ.
CORTEX CINCHONÆ LANCIFOLIÆ. *Lond. Ed.*
b) CORTEX FLAVUS CINCHONÆ.
CORTEX CINCHONÆ CORDIFOLIÆ. *Lond. Ed.*
c) CORTEX RUBER CINCHONÆ.
CORTEX CINCHONÆ OBLONGIFOLIÆ. *Lond. Ed.*

Three varieties of Cinchona bark are officinal in the Empire, distinguished by the appellations of pale, yellow and red.

1. *Pale Bark.*—In commerce, we have several varieties of the common pale bark, the most remarkable of which are, the quilled bark, which comes from Loxa, and the flat bark, from Guanaco.

The bark which comes from Loxa consists of thin, singly or doubly rolled pieces, four or five inches long, and scarcely a line in thickness; externally rough, of a greyish brown colour, and generally covered with a kind of lichen; internally of a cinnamon colour. Its fracture should not be fibrous or powdery, but even and shining. It has a peculiar aromatic smell, and a pleasant bitter, astringent taste.

The bark which comes from Guanaco consists of much thicker, coarser, and flatter pieces; externally of a dark brown or almost black colour, but internally it has the same cinnamon colour; and in its resinous fracture, smell, and taste, it exactly resembles the former. When genuine, both varieties are excellent remedies, although the former be generally preferred on the Continent, and the latter in Britain.

2. *Yellow Bark.*—Yellow bark consists of pieces about six inches in length, thicker, and less rolled up than the common bark. Its internal surface is of a deeper red. It sometimes wants the epidermis, which is often as thick as the bark itself. It is lighter and more friable than the former variety; its fracture is fibrous; and when reduced to powder, its colour is paler. Its taste is much more bitter, astringent, and stronger; but its smell is weaker. Its decoction, when hot, is redder; but when cold, paler. Its solution strikes a deeper colour with sulphate of iron. It contains more of the active constituents than either of the others. but less gum than the common, and less resin than the red. It is much more powerful than the preceding species; according to Mutis, it is the only one which is directly febrifuge; and we are informed by Humboldt, it is that which is most esteemed at Loxa, and known by the name of *Cascarilla fina.*

3. *Red bark.*—It occurs generally in much larger, thicker, flatter pieces, but sometimes also in the form of quills. It is heavy, firm, sound, and dry; friable between the teeth; does not separate into fibres; and breaks, not shivery but short, close, and smooth. It has three layers: the outer is thin, rugged, of a reddish brown colour, but frequently covered with mossy matter; the middle is thicker, more compact, darker coloured, very resinous, brittle, and yields first to the pestle: the inmost is more woody, fibrous, and of a brighter red. Its powder is reddish, like that of Armenian bole. Its astringency and bitterness are more intense, and it contains more resin than the pale bark. It is not, however, allowed by Mutis to be, like the yellow bark, directly febrifuge. It is said to be more frequently adulterated.

The great price of cinchona bark has sometimes tempted dishonest men to adulterate it with other similar and less powerful barks, and, what is still more blameable, with genuine bark, from which the active constituents have been entirely extracted, by decoction with water.

In selecting Cinchona bark, we must therefore take care, that besides the characteristics already noticed, it be dense, heavy, and dry, not musty, or spoiled by moisture, and that a decoction made of it have a reddish colour when warm, but when cold become paler, and deposite a brownish red sediment. Those pieces whose taste is simply intensely bitter or very astringent, or nauseous, or merely mucilaginous, whose surface is smooth or polished, of a dark colour, or pale yellow, or red, which are tough or spongy, whose fracture is fibrous, woody, or powdery, and their internal colour white or grey, are to be rejected. It is still more difficult to know

genuine Cinchona bark in the form of powder. I have examined specimens differing in price from 2 s. 6 d. a pound to 12 s. and could not establish any criterion of distinction between them, either in their sensible or chemical properties; and yet the former must have been very much adulterated. Indeed it is said that it is scarcely possible to meet with genuine powder of Cinchona; for it cannot be produced sufficiently fine by means of a pestle and mortar; and when an apothecary is even at the trouble to select good bark, and sends it to a bark-mill, he must depend upon the accuracy of many individuals for receiving back the very article he sent.

The history of the discovery of the febrifuge powers of Cinchona is uncertain. In Loxa there is no document to illustrate it, and there is no probability that the Jesuits learned its use from the natives, as they obstinately retain their customs like the natives of Hindostan; and although fever is very common among them, they would rather die than take cinchona, which they class, with opiates, among the poisons causing gangrene. There is an old tradition in Loxa, that the Jesuits used to distinguish the different kinds of trees by chewing their bark, and were attracted by the great bitterness of the Cinchona; and as among their missionaries there were always some acquainted with medicine, the story that they tried an infusion of it in the endemic fever of the country is not improbable. The appellation *Pulvis Comitissae* seems to be even older than *Pulvis Jesuiticus* or *Pulvis Patrum*, and there was a Count Cinchona Viceroy in Lima from 1629 to 1639, whose Countess, said to have been cured of fever by it, on her return to Spain in 1640 probably first made it known in Europe.

From 1638 to 1776 no other Cinchona occurred in commerce except that of Loxa and the neighbouring district. La Condamine mentions the cinchona of Riobamba and Cuenca in the province of Quito, as well as that of Ayavaca and Jaen de Bracamorros; but he was not acquainted with that of the interior of Peru about Huanuco and La Paz, nor that of New Grenada. In 1753 Don Miguel de Santistevan, in travelling from Loxa to Santa Fé de Bagota by Popayan, observed that every where at the same elevation with Loxa there were cinchona trees. From him, in 1761, Mutis received the first specimen of *C. cordifolia*. Still no use was made of this discovery until Mutis, in 1772, found Cinchona near Santa Fé, and sent it to Europe from Carthagena. Till then all the cinchona was gathered in the woods of Loxa, Ayavaca and Jaen de Bracomorros, and shipped under the name of *Cascarilla fina de Uritasinga*, at Payta, to double

Cape Horn. On 1776 Don F. Renquifo discovered the *C. nitida* of Ruiz at Huanuco. Ruiz and Pavon, authors of the *Flora Peruviana*, examined the valleys of the tributaries of the Amazon river, and almost at the same time cinchona was found in the northern and southern extremities of South America, in the mountains of Santa Martha, and in the kingdom of Buenos Ayres, at La Paz and Cochabamba. Since 1780 Europe has received cinchona of different value from Payta, Guayaquil, Lima, Buenos Ayres, Carthagena and Santa Martha.

Great confusion was thus introduced. Barks, which were certainly febrifuge, but the produce of trees not belonging to the genuine Cinchona, were called Quina; and without considering that febrifuge barks may possess equal power, and yet differ in their mode of action, cinchona barks were divided into genuine and spurious. China, resembling that of Loxa, was in demand, without considering that even in 1738 three or four kinds of bark came to Europe from Loxa, the produce of different species of cinchona. It was overlooked that the goodness of the bark did not depend solely upon whether it was the produce of the *C. lancifolia* or *C. macrocarpa*, but as much upon its place of growth, the age of the tree, and its being dried quickly or slowly. The same species was not recognised, if it was sent in flat pieces or in powder, instead of quills; and partly from inattention, partly from fraud, barks of the *Wintera Granadensis* and of the astringent *Weinmannia*, and of the West India cinchonas were mixed with the continental cinchonas, and the latter was even coloured with infusion of brazil wood. The most absurd prejudices in regard to the different kinds of cinchona were propagated. The commercial houses in Spain, which had been in possession of the Loxa bark trade for half a century, depreciated that of Grenada and South Peru; and after the monopoly of the latter fell into their hands, they carried their jealousy so far, that they caused to be burnt in Cadiz a quantity of the finest orange bark, collected at the king's expense by Mutis himself, as a perfectly inert drug, while all the Spanish military hospitals were in the greatest want of it. A parcel of this condemned bark was smuggled to England, and rose to a very high price; and the Santa Fé bark continues to be smuggled from Carthagena by the Americans and English to all Europe, except Spain, which is chiefly supplied with barks from Peru by way of Cadiz.

The three kinds of Cinchona bark are found in commerce. By the London and Edinburgh Colleges each is referred to a different species, that is, the pale bark to the *C. lancifolia*,

the yellow to the *C. cordifolia*, and the red to the *C. oblongifolia*; but after reading Humboldt's account of the Cinchona forests again and again, I cannot satisfy myself that, except in the last instance, they are right. Humboldt distinctly says, indeed, that the *C. cordifolia* furnishes the yellow bark; but he also says as precisely and repeatedly that the *C. lancifolia* produces the orange-coloured bark. Now, as this certainly cannot be our pale bark, I conjecture that his orange is our yellow, especially when we attend that the Santa Fé bark smuggled into England, and so highly prized, was the orange-coloured bark from New Grenada, which is his orange-coloured bark; and when we add, that the Spanish appellation *Quina amarilla*, which he translates yellow, literally means wan or sallow coloured, and is afterwards identified with the *Cascarilla pallida* of Ruiz; and as the *Cinchona pubescens*, which furnished a part of the Cinchona in commerce before our yellow was discovered, is synonymous with *C. cordifolia*, I think it more probable that this last produces our pale bark, and that our yellow is the produce of the *C. lancifolia*, thus reversing the statement of the Colleges. But I must not omit to mention, that in the *Plantae Æquinoctiales* it is said that the greatest part of the Cinchona of Jaen de Bracamorros is furnished by the *C. scrobiculata*, which he describes as a distinct species, although, in his subsequent paper, he does not notice it even as a synonime, which betrays a want of accuracy or certainty in that distinguished author. According to my present opinion our yellow bark was the first discovered, and is the produce of the *Cinchona condaminea*, and of the *C. lancifolia*, our pale is the bark of the *C. cordifolia*, and our red certainly of the *C. oblongifolia*.

Cinchona, considered as a genus, is a mountainous tree, never found in the plains, and growing between the height of 1282 and 975 toises above the level of the sea. It grows to a great height, and formerly its trunk was often thicker than a man's body. But since its bark has come into such general use, few trees are to be seen thicker than the arm. Indeed, there is reason to fear that it will become still more scarce, as no attention is paid to its cultivation, and the trees always die after being stripped of their bark. This operation is performed in the dry season from September to November. The bark is then carefully dried in the sun, and packed in skins, which contain from 100 to 150 pounds, and are called by the Spaniards *zeronne*. In these, coarse and fine pieces of the same kind of bark are promiscuously mixed, but they are afterwards sorted. Humboldt says, that from 12 to 14,000 quintals are annually exported. 2000 are exported from Car-

thagena, and come from the kingdom of Santa Fé. Loxa furnished, previous to 1779, 4000 quintals, but now only 110, which are sent to Spain on account of the king. The rest is furnished by the provinces of Huamanga, Cuenço, Jaen de Bracamorros, &c. and are exported from Lima and other parts of the Pacific Ocean. The genus Cinchona is naturally subdivided into those species whose corolla is hairy and those whose corolla is perfectly smooth, and the barks of all the species included in the first division are febrifuge. They are the Condaminea, Lancifolia, Cordifolia, Oblongifolia, Ovalifolia, Brasiliensis and Excelsa.

The bark is principally got from the following species of Cinchona, the first of which, however, is not officinal.

C. Condaminea, corollae tubo hirto, foliis ovato-lanceolatis utrinque glaberrimis, in axillis nervorum inferne scrobiculatis. Humboldt and Bonpland. It furnishes the *Cascarrilla fina* or superior bark of Uritasinga, which has always been considered in Spain as the most efficacious in the cure of tertian, and is now only collected for the king's apothecary, and therefore cannot ever occur in commerce legally. It grows exclusively in the neighbourhood of Loxa, in 4° south lat. at a height between 900 and 1200 toises, and in a somewhat milder climate than *C. lancifolia*, having a medium temperature of 65 to 70 F., or nearly that of the Canary Islands.

Cinchona lancifolia, foliis lanceolatis, cunctis utrinque glaberrimis; known in Santa Fé by the appellation of *Quina Naranjada* or Orange china. It loves a raw climate. It grows between the 4th and 5th degree of north latitude, on the declivity of hills, and between the heights of 700 to 1500 toises. The medium temperature of the situation is about that of Rome, or 60 F.; but the trees in the highest places are generally exposed to a temperature of 50 or 55. In these alpine forests the cold often sinks for an hour to the freezing point, but no snow falls in this latitude below 1500 toises. This species is rare. While the *cordifolia* and *oblongifolia* form in some places in Santa Fé continued thickets, the *lancifolia* always stands alone, and is so more difficultly propagated by suckers. The synonymes of this species are the *C. angustifolia* of Ruiz, *C. nitida*, Flor. Peruv., *C. lanceolata*, Flor. Peruv., and perhaps *C. lampina*, *C. glabra*, and *C. rosea*.

Cinchona cordifolia, foliis orbiculato-ovatis, saepe subcordatis, subtus tormentosis, supra pubescentibus. Var. β. foliis vix cordatis utrinque glabris. Var. γ. foliis utrinque hirsutis:

Quina amarilla, or yellow china of Santa Fé. It grows in north lat. 4° at a height between 900 and 1440 toises. It is identical with the *C. pubescens* of Vahl, and also with *C. ovata*, Flor. Peruv., the pale bark of Ruiz; and presents varieties in *C. hirsuta*, Flor. Peruv., and *C. tenuis*, Ruiz; and perhaps in *C. purpurea*, Ruiz.

C. oblongifolia foliis oblongis, acuminatis, glabris, filamentis brevissimis, antheris infra medium tubi latentibus. Red China of Santa Fé. It grows in 5° north lat. at a height between 600 and 1300 toises, and is particularly common near the town Maraquita. It is identical with *C. magnifolia*, Flor. Peruv., called Yellow bark in the Quinologia.

There are few vegetable substances which have been subjected to analysis more frequently, and by abler chemists, than the Cinchona bark. But from the difficulty of the subject, and from essential differences in the chemical properties of several varieties confounded under one denomination, contradictory results have arisen, and our knowledge of the subject is still imperfect.

I shall begin by recapitulating the earlier experiments. Neumann got from 7680 parts of common cinchona 640 alcoholic, and afterwards 300 watery extract; and inversely 330 watery and 600 alcoholic; from which it might be inferred, that there were about 600 parts soluble in alcohol only, 300 in water only, and 30 or 40 in both; but the proportion of the last is certainly too small. Fourcroy extracted from 576 parts of red bark, 38 by water, and afterwards 24 by alcohol. Marabelli got from a pound of yellow bark 464 grains of gum, 470 of extractive mucous matter, 292 of extractive resinous matter, and 125 of resin, besides saline matters, &c. Lewis observed, that the decoction became turbid on cooling, and that the precipitate was soluble in alcohol. He also pointed out the deep green colour which decoctions of cinchona acquire from the addition of chalybeates. Dr Irvine afterwards found, that recent decoctions gave a black colour, while those which had been kept some time gave a green. I may add, that the tincture gives a black, while the cold infusion gives a green; and that, in all cases where an excess of the chalybeate is used, a green colour is produced. These effects have been ascribed to the presence of tannin; bnt they have little resemblance to the intensity and durability of the blue colour produced in infusions of gall-nuts, and other powerful astringents. They, however, shew, that the principle on which the colour depends is more soluble in alcohol and in boiling water, than in cold water, and that it is very destructible. It was long believed that cinchona was a powerful astringent; but after

Seguin's discovery of gelatine as a test of the principle of astringency, Dr Maton found that cinchona contained very little tannin. In my experiments, solution of gelatine did not affect the cold infusion, but precipitated the tincture, diluted with water and filtered, slightly, and the filtered decoction copiously. The precipitate in the last case was filamentous, and exactly resembled that produced by gelatine in infusion of galls. Hence it appears that the tannin in cinchona is much less soluble in alcohol and in cold water, than in hot. Dr Maton discovered, that infusion of cinchona was precipitated by infusion of nut-galls. Seguin, who afterwards made the same observation, concluded from it that cinchona contained gelatine, but erroneously, as I soon after proved. Infusion of galls is precipitated copiously, not only by the filtered decoction of cinchona, but also by the infusion and tincture diluted and filtered; and as these phenomena are inconsistent with the properties of gelatine or starch, (the only other principles which, so far as I know, precipitate infusion of galls,) I conceived myself authorised to ascribe them to a vegetable principle, not hitherto examined, soluble in alcohol and in water, and called it Cinchonin. Seguin supposed that it was the tannin of the infusion of galls which formed the precipitate in infusion of cinchona; but this is extremely doubtful; for, as I have stated in Nicolson's Journal, vol. vii, a decoction of cinchona is precipitated both by gelatine and galls, and when saturated by either of these re-agents, is still acted upon by the other; but an infusion of galls, after being saturated with gelatine, does not act on a decoction of cinchona. "Now, if gelatine deprived the infusion of galls of no other principle but tannin, it would follow, that a decoction of cinchona contains both tannin and a principle precipitable by tannin, which can scarcely be the case; and indeed we do not at present see any way of accounting for the facts, but by supposing that the galls and cinchona contain each of them tannin, and another principle, of a different nature in each, not precipitable by tannin, but by each other." It is satisfactory to find that great master of analysis, Vauquelin, drawing nearly the same conclusion from his observations. "It would seem that it is to the tannin of the oak bark and galls that this principle (my cinchonin) unites to form the precipitates observed in the infusions of these substances; but as this principle exists in some species which at the same time precipitate glue, it is doubtful that it really unites to the tannin of the oak bark, or that the principle in the other species of cinchona which precipitate glue is actually tannin. But the one or the other of these suppositions must be correct, as the infusions of the two species precipitate each other."

Prof. Pfaff of Kiel has also maintained this opinion.

Following up my experiments, Dr Gomez, in the Transactions of the Royal Academy of Lisbon, has published an elaborate Essay on Cinchonin, and described its properties in a state of purity. He obtained it by dissolving the extract got from the tincture, in distilled water; evaporating the filtered solution; adding to this extract portions of a strong solution of potass, until no more seemed to be dissolved; filtering the solution, and washing with cold water the residuum, which is cinchonin. "By this process there remains on the filter a substance which is white when in a state of greater purity, and pale or reddish when less so. When white it is powdery, and is easily detached from the filter. It is also bitter, inflammable, very little soluble in water, but soluble enough when recently prepared, in sulphuric ether, alcohol, in diluted sulphuric, nitric, and muriatic acids, in the acetic, oxalic, citric, *malic*; but not in the *tartaric* acid *. From these solutions, which are made without effervescence, it is precipitated by the infusion of galls, and the precipitate is white and capable of being redissolved by alcohol." This impure cinchonin is purified by dissolving it in the best alcohol, filtering it, and adding to the solution an equal quantity of distilled water. The mixture is left in a glass loosely covered with paper, until the odour of alcohol disappear; it is then strained, and the residuum is left to dry on the filter, forming very fine, small and white filiform crystals, which Dr Gomez has ascertained to be possessed of the following properties.

"1. These very fine and minute filiform crystals, rubbed between the fingers, are converted into a white and very subtle powder, resinous to the touch, as if we were rubbing between the fingers powder of colophony.

"2. They are insipid and inodorous, but they seem to dissolve in the saliva.

"3. Exposed to the flame of a candle by means of a glass rod, they decrease in volume, exhale smoke with a peculiar odour, not disagreeable, melt, taking a chesnut colour, and burn with a clear and white flame.

"4. They are insoluble in water either cold or warm, for water agitated with them and strained does not give any precipitate with the infusion of galls.

"5. Mixed with the cold aqueous infusion of *cinchona pubescens* of Brazil (which does not give any precipitate with the

* I doubt of its solubility in malic acid, and of its insolubility in tartaric acid, for I suspect the purity of the acids I employed.

infusion of galls, but becomes turbid with the solution of glue, and dark greenish-brown with the solution of sulphate of iron,) it forms a turbid and gelatinous liquor, which, when strained, gives, with the infusion of galls, a precipitate redissoluble by alcohol.

" 6. They are soluble in alcohol, sulphuric ether, in the diluted sulphuric, nitric, and muriatic acids, in the acetic, oxalic, citric, in the gallic, in the malic? not in the tartaric?

" 7. The acid solutions give a white precipitate with the infusion of galls, which is completely redissolved by alcohol. If to the same solutions we add any of the three alkalis, a precipitate is formed in white flakes, which is redissolved by alcohol.

" 8. The solution in sulphuric acid is speedy, complete, and without effervescence. The precipitate, which the solution of potassa forms in this, is as white as lime, insipid, inflammable like the crystals, is dissolved slowly, but completely, in alcohol, from which it is precipitated by water in smaller crystals, but very similar to the primitive ones.

" 9. Lime-water does not seem to precipitate the solution of the crystals in muriatic acid, even though it be added in excess. This mixture gives, with the infusion of galls, a precipitate which is only dissolved in part by alcohol.

" 10. From these properties it seems to me, that the following conclusions may be deduced: 1*mo*, That the crystals are a pure vegetable principle. This appears from the regular and crystalline form which they assume, from their complete solubility in sulphuric acid, and from the precipitate which potassa forms in this solution, having the same properties as the crystals. 2*do*, That this pure principle is the cinchonin of Dr Duncan, since it gives, with the infusion of galls, a white precipitate capable of being dissolved by alcohol. 3*tio*, That this principle, in its insolubility in water, its inflammability and solubility in alcohol and ether, bears some analogy to resin, but differs from it by its crystallization and solubility in the acids. 4*to*, That by these last properties it is somewhat analogous to camphor, from which it differs, however, in being without odour, in being precipitated crystallized from the alcoholic solution; in having greater specific gravity, since it sinks in water; in giving a precipitate with the infusion of galls, &c. 5*to*, That, by having singular and peculiar properties, it is, as Dr Duncan thought, a vegetable principle different from all others hitherto known."

Another remarkable property of some kinds of Cinchona, that of precipitating tartar-emetic, was discovered by Cornette,

who found that an infusion of one ounce of Cinchona decomposed one scruple of tartar-emetic, and was entirely deprived of its colour and bitter taste, while the antimonial lost its emetic property: and from Vauquelin's experiments with many varieties of cinchona bark, it appears that the several properties of precipitating solutions of gelatine, of tannin and tartar-emetic, are neither connected nor inconsistent with each ther, as the following examples will shew.

	Glue.	Precipitate by Tannin.	Tartar-emetic.
Quinquina of Loxa,	copious	copious	copious
——— Pittonorai,	0	copious	copious
——— red	red	o	yellowish-white
——— Santa Fé,	reddish	copious	0
Cinchona magnifolia,	copious	0	0
——— officinalis,	0	yellow	0

Dr Irving obtained from Cinchona a small portion of volatile oil, on which its aroma depends; and Fourcroy and other chemists have observed, that during the evaporation of an infusion or decoction of cinchona, exposed to the air, an insoluble pellicle is formed on the surface. Fabroni observed, that cinchona loses its solubility by long exposure to the air, and even by being reduced to very fine powder; 100 parts of cinchona, when bruised, yielding from 12 to 16 of extract, and when finely powdered only 6 or 7; and that cinchona destroys the emetic property of tartrate of antimony, without losing its febrifuge virtues.

Vauquelin has lately done much to lessen this confusion, by showing that there are three, if not four classes of Cinchona bark, differing essentially in chemical constitution; but unfortunately he has not been able to designate, with botanical accuracy, the individuals he found to belong to each.

The first class precipitate astringents, but not gelatine.

The second precipitate gelatine, but not astringents.

The third precipitate both astringents and gelatine. And,

Lastly, some barks confounded with these precipitate neither astringents nor gelatine; but these, Vauquelin, viewing the genus chemically, does not consider as Cinchonas.

Individuals in each of the three first classes are capable of curing intermittents, which shows how insufficient our analysis, in its present state, is for explaining the connection between the medical virtues and chemical properties of this remarkable genus. Besides these principal differences, on which Vauquelin founds his classification, Cinchona barks vary in the effects of many chemical agents. The infusions of some

kinds redden turnsole, others do not affect it; some impart a deep colour to water, others very little; some affect certain metallic solutions, which others do not; and the decoctions of some kinds remain transparent after becoming cold, others grow turbid as they cool, and deposite a copious precipitate. The following mode of analysis, however, will give an idea of the composition of the second class:—The cold infusion has a red colour, more or less brown or yellow; bitter taste, with more or less astringency; becoming, in a few days, covered with a green mould. On evaporating the infusion, if it be permitted to cool repeatedly during the process, it becomes turbid, and deposites a precipitate for several times. If these precipitates be separated, and the supernatant fluid, after it ceases to become turbid on cooling, be evaporated to the consistence of a soft extract, and treated with alcohol, there remains only a viscid substance, of a brown colour, almost without bitter taste, insoluble in alcohol, perfectly soluble in water, not rendering it turbid on cooling, and which, by spontaneous evaporation, is analysed into a saline mass, consisting of reddish-brown crystals, hexaedral, rhomboidal, or square, and a mucilaginous matter, which remains dissolved in the mother-water.

The precipitate which is deposited on the cooling of the concentrated infusion, when dried, has a red brown colour and an intensely bitter taste. It is readily soluble in alcohol, especially when heated. The tincture is decomposed by water, and yields crystals on spontaneous evaporation. It is sparingly and only partially soluble in cold water, more copiously and completely in boiling water, which, however, again becomes turbid on cooling. Its solution reddens tincture of turnsole, grows mouldy in a few days, does not precipitate tartar-emetic, or solution of gelatine; is not visibly acted upon by acids, but with alkalies is coagulated into a thick whitish matter, becoming brown and somewhat hard by exposure to the air, softening with heat, and acquiring the ductility and silky gloss of turpentine.

The saline mass which crystallizes from the mother-water, on being purified by repeated solutions and crystallizations, is obtained in the form of white square or rhomboidal plates, often grouped, with almost no taste, soluble in about five waters at 50°, insoluble in alcohol, destructible by fire, not decomposed by ammonia, acetate of lead, or nitrate of silver, but by the fixed alkalies, and the oxalic and sulphuric acids, and by infusion of tan, and of some varieties of cinchona. This salt M. Vauquelin discovered to consist of lime, and a new acid, which crystallizes in plates, has a very acid taste, forms soluble

and crystallizable combinations with the alkalies and earths, and does not precipitate the nitrates of silver, mercury, or lead. M. Vauquelin has given it the name of Kinic acid; but as this would lead us to suppose that it was obtained from Kino, it appears to me that it ought to be named the Cinchonic acid, from the systematic name of the tree from whose bark it has been first obtained.

M. Vauquelin has also analysed the barks of the cinchona pubescens and officinalis, which he refers to the first class. In almost every respect the analysis agrees with that now detailed, except in the chemical properties of the deposite from the concentrated infusion, which in the present instance produces a copious precipitate in the infusion of nut-galls, as well as in tartar-emetic and nitrate of mercury. These deposites, he observes, differ from resins in being soluble in water, in acids and in alkalies, in acting as a dye, in decomposing metallic solutions, and in their watery solution becoming mouldy. He is inclined to consider them as a peculiar vegetable principle, not yet sufficiently examined.

How little the analysis has hitherto accounted for the virtues of Cinchona, is evident from three of the latest writers referring its virtues to totally different principles: Deschamps to the cinchonate of lime, two doses of which, of 36 grains each, according to him, cure every intermittent; Westring to the tanning principle; and Seguin, on the contrary, to the principle which precipitates tannin, and which he at first mistook for gelatine; and upon the faith of this mistake, he and other French and Italian physicians gave clarified glue in intermittents, and it is said with success. M. Seguin, it appears, however, has now seen his error, though without retracting it, and has lately published two memoirs upon cinchona, which we proceed to abridge. He says, that hitherto apothecaries had only the external appearance, fracture, taste, and smell, to enable them to judge of the quality of cinchona; but that these characters are insufficient, and that it is only by means of chemical tests that we can ascertain the presence or proportion of the febrifuge principle. He gives with confidence the following criterions:

1. Cinchona, if good, precipitates the solution of tannin, but not those of gelatine or of sulphate of iron.

2. The precipitate which the febrifuge principle forms with the solution of tan, is reddish, slightly flocculent, and heavy. If the precipitate be considerable and sink quickly, it is a proof that the febrifuge principle is abundant and of good quality. If it be not very decided, and remain suspended in the liquor,

only disturbing its transparency, it is a proof that it is scanty and of bad quality.

3. If it does not precipitate the solution of tannin, it is a proof that it does not contain any febrifuge principle.

4. If it only precipitate the solutions of tannin and of sulphate of iron, it is a proof that it contains an astringent substance not capable of tanning, which is foreign to it.

5. If it precipitate solutions of tannin, sulphate of iron and gelatine, it is a proof that it contains an astringent substance analogous to that of the oak.

The application of these tests he describes as easy. He powders a drachm of cinchona, infuses it for half an hour in two ounces of boiling water, decants and filters the infusion. The solution of tannin is prepared by mixing two ounces with three ounces of cold water, and filtering it. A solution of nut-galls may be substituted, but it is rather too delicate. The solution of gelatine is made by dissolving an ounce of fine glue in three ounces of water in a sand bath, and filtering it through fine linen; the solution of sulphate of iron, by dissolving an ounce in two ounces of water. A little of the infusion of cinchona is put into a glass, and the re-agents added drop by drop.

He tried by these tests, &c. 600 different specimens of cinchona in Paris and Versailles, and he found very few genuine or good, but there was very little difference between the good, whether red, yellow, or pale.

Following these principles, Seguin makes six classes of cinchona.

Class 1. precipitates neither tannin nor gelatine, but forms with sulphate of iron a precipitate soluble in acids and insoluble in alkalies; properties common to astringents. False cinchona, having no febrifuge property.

Class 2. precipitates neither tan, gelatine, nor sulphate of iron.

Class 3. precipitates neither gelatine nor sulphate of iron, but acts slightly on solution of tan. These act only in large and inconvenient doses.

Class 4. precipitates neither gelatine nor sulphate of iron, but solution of tan abundantly. The best cinchona of commerce, as well as the genuine specimens sent by Mutis, are of this class.

Class 5. precipitates solutions of tan and sulphate of iron, but not gelatine. The chalybeate precipitate was ferruginous, yellow and abundant, and soluble in alkalies. He found these properties to belong to a specimen of a bark sold as angustura.

Class 6. precipitates tannin and gelatine, but not sulphate of iron. M. Seguin rarely met with this kind, but he thinks favourably of it. He also notices, as I had previously done, the co-existence of the febrifuge principle and tannin in the same solution.

Dr Gomez is of opinion, that Cinchonin is the real febrifuge principle, or at least essential to it. Having observed the great difference of different barks in the cure of fever, he supposed that chemical analysis might discover in all those that were truly febrifuge a common principle.

"To observe how far the truth of this conjecture could be extended, I began to try chemical experiments upon all the Spanish Cinchonas, and the three cinchonas and other three barks of Brazils above mentioned; and I found that all the Spanish cinchonas of our shops, one of those of the Brazils, which I had observed was febrifuge, and the barks of Goiazes, Camamu and Portlandia contained cinchonin, and that this principle was not to be found in the other two cinchonas from Rio Janeiro, that is, in the barks of the *cinchona macrocarpa*, and of the *cinchona pubescens*, which possessed very little or nothing of the febrifuge quality.

"Hence, from all these Cinchonas, and also three other barks, which contain cinchonin, being febrifuge, and from two true species of cinchona, which do not contain it, having very little or no pretensions to that title, I am inclined to conclude that cinchonin is the principle which renders cinchona, and the other vegetable substances containing it, eminently febrifuge.

Medical use.—On dead animal matter Cinchona acts as an antiseptic, and on the living body it acts moreover as a stimulant, tonic, and antispasmodic. The discovery of its medical virtues was, in all probability, the result of accident. In fact, according to some, the Peruvians learned its use by observing certain animals affected with intermittents instinctively led to it; or, according to others, a Peruvian having an ague was cured by accidentally drinking of a pool which, from some trees having fallen into it, tasted of cinchona: and its use in gangrene is said to have originated from its curing one in an aguish patient. It has had various appellations. About the year 1640, from curing the lady of the Spanish viceroy, the Comitissa del Cinchon, it was called Cortex or Pulvis Commitissæ, Cinchona, &c.; from the interest which Cardinal de Lugo, and the Jesuit fathers took in its distribution, Cortex or Pulvis Cardinalis de Lugo, Jesuiticus, Patrum, &c.; from the place where it was originally found, Peruvian bark, or simply, from its pre-eminence, Bark.

On its first introduction into Europe, it was reprobated by many eminent physicians; and at different periods long after, it was considered as a dangerous remedy; but its character, in process of time, became universally established.

It was first introduced for the cure of intermittent fevers; and these when it is properly exhibited, it rarely fails to cure. But there have been considerable differences of opinion with regard to the best mode of exhibition; some prefer giving it just before the fit, some during the fit, others immediately after it. Some, again, order repeated doses between the fits; and this mode of exhibition, although it may perhaps sometimes lead to the employment of more bark than is necessary, upon the whole appears preferable, from being best suited to most stomachs. The requisite quantity is very different in different cases; and in many vernal intermittents, cinchona seems even hardly necessary.

It is now given from the very commencement of the disease, without previous evacuations, which, by retarding the cure, often seem to induce abdominal inflammations, scirrhus, jaundice, hectic, dropsy, &c.; symptoms formerly imputed to the premature or immoderate use of the bark, but which are best obviated by its early and liberal use. It is to be continued not only till the paroxysms cease, but till the natural appetite, strength, and complexion return. It is then to be gradually left off, and repeated at proper intervals to secure against a relapse; to which there often seems to be a peculiar disposition, especially when the wind blows from the east. Although, however, evacuations rather counteract the effects of cinchona in the cure of intermittents, yet, previous to its use, it is advisable to empty the alimentary canal, particularly the stomach; and on this account good effects are often obtained from premising an emetic.

It is a medicine which seems not only suited to both formed and latent intermittents, but to that state of fibre on which all periodical diseases seem to depend; as periodical pain, inflammation, hæmorrhagy, spasm, cough, loss of external sense, &c.

Cinchona is now used by some in all continued fevers; at the same time attention is paid to keep the bowels clean, and to promote when necessary the evacuation of redundant bile, always, however, so as to weaken the patient as little as possible.

In confluent small-pox, it promotes languid eruption and suppuration, diminishes the fever, and prevents or corrects putrescence and gangrene.

Dr Haygarth has lately extolled its use in acute rheumatism, from the very commencement, even without premising venesection.

In gangrenous sore throats, and indeed in every species of gangrene, it is much used, both externally and internally.

In contagious dysentery, after due evacuation, it has been used, taken internally and by injection, with and without opium.

In all those hæmorrhagies called passive, and likewise in other increased discharges, it is much used; and in certain undefined cases of hæmoptysis, some allege that it is remarkably effectual when joined with an absorbent.

It is used for obviating the disposition to nervous and convulsive diseases; and some have great confidence in it, joined with sulphuric acid, in cases of phthisis, scrofula, ill-conditioned ulcers, rickets, scurvy, and in states of convalescence.

In these cases, it is proper to conjoin it with a milk diet.

In dropsy, not depending on any particular local affection, it is often alternated or conjoined with diuretics or other evacuants; and by its early exhibition after the water is once drawn off, or even begins to be freely discharged, a fresh accumulation is prevented, and a radical cure obtained.

Mr Pearson of the Lock Hospital praises very highly the powers of this remedy in different forms of the venereal disease; in reducing incipient bubo, in cleansing and healing ulcers of the tonsils, and in curing gangrenous ulcers from a venereal cause. But in all these cases mercury must also be given to eradicate the venereal virus from the system.

Peruvian bark may be exhibited,

1. In substance.

The best form of exhibiting this valuable remedy is in the state of a very fine powder, in doses of from ten grains to two drachms and upwards. Mutis and Zea say, that two drachms of true yellow bark in powder are sufficient to prevent the access of an intermittent, while, to produce the same effect, it requires the decoction of two ounces. Nay, even the residuum of an infusion is capable of curing agues, provided it be given in a larger dose than the entire powder. As it cannot be swallowed in the form of a dry powder, it must either be diffused in some liquid, as water, wine, or milk, or mixed with some viscid substance, as currant jelly. Its taste, which is disagreeable to many people, is best avoided by taking it immediately after it is mixed with the vehicle. In this respect, therefore, it is better for the patients to mix it up themselves, than to receive it from the apothecary already made up, into a draught with some simple distilled water, or into an electuary with a syrup. A much more important objection to giving cinchona in substance is, that some stomachs will not bear it, from the oppression, and even vomiting, which in these

cases it excites. We must endeavour to obviate this inconvenience by the addition of some aromatic, and by giving it in small doses more frequently repeated. If we are unable to succeed by these means, we must extract the most active constituents of the bark by means of some menstruum. It has therefore long been a pharmaceutical problem to discover which menstruum extracts the virtues of cinchona most completely. But it would be contrary to analogy to suppose, that its constituent principles should subsist so intimately mixed as they must be in an organic product, without exerting upon each other some degree of chemical affinity, and forming combinations possessed of new properties. Accordingly, we find, whether it arise from this cause, or merely from the state of aggregation, that neither water nor alcohol extract these constituents from cinchona bark in the same quantity in which they are able to dissolve them separately, and that we must have recourse to direct experiment to determine the degree of action possessed by each menstruum upon it. With this view, many experiments have been made, and by very able chemists. But most of them were performed when the science of chemistry was but in its infancy; and even at this time that branch of it which relates to these substances is so little understood, that the results of the latest experiments are far from conclusive.

2. In infusion.

To those whose stomachs will not bear the powder, this is the best form of exhibiting cinchona bark. Water, at a given temperature, seems capable of dissolving only a certain quantity of its active constituents, and therefore we are not able to increase the strength of an infusion, either by employing a larger quantity of the bark, or allowing them to remain longer in contact. One part of bark is sufficient to saturate sixteen of water in the course of an hour or two. To accelerate the action of the water, it is usual to pour it boiling hot upon the bark, to cover it up, and allow it to cool slowly. After standing a sufficient length of time, the infusion is decanted off for use. The propriety of this process may, however, be doubted; for if a cold infusion be boiled, or even gently heated, it acquires a deeper colour, and lets fall a deposite, in part insoluble in alcohol and in water. The infusion in water is however liable to one very great objection, that it cannot be kept even a very short time without being decomposed and spoiled. Therefore, in some instances, we prepare the infusion with wine; and it fortunately happens that very often the use of the menstruum is as much indicated as that of the solvend. Cinchona also prevents wine from becoming acid,

but in the course of a few days throws down its colouring matter, as nut-galls and charcoal do.

3. In tincture.

The great activity of the menstruum in this preparation, prevents the bark from being given in sufficiently large doses to exert its peculiar virtues. It is, however, a powerful stimulant.

4. In decoction.

Water of the temperature of 212° is capable of dissolving a much larger proportion of the soluble parts of cinchona bark than water at 60°. But the solvent powers even of boiling water have their limits, and by protracting the decoction we do not increase its strength, but rather, by diminishing the quantity of the menstruum, we lessen the quantity of matter dissolved. Besides, at a boiling temperature, some of the active constituents are dissipated, while others absorb oxygen rapidly from the atmosphere, and are converted into what seems to be an insoluble and inert resinous substance.

5. In extract.

In this preparation, we might expect to possess the virtues of cinchona bark in a very concentrated state. The principal objections to its use are its great expense, and the decomposition and destruction of the active constituents of the bark during the preparation, even when most carefully conducted. Not above half the weight of the dry extract is again soluble in water. It is convenient for the formation of pills and boluses, but we would always prefer a fresh infusion or decoction to any mixture in which the extract is redissolved.

Externally, cinchona bark is used in substance, as an application to ill-conditioned, carious, or gangrenous ulcers.

In the form of clyster it may be given in substance, decoction, or extract. The powder is used as a tooth-powder for spongy and bleeding gums, and the decoction is an excellent astringent gargle or wash.

To increase the power of cinchona bark, or to direct its efficacy to a particular purpose, or to correct some inconveniences occasionally produced by it, it is frequently combined with other remedies. When it produces vomiting, carbonic acid forms a useful addition; when it purges, opium; when it oppresses the stomach, aromatics; and when it induces costiveness, rhubarb. But we are afraid that many additions are made, chiefly saline substances, of which the effects are not at all understood. Sulphuric acid, super-sulphate of alumina and potass (alum,) muriate of ammonia, carbonate of potass, tartrate of potass, tartrate of antimony and potass (tartar-emetic,) iron, lime-water, astringents, &c. have been

frequently prescribed with it; but we know that in many of these mixtures decomposition occurs, which renders the whole either inactive, or completely deceives us with regard to the expected effects.

CITRUS.

Willd. *g.* 1391. *Polyadelphia Icosandria.*—Nat. ord. *Pomaceæ.*

Sp. 2. CITRUS AURANTIUM. *Var.* Hispalense. *Lond. Dub.* Seville orange.

Off.—The fruit, juice and rind of the fruit, unripe fruit and distilled water of the flowers.

a) BACCÆ AURANTII. *Lond.*
SUCCUS CITRI AURANTII. Fructus succus. *Ed.*
SUCCUS FRUCTUS AURANTII HISPALENSIS. *Dub.*

b) CORTEX CITRI AURANTII. Cortex exterior fructus. *Ed.*
CORTEX AURANTII; baccarum cortex exterior. *Lond.*
EPIDERMIS FRUCTUS AURANTII HISPALENSIS. *Dub.*

c) FRUCTUS IMMATURUS AURANTII HISPALENSIS. *Dub.*

d) AQUA STILLATITIA FLORUM AURANTII HISPALENSIS. *Dub.*

THE orange tree is a beautiful evergreen, a native of Asia, but now abundantly cultivated in the southern parts of Europe, and in the West-India islands. There are several varieties of this species, but they may be all referred to the Bitter or Seville orange, and the Sweet or China orange.

The leaves are neither so aromatic nor so bitter as the rind of the fruit.

The flowers *(flores naphæ)* are highly odoriferous, and have been long in great esteem as a perfume; their taste is somewhat warm, accompanied with a degree of bitterness. They yield their flavour by infusion to rectified spirits, and in distillation both to spirit and water *(aqua florum naphæ:)* the bitter matter is dissolved by water, and on evaporating the decoction, remains entire in the extract.

A very fragrant red-coloured oil, distilled from these flowers, is brought from Italy, under the name of *Oleum* or *Essentia Neroli*; but oil of behen, in which orange flowers have been digested, is frequently substituted for it: the fraud, however, is easily detected, as the real oil is entirely volatile, and the adulterated is not.

The juice of oranges is a grateful acid liquor, consisting principally of citric acid, syrup, extractive, and mucilage.

The outer yellow rind of the fruit is a grateful aromatic bitter.

The unripe fruit dried are called Curaçoa oranges. They

vary from the size of a pea to that of a cherry. They are bitterer than the rind of ripe oranges, but not so aromatic, and are used as a stomachic.

Medical use.—The leaves have been celebrated by some eminent physicians as a powerful antispasmodic in convulsive disorders, and especially in epilepsy; with others, they have entirely failed. Orange flowers were at one time said to be an useful remedy in convulsive and epileptic cases; but experience has not confirmed the virtues attributed to them. As by drying they lose their virtues, they may be preserved for medical use by packing them closely in earthen vessels, with half their weight of muriate of soda. The juice of the fruit is of considerable use in febrile or inflammatory distempers, for allaying heat, quenching thirst, and promoting the salutary excretions: it is likewise of use in genuine scorbutus, or sea-scurvy. Although the Seville, or *bitter orange*, as it is called, has alone a place in our Pharmacopœias, yet the China, or sweet orange, is much more employed. Its juice is milder, and less acid; and is very frequently used in its most simple state with great advantage. Dr Wright applied the roasted pulp as a poultice to fetid sores, in the West Indies, with very great success.

The rind proves an excellent stomachic and carminative, promoting appetite, warming the habit, and strengthening the tone of the viscera. Orange-peel appears to be considerably warmer than lemon-peel, and to abound more with essential oil; to this circumstance, therefore, due regard ought to be had in the use of these medicines. The flavour of the former is likewise supposed to be less perishable than that of the latter.

Sp. 1. CITRUS MEDICA. *Ed. Lond. Dub.*
Lemon tree.

Off.—The juice and the outer rind of the fruit, and the volatile oil of the outer rind.

a) SUCCUS CITRI MEDICI. Succus fructus. *Ed.*
LIMONES, baccæ. *Lond.*
SUCCUS FRUCTUS LIMONIS. *Dub.*

b) CORTEX CITRI MEDICÆ. Cortex exterior fructus. *Ed.*
CORTEX LIMONUM. Cortex exterior. *Lond.*
EPIDERMIS LIMONIS. *Dub.*

c) OLEUM VOLATILE CITRI MEDICÆ ex cortice fructus. *Ed.*
OLEUM ESSENTIALE LIMONIS. *Dub.*
OLEUM LIMONUM. Corticis exterioris oleum essentiale. *Lond.*

The juice of lemons is analogous to that of oranges, from which it only differs in containing more citric acid and less syrup. The quantity of the former is indeed so great, that the acid has been named from the fruit, Acid of Lemons, and is commonly prepared from it. The simple expressed juice will not keep, on account of the syrup, extractive, mucilage, and water, which cause it to ferment.

The yellow peel is an elegant aromatic, and is frequently employed in stomachic tinctures and infusions: it is considerably less hot than orange peel, and yields in distillation with water a small quantity of essential oil: its flavour is nevertheless more perishable, yet does not arise so readily with spirit of wine; for a spiritous extract made from lemon-peel possesses its aromatic taste and smell in much greater perfection than an extract prepared in the same manner from the orange-peel.

Med. use.—Lemon juice is a powerful and agreeable antiseptic. Its powers are much increased, according to Dr Wright, by saturating it with muriate of soda. This mixture he recommends as possessing very great efficacy in dysentery, remittent fever, the bellyach, putrid sore throat, and as being perfectly specific in diabetes and lienteria. Citric acid is often used with great success for allaying vomiting: with this intention it is mixed with carbonate of potass, from which it expels the carbonic acid with effervescence. This mixture should be drunk as soon as it is made; or the carbonic acid gas, on which the anti-emetic power of this mixture chiefly depends, may be extricated in the stomach itself, by first swallowing the carbonate of potass dissolved in water, and drinking immediately afterwards the citric acid properly sweetened. The doses are about a scruple of the carbonate dissolved in eight or ten drachms of water, and an ounce of lemon juice, or an equivalent quantity of citric acid.

Lemon juice is also an ingredient in many pleasant refrigerant drinks, which are of very great use in allaying febrile heat and thirst. Of these, the most generally useful is lemonade, or diluted lemon juice, sweetened. Lemonade, with the addition of a certain quantity of any good ardent spirit, forms the well-known beverage, Punch, which is sometimes given as a cordial to the sick. The German writers order it to be made with arrack, as rum and brandy, they say, are apt to occasion headach. But the fact is directly the reverse; for of all spirits, arrack is most apt to produce headach. The lightest and safest spirits are those which contain least essential oil, or other foreign matters, and which have been kept the longest time after their distillation.

Coccus cacti. *Ed.*
Coccus, s. s. Coccus cacti. *Lond.*
Coccinella, s. s. Coccus cacti. *Dub.*
Cochineal.

Cochineal is the dried body of the female of a hemipterous insect. It is found only in Mexico, chiefly in the province of Oaxaia, on the leaves of a non-descript cactus, according to Humboldt. There are two kinds of the cochineal insect, which live on different species of cactus. The wild cochineal, *grana sylvester*, which is covered with a silky or cottony envelop, and is found in many places, New Granada, Quito, Peru, Mexico, is less valuable than the cultivated or powdery cochineal, which is without that covering, grows to a larger size, and furnishes a finer and more permanent colour. The Spaniards endeavour to confine both the insect and the plant on which it feeds to Mexico. But this attempt at monopoly will, we hope, be frustrated, by the exertions of some gentlemen in the East Indies, whither the insect was carried from Rio Janeiro in 1795 by Captain Nelson. The male only is furnished with wings; the female has none, and remains constantly attached to the leaf of the cactus. During the rainy season, the Mexicans preserve these insects, with the succulent leaves to which they are attached, in their houses; and after the rainy season is over, they are transferred to the living plants, and in a few days they lay innumerable eggs, and die. Or the pregnant mothers are rapidly conveyed to the neighbouring mountains, where they are kept till October, when the rains cease in the plains and commence in the mountains. They are collected three times in the year; first the dead mothers are gathered, as soon as they have laid their eggs, *grana de pastle:* in three or four months, the young, which have grown to a sufficient size, are collected; and in three or four months more, all the young are collected, large and small indiscriminately, except those which they preserve for breeding next year. They are killed by throwing them into hot water, or by turning them over in heaps in the sun, or by placing them on mats in their furnaces; which last method, though least common, preserves upon the insect that whitish powder, which enhances their price at Vera Cruz and Cadiz. Good cochineal loses but $\frac{1}{7}$ of its weight by being dried. From a very distant period, laws have existed against the adulteration of cochineal, and it is ordered to be exposed for sale in separate grains, not in agglutinated masses. 800,000 pounds are brought annually to Europe; and each pound contains at least 70,000 insects; Humboldt says, 32,000 arobas of 32 pounds each. From their

appearance, when brought to us, they were long supposed to be the seed of some plant. They are small, irregular, roundish bodies, of a blackish-red colour on the outside, and a bright purple red within. Their taste is acrid, bitterish, and astringent. They are used chiefly for the sake of the fine colour which they produce, and they are principally consumed by the scarlet dyers. Their colour is easily extracted, both by alcohol, water, and water of ammonia; and in the dried insect it is not impaired by keeping for any length of time. It is worthy of notice, that not only the fruit, but even the green joints of several species of cactus, dye cotton purple or red.

Neumann got from 1920 grains of cochineal, 1440 watery extract; and in another experiment, from the same quantity, 1430 alcoholic. The former was extremely gelatinous.

The cochineal insect has been carefully analyzed by John. He gives as its constituents 50 of a peculiar carmine red colouring matter in a soft state, 10.5 of gelatine, 10 of a waxy fat, 14 of a gelatinous mucus, 14 of membranes, and 1.5 of alkaline and earthy phosphates and muriates. The colouring matter to which he has given the name of *Cochineline*, is soluble in water, alcohol, and ether, and is precipitated from its solutions by several of the earthy and metallic salts.

Medical use.—Cochineal has been recommended as an anodyne to children in hooping-cough, but I do not know that it has been proved to possess any narcotic power. In pharmacy it is used for colouring tinctures and lip salves.

COCHLEARIA.

Willd. *g.* 1228. Smith, *Flor. Brit. g.* 297. *Tetradynamia Siliculosæ.*—Nat. ord. *Siliquosæ.*

Sp. 1. Willd. *et* Smith. COCHLEARIA OFFICINALIS. *Dub.* Common scurvy-grass.

Off.—The plant.

HERBA COCHLEARIÆ. *Dub.*

THIS is an annual plant, which grows on the sea-shore of the northern countries of Europe, and is sometimes cultivated in gardens. When fresh, it has a peculiar smell, especially when bruised, and a kind of bitter acrid taste, which it loses completely by drying, but which it imparts, by distillation, to water or alcohol. It also furnishes an essential oil, the smell of which is extremely pungent.

Medical use.—The fresh plant is a gentle stimulant and diuretic, and is chiefly used for the cure of sea-scurvy. It may be eaten in substance, in any quantity, or the juice may be

expressed from it, or it may be infused in wine or water, or its virtues may be extracted by distillation. The juice is employed as a gargle in sore throat, and scorbutic affections of the gums and mouth.

Sp. 8. Willd. *p.* 4. Smith. COCHLEARIA ARMORACIA. *Ed. Lond. Dub.*

Horse-radish.

Off.—The root.

RADIX COCHLEARIÆ ARMORACIÆ. *Ed.*

RADIX ARMORACIÆ. *Lond.*

RADIX RAPHANI RUSTICANI. *Dub.*

HORSE-RADISH is perennial, and sometimes found about river sides, and other moist places; for medicinal and culinary uses, it is cultivated in gardens. It flowers in June, but rarely perfects its seed in this country. The root has a pungent smell, and a penetrating acrid taste; but it also contains a sweet juice, which sometimes exudes upon the surface. Both water and alcohol extract its virtues by infusion. By drying, it loses all its acrimony, becoming first sweetish, and afterwards almost insipid: if kept in a cool place, covered with sand, it retains its pungency for a considerable time.

3840 parts, according to Neumann, were reduced, by drying, to 1000, and gave of watery extract 480, and 15 of alcoholic; and inversely, 420 alcoholic, and 480 watery; all these extracts were sweetish, without pungency. About 15 of volatile oil, extremely pungent, and heavier than water, arose in distillation with water.

Medical use.—This root is an extremely penetrating stimulus. It excites the solids, and promotes the fluid secretions. It has frequently been of service in some kinds of scurvies, and other chronic disorders, supposed to proceed from a viscidity of the juices, or obstructions of the excretory ducts. Sydenham recommends it likewise in dropsies, particularly those which sometimes follow intermittent fevers.

COCOS BUTYRACEA. *Ed.*

Palmæ.—Nat. ord. *Palmæ.*

The mackaw tree.

Off.—The fixed oil of the nut, called Palm oil.

OLEUM FIXUM COCI BUTYRACEÆ EX NUCIBUS. *Ed.*

THIS tree is a native of South America. The fruit is triangular, yellow, and as big as a plum. The nut or kernel yields the *oleum palmæ* of the shops. It is first slightly roasted and cleaned, and then ground to a paste, first in a mill, and then

on a levigating stone. This paste is gently heated, and mixed with $\frac{1}{10}$ its weight of boiling water, put into a bag, and the oil expressed between two heated plates of iron. It yields $\frac{7}{10}$ or $\frac{8}{10}$ of oil. If coloured, this oil may be purified by filtration, when melted. It then has the consistence of butter, a golden yellow colour, the smell of violets, and a sweetish taste. When well preserved, it keeps several years without becoming rancid. When spoiled, it loses its yellow colour and pleasant smell. It is said to be often imitated with axunge, coloured with turmeric, and scented with Florentine iris root. It is rarely used in medicine, and only externally as an emollient ointment. Of late it has been imported in considerable quantity, and used in the manufacture of a toilet-soap.

COLCHICUM AUTUMNALE. *Ed. Lond. Dub.*
Willd. *g.* 707, *sp.* 1. Smith, *Flor. Brit. g.* 187, *sp.* 1. *Hexandria Trigynia.*—Nat. ord. *Liliaceæ.*
Meadow saffron.

Off.—The root in the spring, when the leaves appear.
RADIX COLCHICI AUTUMNALIS. *Ed.*
RADIX COLCHICI; radix recens. *Lond.*
RADIX COLCHICI, primo vere, foliis jam apparentibus. *Dub.*

MEADOW SAFFRON is a perennial bulbous-rooted plant, which grows in wet meadows in the temperate countries of Europe. It flowers in the beginning of autumn, at which time the old bulb begins to decay, and a new bulb to be formed. In the following May, the new bulb is perfected, and the old one wasted and corrugated. It is dug up for medical use in the beginning of summer. The sensible qualities of the fresh root are very various, according to the place of growth and season of the year. In autumn it is inert; in the beginning of summer, highly acrid. Some have found it to be a corrosive poison; others have eaten it in considerable quantity, without experiencing any effect. When it is possessed of acrimony, this is of the same nature with that of garlic, and is entirely destroyed by drying.

Medical use.—Stork, Collin, and Plenk, have celebrated its virtues as diuretic in hydrothorax, and other dropsies. The expressed juice is used in Alsace to destroy vermin in the hair.

It has been lately asserted, that colchicum forms the basis of the *Eau Medicinale d'Husson.* A saturated *Vinum colchici* is now frequently used as a substitute for it in gout, rheumatism, and dropsy; and there is no doubt that it produces similar and sometimes even fatal effects. It acts irregularly, but gene-

rally combines an anodyne effect with a drastic operation as an emetic, purgative, or diuretic. In some seasons or countries it seems absolutely inert. Orfila gave to dogs two or three bulbs bruised without any bad effect. It is therefore a very uncertain remedy.

RADIX COLOMBÆ. *Ed.*
RADIX CALUMBÆ. *Lond.*
RADIX COLOMBO. *Dub.*

THIS is the root of an unknown plant, which, however, is conjectured by Willdenow to be a species of bryonia. In the garden at Madras a plant of it has at last been raised from the root. As it has not yet produced female flowers, its genus has not been ascertained, but it appears to belong to the natural order of *Monospermæ*. It was erroneously supposed to have its name from a city in Ceylon, from which it is sent over all India. But we now know that it is produced in Africa, in the country of the Caffres, and that it forms an important article of commerce with the Portuguese at Mozambique, in the province of Tranquebar. It is generally brought in transverse sections, from half an inch to three inches in diameter, rarely divided across. This is evidently done to facilitate its drying; for the large pieces are all perforated with holes. The bark is wrinkled and thick, of a dark brown colour on the outside, and bright yellow within. The pith in the centre is spongy, yellowish, and slightly striped. Its smell is faintly aromatic, and readily lost when not preserved in close vessels; its taste is unpleasant, bitter, and somewhat acrid; the bark has the strongest taste; the pith is almost mucilaginous. Its essential constituents are cinchonin, and a great deal of mucilage. It is accordingly more soluble in water than in alcohol. The tincture is not precipitated by water, and does not affect the colour of infusion of turnsole, or solution of red sulphate of iron. Planche says it contains one-fourth of its weight of starch.

Medical use.—In India it is much used in diseases attended with bilious symptoms, particularly in cholera; and it is said to be sometimes very effectual in other cases of vomiting. It often produces excellent effects in dyspepsia. Half a drachm of the powder is given repeatedly in the day.

CONIUM MACULATUM. *Ed. Lond. Dub.*
Willd. *g.* 533, *sp.* 1. Smith, *Flor. Brit. g.* 130, *sp.* 1. *Pentandria Digynia.*—Nat. ord. *Umbellatæ.*
Hemlock.

Off.—The leaf, flower, and seed.

a) Folia conii maculati. *Ed.*
Folia conii. *Lond.*
Folia cicutæ. *Dub.*

b) Semina cicutæ nondum matura. *Dub.*

This is a large biennial umbelliferous plant, which grows very commonly about the sides of fields under hedges, and in moist shady places. As it may be easily confounded with other plants of the same natural order, which are either more virulent, or less active, we shall give a full description of its botanical characters. The root is white, long, of the thickness of a finger, contains, when it is young, a milky juice, and resembles both in size and form the carrot. In spring it is very poisonous, in harvest less so. The stalk is often three, four, and even six feet high, hollow, smooth, not beset with hairs, but marked with red or brown spots. The leaves are large, and have long and thick footstalks; which at the lower end assume the form of a groove, and surround the stem.—From each side of the footstalk, other footstalks arise, and from these a still smaller order, on which there are sessile, dark-green, shining, lancet-shaped, notched leafits. The umbels are terminal and compound. The flowers consist of five white heart-shaped leaves. The seeds are flat on the one side, and hemispherical on the other, with five serrated ribs. This last circumstance, with the spots on the stalks, and the peculiar very nauseous smell of the plant, somewhat resembling the urine of a cat, serve to distinguish it from all other plants. We must not be misled by its officinal name Cicuta to confound it with the Cicuta virosa of Linnæus, which is one of the most virulent plants produced in this country, and readily distinguishable from the conium, by having its hollow roots always immersed in water, which those of the conium never are. The possibility of this mistake shews the propriety of denominating all vegetables by their systematic names, as the Edinburgh college now do. The other plants which have been mistaken for the conium maculatum are, the æthusa cynapium, caucalis anthriscus, and several species of chærophyllum, especially the bulbosum, which, however, is not a native of this country.

Hemlock should not be gathered unless its peculiar smell be strong. Planche has observed, that hemlock in spring contains little vegetable albumen, while it is very abundant in the latter end of July and beginning of August, especially if the season have been warm and dry. The leaves should be collected in the month of June, when the plant is in flower. The leafits are to be picked off, and the footstalks thrown

away. The leafits are then to be dried quickly in a hot sun, or rather on tin plates before a fire, and preserved in bags of strong brown paper, or powdered and kept in close vessels, excluded from the light; for the light soon dissipates their green colour, and with it the virtues of the medicine.

Med. use.—Fresh hemlock contains not only the narcotic, but also the acrid principle; of the latter much, and of the former little is lost by drying. The whole plant is a virulent poison, but varying very much in strength, according to circumstances. When taken in an over-dose, it produces vertigo, dimness of sight, difficulty of speech, nausea, putrid eructations, anxiety, tremors, and paralysis of the limbs. But Dr Stoerk found, that in small doses it may be taken with great safety; and that, without at all disordering the constitution, or even producing any sensible operation, it sometimes proves a powerful remedy in many obstinate disorders. In scirrhus, the internal and external use of hemlock has been found useful, but then mercury has been generally used at the same time. In open cancer it often abates the pain, and is free from the constipating effects of opium. It is likewise used in scrofulous tumours and ulcers, and in other ill-conditioned ulcers. It is also recommended by some in chincough, and various other diseases. Its most common, and best form, is that of the powdered leaves, in the dose at first of two or three grains a-day, which in some cases has been gradually increased to upwards of two ounces a-day. An extract from the seeds is said to produce giddiness sooner than that from the leaves.

CONVOLVULUS.

Willd. g. 323. *Pentandria Monogynia.*—Nat. ord. *Campanaceæ.*

Sp. 4. CONVOLVULUS SCAMMONIA. *Ed. Lond. Dub.*
Scammony.

Off.—The gum-resin.
GUMMI-RESINA CONVOLVULI SCAMMONIÆ. *Ed.*
GUMMI-RESINA SCAMMONEÆ. *Lond.*
SCAMMONIUM. *Dub.*

The scammony convolvulus is a climbing perennial plant, which grows in Syria, Mysia, and Cappadocia. The roots, which are very long and thick, when fresh, contain a milky juice. This is obtained by removing the earth from the upper part of the roots, and cutting off the tops obliquely. The milky juice which flows out is collected in a small vessel sunk

in the earth at the lower end of the cut. Each root furnishes only a few drachms, but the produce of several roots is added together, and dried in the sun. This is the true and unadulterated scammony. It is light, of a dark-grey colour, but becomes of a whitish yellow when touched with the wet finger, is shining in its fracture, has a peculiar nauseous smell, and bitter acrid taste, and forms with water a greenish milky fluid, without any remarkable sediment. In this state of purity it seldom reaches us, but is commonly mixed with the expressed juice of the root, and even of the stalks and leaves, and often with flour, sand, or earth. The best to be met with in the shops comes from Aleppo, in light spongy masses, having a heavy disagreeable smell, friable, and easily powdered, of a shining ash colour verging to black; when powdered, of a light grey or whitish colour. An inferior sort is brought from Smyrna in more compact ponderous pieces, with less smell, not so friable, and less easily powdered, of a darker colour, not so resinous, and full of sand and other impurities.

Resin is the principal constituent of scammony. Sixteen ounces of good Aleppo scammony give eleven ounces of resin, and three and a half of watery extract. Bouillon La Grange and Vogel obtained from 100 parts 60 of resin, 3 of gum, 2 of extract, and 35 of insoluble matter.

Medical use.—Scammony is an efficacious and strong purgative. Some have condemned it as unsafe and uncertain, a full dose proving sometimes ineffectual, whilst at others a much smaller dose occasions dangerous hypercatharsis. This difference, however, is owing entirely to the different circumstances of the patient, and not to any hurtful quality, or irregularity of operation, of the medicine: where the intestines are lined with an excessive load of mucus, the scammony passes through without acting upon them; but where the natural mucus is deficient, a small dose of this or any other resinous cathartic, irritates and inflames. Many have endeavoured to diminish the activity of this drug, and to correct its imaginary virulence, by exposing it to the fumes of sulphur, dissolving it in acids, and the like; but these only destroy a part of the medicine, without making any alteration in the rest. Scammony in substance, judiciously managed, stands not in need of any corrector: if triturated with sugar, or with almonds, it becomes sufficiently safe and mild in its operation. It may likewise be conveniently dissolved, by trituration, in a strong decoction of liquorice, and the solution then poured off from the fæces. The common dose of scammony is from three to twelve grains.

Sp. 61. CONVOLVULUS JALAPA. *Ed. Lond. Dub.*
Jalap.

Off.—The root.

RADIX CONVOLVULI JALAPÆ. *Ed.*

RADIX JALAPÆ. *Lond. Dub.*

JALAP is another climbing perennial species of convolvulus. It is an inhabitant of Mexico and Vera Cruz, from which it was first imported in 1710. It is now cultivated in the botanical garden of Charlestown, and even grows in the stoves at Paris. When recent, the root is white and lactescent; but it is brought to us in thin transverse slices, which are covered with a blackish wrinkled bark, and are of a dark grey colour internally, marked with darker or blackish stripes. It has a nauseous smell and taste; and when swallowed it affects the throat with a sense of heat, and occasions a plentiful discharge of saliva. When powdered it has a yellowish-grey colour.

Such pieces should be chosen as are most compact, hard, weighty, dark-coloured, and abound most with dark circular striæ and shining points; the light, whitish, friable, worm-eaten pieces must be rejected.

Slices of briony root are said to be sometimes mixed with those of jalap; but these may be easily distinguished by their whiter colour, and less compact texture.

Neumann got from 7680 parts, 2480 alcoholic, and then by water, 1200; and inversely, 2160 watery, besides 360 which precipitated during the evaporation, and 1440 alcoholic: the tincture extracted from 7680 parts gave, by precipitation with water, 1910.

M. Henry, who analyzed several of the varieties of jalap found in commerce in France, obtained the following results:

	Extract.	Resin.	Residuum.
Jalap leger,	75	60	270
—— sain,	140	48	210
—— piqué,	125	72	200

Besides the gummy extract and the resin, jalap contains amylaceous fæculum, which is preyed on by worms according to Henry, so that it is wrong to suppose that it was only the extractive which was destroyed by them. Jalap also contains several alkaline and earthy salts.

Medical use.—Jalap in substance, taken in a dose of about half a drachm, proves an effectual, and in general a safe, purgative, performing the office mildly, seldom occasioning nausea or gripes except in hypochondriacal disorders, and hot bilious temperaments, when it gripes violently, if the jalap be good,

but rarely takes due effect as a purge. An extract originally made by water purges almost universally, but weakly; and at the same time has a considerable effect by urine: what remains after this process gripes severely. The pure resin prepared by alcohol occasions most violent gripings, and other distressing symptoms, but scarcely proves at all cathartic; triturated with sugar, or with almonds, into the form of an emulsion, or dissolved in spirit, and mixed with syrups, it purges plentifully in a small dose, without occasioning much disorder; the part of the jalap remaining after the separation of the resin yields to water an extract, which has no effect as a cathartic, but operates powerfully by urine.

COPAIFERA OFFICINALIS. *Ed. Lond. Dub.*

Willd. *g.* 880, *sp.* 1. *Decandria Monogynia.*— Nat. ord. *Dumosæ.*

Copaiva tree.

Officinal.— The resin called Balsam of copaiva.

RESINA COPAIFERÆ OFFICINALIS; resina liquida. *Ed.*

COPAIBA; resina liquida. *Lond.*

BALSAMUM COPAIBÆ. *Dub.*

THE tree which produces this resin is a native of the Spanish West-India islands, and of some parts of South America. It grows to a large size, and the resinous juice flows in considerable quantities from incisions made in the trunk.

The juice is clear and transparent, of a whitish or pale yellow colour, an agreeable smell, and a bitterish pungent taste. It is usually about the consistence of oil, or a little thicker; when long kept, it becomes nearly as thick as honey, retaining its clearness: but it has not been observed to grow dry or solid, as most of the other resinous juices do. The best resin of copaiva comes from Brazil; but we sometimes meet with a thick sort, scarcely or not at all transparent, and generally having a portion of turbid watery liquor at the bottom. This is probably either adulterated by the mixture of other substances, or has been extracted by decoction from the bark and branches of the tree: its smell and taste are much less pleasant than those of the genuine resin.

Pure resin of copaiva dissolves entirely in alcohol: the solution has a very fragrant smell. Distilled with water, it yields a large quantity of a limpid essential oil, but no benzoic acid; it is therefore not a balsam, but a combination of resin and volatile oil. Neumann says that it effervesces with liquid ammonia.

Medical use.—The resin of copaiva is an useful corroborating detergent medicine, but in some degree irritating. It

strengthens the nervous system, tends to loosen the belly; in large doses it proves purgative, promotes urine, and is supposed to clean and heal exulcerations in the urinary passages more effectually than any of the other resinous fluids. Fuller observes that it gives the urine an intensely bitter taste, but not a violet smell, as the turpentines do.

This resin has been principally celebrated in gleets, and the fluor albus, and externally as a vulnerary.

The dose of this medicine rarely exceeds 20 or 30 drops, though some authors direct 60, or upwards. It may be conveniently taken in the form of an oleosaccharum, or in that of an emulsion, into which it may be reduced, by triturating it with almonds, with a thick mucilage of gum arabic, or with the yolk of eggs, till they are well incorporated, and then gradually adding a proper quantity of water.

CORIANDRUM SATIVUM. *Dub. Lond. Ed.*

Willd. *g.* 552, *sp.* 1. Smith, *Flor. Brit. g.* 142, *sp.* 1. *Pentandria Digynia.*—Nat. ord. *Umbellatæ.*

Coriander.

Off.—The seeds.

SEMINA CORIANDRI SATIVI. *Ed.*

SEMINA CORIANDRI. *Lond. Dub.*

CORIANDER is an annual umbelliferous plant, a native of the south of Europe, found wild about Ipswich, and in some parts of Essex, though Dr Smith does not consider it as indigenous. It differs from all other plants of its order, in producing *spherical* seeds. Their smell, when fresh, is strong and disagreeable, but by drying becomes sufficiently grateful. They are recommended as carminative and stomachic.

CROCUS SATIVUS. *Ed. Dub.* (ANGLICUS). *Lond.*

Willd. *g.* 92, *sp.* 1. Smith, *Flor. Brit. g.* 16, *sp.* 1. *Triandria Monogynia.*—Nat. ord. *Liliaceæ.*

Saffron crocus.

Off.—The summits of the pistils, called Saffron.

STIGMATA CROCI. *Lond.*

CROCUS; floris stigma. *Dub.*

STIGMATA CROCI SATIVI. *Ed.*

CROCUS is a bulbous-rooted perennial plant, probably a native of the East, although it is now found wild in England, and other temperate countries of Europe. It is very generally cultivated as an ornament to our gardens, and in some places for the saffron, which is formed of the dried summits of the pistil. Each flower has one pistil, the summit of which

is deeply divided into three slips, which are of a dark orange-red colour, verging to white at the base, and are smooth and shining. Their smell is pleasant and aromatic, but narcotic; their taste a fine aromatic bitter, and they immediately give a deep yellow colour to the saliva when chewed. The flowers are gathered early in the morning, just before they open; the summits of the pistils are picked out, very carefully dried by the heat of a stove, and compressed into firm cakes. The English saffron is superior to what is imported from other countries, and may be distinguished by its blades being broader. On the continent, they reckon the Austrian and the French from Gatinois the best. The Spanish is rendered useless by being dipt in oil with the intention of preserving it. Saffron should be chosen fresh, not above a year old, in close cakes, neither dry, nor yet very moist; tough and firm in tearing; difficultly pulverizable; of a fiery orange-red colour, within as well as without; of a strong, acrid, diffusive smell; and capable of colouring a very large proportion of water or alcohol. Saffron which does not colour the fingers when rubbed between them, or stains them with oil, has little smell or taste, or a musty or foreign flavour, is too tender, and has a whitish, yellow, or blackish colour, is bad. It is said, that it is sometimes adulterated with the fibres of smoked beef, and with the flowers of the carthamus tinctorius, calendula officinalis, &c. The imposition may be detected by the absence of the white ends, which may be observed in the real saffron, by the inferior colouring power, and by the want of smell, or by an unpleasant smell, when thrown on live coals.

By distillation with water, saffron furnishes a small proportion of essential oil, of a golden yellow colour, heavier than water, and possessing the characteristic smell in an eminent degree. According to Hermbstædt, the soluble matter of saffron is extractive nearly pure. Neumann obtained from 480 dried saffron, 360 grains of watery extract which was soluble in alcohol, except 24 of a colourless matter like sand, and afterwards 20 of alcoholic; and inversely, 320 of alcoholic extract entirely soluble in water, and then 90 of watery.

On account of the great volatility of the aromatic part of the saffron, it should be wrapped up in bladder, and preserved in a box or tin case.

Medical use.—Saffron is a very elegant aromatic: besides the virtues which it has in common with all the bodies of that class, it has been alleged that it raises the spirits, and in large doses occasions immoderate mirth, involuntary laughter, and the other effects which follow from the abuse of spiritous liquors. It is said to be particularly serviceable in hysteric de-

pressions, or obstructions of the uterine secretions, where other aromatics, even those of the more generous kind, have little effect. But the experiments of Dr Alexander, and Dr H. Cullen shew, that it is much less powerful than was once imagined, so that of late the estimation in which it was held as a medicine has been on the decline.

CROTON ELEUTHERIA. *Swartz. prod. Ed.*
CROTON CASCARILLA. *Dub. Lond.*
Willd. *g.* 1713, *sp.* 2. *Monoecia Monadelphia.*—Nat. ord. *Tricoccæ.*
Eleutheria, or Cascarilla.

Off.—The bark.
CORTEX CROTONIS ELEUTHERIÆ. *Ed.*
CORTEX CASCARILLÆ. *Lond. Dub.*

THIS bark is imported into Europe from the Bahama islands, and particularly from one of them of the name of Eleutheria; from which its trivial name is derived. But Dr Wright also found the tree on the sea-shore in Jamaica, where it is common, and rises to about twenty feet in height. It is the Clutia Eluteria of Linnæus: the bark of whose Croton cascarilla has none of the sensible qualities of the cascarilla of the shops.

This bark is in general imported either in curled pieces, or rolled up into short quills, about an inch in width, somewhat resembling in appearance the Peruvian bark. Its fracture is smooth, and close, of a dark brown colour. It is covered with a rough whitish epidermis; and in the inside it is of a brownish cast.

It has a light agreeable smell, and a moderately bitter taste, with some aromatic warmth. It burns readily, and yields, when burning, a very fragrant smell, resembling that of musk; a property which distinguishes the cascarilla from all other barks.

Tromsdorff got from eight ounces, 720 grains of mucilage and bitter principle; 580 of resin; 68 of volatile oil; 2520 of fibrous matter; and 48 of water. Its virtues are partially extracted by water, and totally by alcohol; but it is most effectual when given in substance.

Medical use.—It produces a sense of heat, and excites the action of the stomach; and it is therefore a good and pleasant stomachic, and may be employed with advantage in flatulent colics, internal hæmorrhagies, dysenteries, diarrhœas, and similar disorders.

As the essential oil is dissipated in making the extract, this preparation acts as a simple bitter. It was much employed by the Stahlians in intermittent fever, from their fear of using Cinchona bark, to which, however, it is much inferior in efficacy.

Cucumis colocynthis. *Ed. Dub. Lond.*
Willd. *g.* 1741, *sp.* 1. *Monoecia Syngenesia.*—Nat. ord. *Cucurbitaceæ.*
Coloquintida, or bitter apple.

Off.—The medullary part of the fruit.
Pulpa cucumeris colocynthidis, ex fructu. *Ed.*
Pulpa colocynthidis, pomorum pulpa. *Lond.*
Colocynthis, fructus medulla. *Dub.*

This is an annual plant of the gourd kind, a native of Turkey. The fruit is about the size of an orange; its medullary part, freed from the rind and seeds, is alone made use of in medicine; this is very light, white, spongy, composed of membranous leaves, of an extremely bitter, nauseous, acrimonious taste. It is gathered in autumn when it begins to turn yellow, and is then peeled and dried quickly, either in a stove or in the sun. In the latter case it should be covered with paper.

Neumann got from 7680 parts 1680 alcoholic extract, and then 2160 watery; and inversely, 3600 watery, and 224 alcoholic.

Medical use.—Colocynth is one of the most powerful and most violent cathartics. Many eminent physicians condemn it as dangerous, and even deleterious: others recommend it not only as an efficacious purgative, but likewise as alterative in obstinate chronical disorders. It is certain that colocynth, in the dose of a few grains, acts with great vehemence, disorders the body, and sometimes occasions a discharge of blood. Many attempts have been made to correct its virulence by the addition of acids, astringents, and the like: these may lessen the force of the colocynth, but not otherwise than might be equally done by a reduction of the dose. The best method of abating its virulence, without diminishing its purgative virtue, seems to be by triturating it with gummy farinaceous substances, or the oily seeds.

Cuminum cyminum. *Lond.*
Willd. *g.* 547, *sp.* 1. *Pentandria Monogynia.*—Nat. ord. *Umbellatæ.*
Cummin.

Off.—The seeds.

SEMINA CUMINI. *Lond.*

THE cummin is an annual umbelliferous plant, in appearance resembling fennel, but much smaller. It is a native of Egypt; but the seeds used in Britain are brought chiefly from Sicily and Malta. Cummin seeds have a bitterish warm taste accompanied with an aromatic flavour, not of the most agreeable kind, residing in a volatile oil.

CUPRUM. *Lond. Ed. Dub.*

Copper.

COPPER is found in many countries.

a. In its metallic state:

1. Crystallized.
2. Alloyed with arsenic and iron.
3. Sulphuretted.

b. Oxidized:

4. Uncombined.
5. Combined with carbonic acid.
6. ——————— sulphuric acid.
7. ——————— arsenic acid.

The general properties of copper have been already enumerated.

Copper has more smell and taste than almost any other metal. Its effects, when taken into the stomach, are highly deleterious, and often fatal. It particularly affects the primæ viæ, exciting excessive nausea, vomiting, colic pains, and purging, sometimes of blood, or, though more rarely, obstinate constipation. It also produces agitation of the mind, and headach; renders the pulse small and weak, the countenance pale, and causes fainting, convulsions, paralysis, and apoplexy. When any of these symptoms occur, we must endeavour to obviate the action of the poison by large and copious draughts of oily and mucilaginous liquors, or to destroy its virulence by solutions of potass, or sulphuret of potass; but according to Orfila, there is no remedy at all comparable to sugar, a discovery which we owe to Marcelin Duval, and therefore as soon as we know that a person has been poisoned by copper, he should be made to swallow sugar and syrup in large quantities.

Poisoning from copper is most commonly the effect of ignorance, accident, or carelessness; and too many examples are met with of fatal consequences ensuing from eating food which had been dressed in copper vessels not well cleaned from the rust which they had contracted by being exposed to the action of air and moisture; or pickles, to which a beautiful green colour had been given, according to the homicidial

directions of the most popular cookery books, by boiling them with halfpence, or allowing them to stand in a brass pan until a sufficient quantity of verdigris be formed.

Great care ought to be taken that acid liquors, or even water, designed for internal use, be not suffered to stand long in vessels made of copper, otherwise they will dissolve so much of the metal as will give them dangerous properties. But the sure preventive of these accidents is to banish copper utensils from the kitchen and laboratory. The presence of copper in any suspected liquor is easily detected by inserting into it a piece of polished steel, which will soon be coated with copper, or by dropping into it some carbonate of ammonia, which will produce a beautiful blue colour if any copper be present.

But although copper be thus dangerous, some preparations of it are in certain cases used with great advantage, both externally and internally.

The chief of these are,

1. The sub-acetate of copper.
2. The sulphate of copper.
3. The sub-sulphate of copper and ammonia.
4. The muriate of copper and ammonia.
5. A solution of the sulphate of copper and super-sulphate of alumina in sulphuric acid.

As the two first of these are never prepared by the apothecary, but bought by him from the manufacturer, they are inserted in the list of materia medica.

SUB-ACETAS CUPRI, v. s. Ærugo. *Ed.*
ÆRUGO, s. s. Sub-acetas cupri impura. *Lond.*
ÆRUGO, s. s. Sub-acetas cupri. *Dub.*
Sub-acetate of copper. Verdigris.

THE preparation of this substance was almost confined to Montpelier in France, owing chiefly to an excellent regulation which existed, that no verdigris could be sold until it had been examined and found of sufficiently good quality. For since that regulation has been abolished, Chaptal informs us, that so many abuses have crept into the manufacture, that the Montpelier verdigris has lost its decided superiority of character. It is prepared by stratifying copper-plates with the husks and stalks of the grape, which have been made to ferment after the wine has been expressed from them. In from ten to twenty days, when the husks become white, the plates of copper are taken out, and their surfaces are found to be covered with detached and silky crystals. They are now placed on edge, with their surfaces in contact, in the corner of a cellar, and alternately dipt in water, and replaced to dry every seven

or eight days, for six or eight times. By this management the plates swell, and are every where covered with a coat of verdigris, which is easily separated with a knife. In this state it is only a paste, and is sold by the manufacturers to commissioners, who beat it well with wooden mallets, and pack it up in bags of white leather, a foot high, and ten inches wide, in which it is dried by exposing it to the air and sun, until the loaf of verdigris cannot be pierced with the point of a knife.

Sub-acetate of copper should be of a bluish green colour, dry and difficult to break, and should neither deliquesce, have a salt taste, contain any black or white spots, nor be adulterated with earth or gypsum. Its purity may be tried by diluted sulphuric acid, in which the sub-acetate dissolves entirely, and the impurities remain behind.

Verdigris, as it comes to us, is generally mingled with stalks of the grape; they may be separated, in pulverization, by discontinuing the operation, as soon as what remains seems to be almost entirely composed of them.

Medical use.—Verdigris is seldom or never used internally. Some writers highly extol it as an emetic, and say, that a grain or two act as soon as received into the stomach; but its use has been too often followed by dangerous consequences to allow of its employment. Verdigris, applied externally, proves a gentle detergent and escharotic, and is employed to destroy callous edges, or fungous flesh in wounds. It is also advantageously applied to scorbutic ulcers of the mouth, tongue, or fauces, and deserves to be carefully tried in cancerous sores.

SULPHAS CUPRI, v. s. Cuprum vitriolatum; vitrioleum cœruleum. *Ed.*

SULPHAS CUPRI, v. s. Vitrioleum cœruleum. *Dub.*

SULPHAS CUPRI. *Lond.*

Sulphate of copper. Blue vitriol.

THIS metallic salt is rarely formed by combining directly its component parts; but it is obtained, either by evaporating mineral waters which contain it, or by acidifying native sulphuretted copper, by exposing it to the action of air and moisture, or by burning its sulphur.

When pure it has a deep blue colour, and is crystallized generally in long rhomboids. It effloresces slightly in the air, is soluble in four parts of water at 60°, and in two at 212°, and is insoluble in alcohol. By heat it loses, first its water of crystallization, and afterwards all its acid. It is decomposed by the alkalies and earths, and some of the metals, the alkaline carbonates, borates, and phosphates, and some metallic salts.

It is composed of,

Copper,	24	42 hydro-oxide of copper.
Oxygen,	8	
Water,	10	
		33 sulphuric acid.
		25 water of crystallization.
		100

Medical use.—The sulphate of copper has a strong, styptic, metallic taste, and is chiefly used externally as an escharotic for destroying warts, callous edges, and fungous excrescences, as a stimulant application to ill-conditioned ulcers, and as a styptic to bleeding surfaces. Taken internally, it operates, in very small doses, as a very powerful emetic. It has, however, been exhibited in incipient phthisis pulmonalis, intermittent fever, and epilepsy; but its use is not free from danger.

DAPHNE MEZEREUM. *Ed. Lond. Dub.*

Willd. *g.* 773, *sp.* 1. Smith, *Flor. Brit. g.* 194, *sp.* 1. *Octandria Monogynia.*—Nat. ord. *Vepreculæ.*

Mezereon, spurge olive.

Off.—The bark of the root.

CORTEX DAPHNES MEZEREI. Ex radice. *Ed.*

CORTEX MEZEREI. Radicis cortex. *Lond. Dub.*

MEZEREON is a shrub which grows in woody situations in the northern parts of Europe, and is cultivated in our gardens as a flowering shrub. The bark, which is taken from the trunk, larger branches, and root, is thin, striped, reddish, commonly covered with a brown cuticle, has no smell, and when chewed, excites an insupportable sensation of burning in the mouth and throat. When applied to the skin in its recent state, or infused in vinegar, it raises blisters. Its acrid principle is said by M. Lartique of Bourdeaux to be soluble in ether.

Medical use.—The root was long used in the Lisbon diet-drink, for venereal complaints, particularly nodes, and other symptoms resisting the use of mercury. The bark of the root contains most acrimony, though some prefer the woody part. Mezereon has also been used with good effects in tumours and cutaneous eruptions not venereal.

Dr Cullen says that it acts upon the urine, sometimes giving it a filamentous appearance, and upon the perspiration, without diminishing the strength remarkably; and that in irritable habits it quickens the pulse, and increases the heat of the whole body. But Mr Pearson of the Lock Hos-

pital asserts, that excepting a case or two of lepra, in which a decoction of this plant conferred temporary benefit, he very seldom found it possessed of medical virtues, either in syphilis, or in the sequelæ of that disease. In scrofula, or in cutaneous affections, it is employed chiefly under the form of decoction; but it has also been used in powder; and as it is apt to occasion vomiting and purging, it must be begun in grain doses, and gradually increased. It is often combined with mercury.

The berries are still more acrid than the bark, and they have even been known to produce fatal effects on children, who have been tempted by their beauty to eat them. It is said that they are sometimes infused in vinegar, to make it more pungent and appear stronger.

DATURA STRAMONIUM. *Ed. Dub.*

Willd. *g.* 377, *sp.* 1. Smith, *Flor. Brit. g.* 98, *sp.* 1. *Pentandria Monogynia.*—Nat. ord. *Solanaceæ.*

Thorn-apple. James-town weed.

Off.—The plant.

HERBA DATURÆ STRAMONII. *Ed.*

HERBA STRAMONII. *Dub.*

THE thorn-apple is an annual plant, a native of America, which gradually diffused itself from the south to the north, and now even grows wild on dry hills and uncultivated places in England, and other parts of Europe. The leaves are dark green, sessile, large egg-shaped, pointed, angular, and deeply indented, of a disagreeable smell and nauseous taste. Every part of the plant is a strong narcotic poison, producing vertigo, torpor, death. Crystals of nitrate of potass shoot in the extract, as prepared by Stoerk, when it has been kept several months. Dr Barton mentions the cases of two British soldiers, who ate it by mistake, for the Chenopodium album: one became furious, and ran about like a madman, and the other died, with the symptoms of genuine tetanus. The best antidote to its effects is said to be vinegar.

Medical use.—Dr Stoerk first tried it as a remedy in mania and melancholy, with considerable success. Several cases of the same diseases were also cured or relieved by it, under the direction of different Swedish physicians. It has also been employed, and sometimes with advantage, in convulsive and epileptic affections. Dr Barton considers it to be a medicine of great efficacy. He gives it in powder, beginning with doses of a few grains, and increasing them, in some days, to 15 or 20. In a case, in which it was exhibited to the extent of 30 grains, it dilated the pupil of one eye, and

produced paralysis of the eye-lids, which was removed by a blister. Hufeland gave it in the form of a tincture, prepared of two ounces of the seeds in four ounces of wine, and one of diluted alcohol, in diseases of the mind. The inspissated juice of the leaves has been most commonly used; but its exhibition requires the greatest caution. At first, a quarter of a grain is a sufficient dose. An ointment prepared from the leaves has been said to give ease in external inflammations and hæmorrhoids. And the bruised leaves, according to Plenk, soften hard and inflamed tumours, and discuss tumours in the breasts of nurses, from indurated milk.

The smoke of the stramonium has been much extolled for the cure of asthma. Its use in this manner has been derived from the East Indies, where, however, other species of *datura*, the *fatuosa* and *ferox*, are employed. Dr Anderson of Madras recommended these to General Gent, who made the practice known in Britain, where the stramonium seems first to have been substituted by Mr Sills. This gentleman received so much benefit from inhaling its smoke, that he published his case in the Monthly Magazine, and recommended it very freely. According to all those who have employed it, it is the root only and lower part of the stem which is to be used. These are to be dried as quickly as possible, cut into slips, and beat so as to divide the fibres. The manner of using them is by filling the bowl of a tobacco-pipe, as with tobacco, and inhaling the smoke. The saliva excited is directed to be swallowed, but its safety I should think doubtful. Used in this way, it is however said to excite a sense of heat in the chest, followed by copious expectoration, and sometimes attended with temporary vertigo or drowsiness, and rarely nausea. It frequently gives relief when a pipe is thus smoked upon a paroxysm being threatened, or even after its commencement: the patient falls asleep, and awakes recovered from the paroxysm. In some cases, a perfect cure is effected, but more commonly the relief is only temporary. It seems however valuable as a palliative, and the direct application of the remedy to the seat of the disease is rational at least. I need scarcely caution my readers against the quack preparations said to contain stramonium.

Dr Marcet of London has published a very valuable paper on the use of stramonium, in Medic. Chirurg. Trans. vol. vii. p. 551. He used it in the form of extract, and as its activity and utility, as indeed is the case with all extracts, depend entirely on its proper preparation, I shall detail the process as described by Mr Hudson of the Hay-Market.

" One pound of the *Seeds* of Stramonium, after being well bruised, are boiled with three gallons of water down to one gallon. The decoction is strained, and the seeds are again boiled, with one gallon more of water, to two quarts. This second decoction is strained, and being mixed with the former, the whole is allowed to stand for twelve hours. The liquor is then drawn off, free from fecula and oil, and evaporated to a proper consistence, the latter part of the evaporation being performed in a water-bath. A considerable portion of oil is separated from the seeds by boiling, which is troublesome in the extract, if allowed to remain, and does not appear to add in any degree to its effect.

" The quantity of extract, yielded by one pound of seeds, is from one ounce and a half to two ounces, being liable to some variation from the state and quality of the seeds.

" An analogous extract is obtained by a process exactly similar, by substituting the *whole plant* cut into small pieces, instead of the seeds; but in this case none of the oily matter above-mentioned appears. The proportion of extract, when prepared from the whole plant, has not been ascertained."

Dr Marcet adds, " that from the few comparative trials I have made of the two kinds of preparations, the extract obtained from the seeds has appeared to me considerably more active than that prepared from the whole plant; and the impression made upon my mind from these trials is, that the extract from the seeds is more certain in its effects than the other, and that one part of the former is at least equal in power to two parts of the latter. But though the one appears to be so much stronger than the other, I am not able to point out any other difference between the two preparations."

Dr Marcet states the result of his experience in the following sentences: " I do not by any means pretend to have yet acquired a competent knowledge of the properties of this medicine; but if I were called upon to express, in a few words, the general opinion which I feel inclined to form from the opportunities I have had of studying them, I should say that the most common effect of stramonium, when administered in appropriate doses *, in cases of chronic disease, attended with acute pain, is to lessen powerfully, and almost immediately, sensibility and pain; to occasion a sort of nervous shock, which is frequently attended with a momentary affection of the head and eyes, with a degree of nausea, and with phænomena resembling those that are produced by intoxication; to excite in many instances nervous sensations, which are re-

* I mean from $\frac{1}{4}$th to 1 grain, a dose which should not be exceeded till its effects have been ascertained.

ferred to the œsophagus, or bronchia, or fauces, and which sometimes amount to a sense of suffocation; to have rather a relaxing than an astringent effect upon the bowels; to have no marked influence upon the frequency of the pulse, though in a few instances it has appeared to render it somewhat slower; to produce but a transitory and inconsiderable dilatation of the iris and pupil; and to have but little immediate tendency to induce sleep, except from the state of comparative serenity and ease, which generally follows the symptoms I have just described." Its use was first suggested to Dr Marcet by the son of Mr Norwood of Ashford, as used by his father.

DAUCUS CAROTA. *Ed. Lond. Dub.*
Willd. *g.* 530, *sp.* 1. Smith, *g.* 128, *sp.* 1. *Pentandria Digynia.*—Nat. ord. *Umbellatæ.*
Carrot.

Off.—The seeds of the wild, and root of the garden carrot.
a) DAUCI SYLVESTRIS SEMINA. *Dub.*
DAUCI (AGRESTIS) SEMINA. *Lond.*
b) DAUCI (HORTENSIS) RADIX. *Lond.*
DAUCI CAROTÆ RADIX. *Ed.*

THIS is a biennial plant, which grows wild in Britain, and is cultivated in great quantities as an article of food. The seeds, especially of the wild variety, have a moderately warm pungent taste and an agreeable aromatic smell. They are carminative, and are said to be diuretic. The roots, especially of the cultivated variety, contain much mucilaginous and saccharine matter, and are therefore highly nutritious and emollient. When beaten to a pulp, they form an excellent application to carcinomatous and ill-conditioned ulcers, allaying the pain, checking the suppuration and fetid smell, and softening the callous edges.

DELPHINIUM STAPHISAGRIA. *Lond. Dub.*
Willd. *g.* 1061, *sp.* 13. *Polyandria Trigynia.*—Nat. ord. *Multisiliquæ.*
Stavesacre.

Off.—The seed.
SEMINA STAPHISAGRIÆ. *Lond. Dub.*
DELPHINII STAPHISAGRIÆ SEMINA. *Ed.*

STAVESACRE is a biennial plant, a native of the south of Europe. The seeds are usually brought from Italy. They are large and rough, of an irregular triangular figure, of a blackish colour on the outside, and yellowish or whitish within; they have a disagreeable smell, and a very nauseous, bitterish burning taste.

Neumann got from 480 parts, 45 alcoholic extract, besides 90 of fixed oil, which separated during the process, and afterwards 44 insipid watery, and inversely, 95 watery, and then by alcohol only one, besides 71 of oil.

Med. use.—Stavesacre was employed by the ancients as a cathartic; but it operates with so much violence, both upwards and downwards, that its internal use has been for some time almost laid aside. It is chiefly employed in external applications for some kinds of cutaneous eruptions, and for destroying lice and other insects; insomuch, that from this virtue it has received its name in different languages.

DIANTHUS CARYOPHILLUS. *Ed. Dub.*

Willd. *g.* 893, *sp.* 9. Smith, *g.* 209, *sp.* 3. *Decandria Digynia.*—Nat. ord. *Caryophyllæ.*

Clove Gillyflower. Clove pink, or carnation.

Off.—The flowers.

FLORES DIANTHI CARYOPHYLLI. *Ed.*

FLORES RUBRI CARYOPHYLLI. *Dub.*

THIS species of dianthus is perennial, and is a native of Italy, though now found wild on the walls of old castles in England. By cultivation, its varieties have increased to a very great number, and they form one of the greatest ornaments of our gardens. Most of these are termed Carnations; but the variety which is officinal surpasses all the others in the richness of its smell. It is also distinguished by being of an uniform deep crimson colour, and having the edges of its petals entire, not crenated as the others. It is now scarcely, if at all, to be found in Scotland; and, instead of it, the crimson carnations are commonly used to give the colour to the syrup, while for its flavour it is indebted to the spice clove. Their only use in pharmacy is to give a pleasant flavour and beautiful colour to an officinal syrup.

DIGITALIS PURPUREA. *Ed. Lond. Dub.*

Willd. *g.* 1155, *sp.* 1. *Didynamia Angiospermia.*—Nat. ord. *Solanaceæ.*

Foxglove.

Off.—The leaves.

DIGITALIS PURPUREÆ FOLIA. *Ed.*

DIGITALIS FOLIA. *Lond. Dub.*

THIS is an indigenous biennial plant, very common on hedge-banks, and sides of hills, in dry, gravelly, or sandy soils, and the beauty of its appearance has gained it a place in our gardens and shrubberies. The leaves are large, oblong, egg-shaped, soft, covered with hairs, and serrated.

They have a bitter, very nauseous taste, with some acrimony. Destouches analysed foxglove. Four ounces of the dried leaves yielded successively 9 drachms of watery, and 78 grains of alcoholic extract. The first was brown, smooth, and of a consistence fit for making pills. The second had a very deep green colour, a virose and disagreeeble smell, the consistence of tallow, but more tenacious; did not furnish ammonia by distillation, and was not acted upon by acids. The ashes contained salts of lime and potass.

Med. use.—Its effects, when taken into the stomach, are,

1. To diminish the frequency of the pulse.
2. To diminish the irritability of the system.
3. To increase the action of the absorbents.
4. To increase the discharge by urine.

In excessive doses, it produces vomiting, purging, dimness of sight, vertigo, delirium, hiccough, convulsions, collapse, death. For these symptoms, the best remedies are cordials and stimulants.

Internally, digitalis has been recommended,

1. In inflammatory diseases, from its very remarkable power of diminishing the velocity of the circulation.
2. In active hæmorrhagies; in phthisis.
3. In some spasmodic affections, as in spasmodic asthma, palpitation, &c.
4. In mania from effusion on the brain.
5. In anasarcous and dropsical effusions.
6. In scrofulous tumours.
7. In aneurism of the aorta, and palpitation, I have seen it alleviate the most distressing symptoms.

Externally, it has been applied to scrofulous tumours.

It may be exhibited,

1. In substance, either by itself, or conjoined with some aromatic, or made into pills, with soap or gum ammoniac. Withering directs the leaves to be gathered after the flowering stem has shot up, and about the time when the blossoms are coming forth. He rejects the leaf-stalk, and middle rib of the leaves, and dries the remaining part, either in the sunshine, or before the fire. In this state, they are easily reduced to a beautiful green powder, of which we may give, at first, one grain twice a-day, and gradually increase the dose until it act upon the kidneys, stomach, pulse, or bowels, when its use must be laid aside, or suspended.
2. In infusion. The same author directs a drachm of the dried leaves to be infused for four hours in eight ounces of boiling water, and an ounce of any spiritous water to be add-

ed to the strained liquor, for its preservation. Half an ounce, or an ounce of this infusion, may be given twice a-day.

3. In decoction. Darwin directs that four ounces of the fresh leaves be boiled in two pounds of water, until they be reduced to one, and that half an ounce of the strained decoction be taken every two hours, for four or more doses.

4. In tincture. Put one ounce of the dried leaves, coarsely powdered, into four ounces of diluted alcohol; let the mixture stand by the fire-side twenty-four hours, frequently shaking the bottle; and the saturated tincture, as Darwin calls it, must then be separated from the residuum, by straining or decantation. Twenty drops of this tincture may be taken twice or thrice a-day. The Edinburgh college use eight ounces of diluted alcohol to one of the powder, but let it digest seven days.

5. The expressed juice and extract are not proper forms of exhibiting this very active remedy.

When the digitalis is disposed to excite looseness, opium may be advantageously conjoined with it; and when the bowels are tardy, jalap may be given at the same time, without interfering with its diuretic effects. During its operation in this way, the patient should drink very freely. Two cases of phthisis are related by Dr Gregg, in which it produced a copious ptyalism.

DOLICHOS PRURIENS. *Ed. Lond. Dub.*

Willd. *g.* 1349, *sp.* 16. *Diadelphia Decandria.*—Nat. ord. *Papilionaceæ.*

Cow-itch.

Officinal.—The stiff hairs which cover the pods.

PUBES DOLICHI PRURIENTIS, ex legumine. *Ed.*

PUBES DOLICHI. *Lond.*

SETÆ LEGUMINUM DOLICHI. *Dub.*

THE dolichos is a climbing plant, resembling our common scarlet runner, growing in great abundance in warm climates, particularly in the West Indies. The pods are about four inches long, round, and as thick as a man's finger. On the outside they are thickly beset with stiff brown hairs, which, when applied to the skin, occasion a most intolerable itching. In the choice of cow-itch, we must reject all those pods which are shrivelled, brown, and diminutive in size, have lain long in damp warehouses, and are musty, or of a bad colour.

Med. use.—The ripe pods are dipped in syrup, which is again scraped off with a knife. When the syrup is rendered by the hairs as thick as honey, it is fit for use. It acts mechanically as an anthelmintic, occasions no uneasiness in the

primæ viæ, and may be safely taken, from a tea-spoonful to a table-spoonful in the morning, fasting. The worms are said to appear with the second or third dose; and by means of a purge, in some cases the stools have consisted entirely of worms. For further information, the publications of Mr Chamberlayne may be consulted.

DORSTENIA CONTRAJERVA. *Ed. Lond.*

Willd. *g.* 244, *sp.* 5. *Tetandria Monogynia.*—Nat. ord. *Scabridæ.*

Contrayerva.

Officinal—The root.

RADIX DORSTENIÆ CONTRAJERVÆ. *Ed.*

RADIX CONTRAJERVÆ. *Lond.*

THIS plant is perennial, and grows in South America, and some of the Caribæan islands.

The root is knotty, an inch or two long, and about half an inch thick, of a reddish brown colour externally, and pale within: long, rough, slender fibres shoot out from all sides of it, and are generally loaded with small brown knots. It has a peculiar kind of aromatic smell, and a somewhat astringent, warm, bitterish taste, with a light and sweetish kind of acrimony, when long chewed: the fibres have little taste or smell; the tuberous part, therefore, should be alone chosen.

This root contains so much mucilage, that a decoction of it will not pass through the filter. Neumann got from 480 parts, 190 watery extract, and afterwards 7 alcoholic, and inversely, 102 alcoholic, and 60 watery. I find that the tincture reddens infusion of litmus, is precipitated by water, and has no effect on the salts of iron.

Medical use.—Contrayerva is a gentle stimulant and a diaphoretic, and is sometimes given in exanthematous diseases, typhus, and dysentery. Its dose is about half a drachm.

ERYNGIUM MARITIMUM. *Dub.*

Willd. *g.* 518, *sp.* 6. Smith, *g.* 121, *sp.* 1. *Pentandria Monogynia.*—Nat. ord. *Umbellatæ.*

Sea-eryngo. Sea-holly.

Officinal.—The root.

RADIX ERYNGII. *Dub.*

THIS plant grows plentifully on some of our sandy and gravelly shores. It is perennial, and flowers in July and August. The roots are slender and very long; of a pleasant sweetish taste, which, on chewing them for some time, is followed by a light degree of aromatic warmth and acrimony. They are accounted aperient and diuretic, and have also been celebra-

ted as aphrodisiac; their virtues, however, are too weak to admit them under the head of medicines.

EUGENIA CARYOPHYLLATA. *Dub. Lond.*
Willd. g. 972, *sp.* 24. *Icosandria Monogynia.*—Nat. ord. *Hesperideæ.*
The clove tree.

Officinal.—The calyx, flower-bud and its essential oil.
a) FLORES EUGENIÆ CARYOPHYLLATÆ. Flores nondum expliciti. *Ed.*
CARYOPHYLLI. Flores nondum expliciti siccati. *Lond.*
CALYX CARYOPHYLLI AROMATICÆ. *Dub.*
b) OLEUM VOLATILE EUGENIÆ CARYOPHYLLATÆ. Ex floribus nondum explicitis. *Ed.*
OLEUM CARYOPHYLLORUM. Eorum oleum essentiale. *Lond.*
OLEUM ESSENTIALE CARYOPHYLLI AROMATICÆ. *Dub.*

THIS is a beautiful tall tree, a native of the Molucca islands. The Dutch, from a desire of monopolizing the valuable spice produced by it, destroyed all the trees except in Amboyna, where it is carefully cultivated. But their scheme has been frustrated, and the clove is now thriving in the isle of France and other places. Every part of this tree is highly aromatic, especially the leaf-stalk. Cloves are the flower-buds, which are gathered in October and November, before they open, and when they are still green, and are dried in the sun, after having been exposed to smoke for some days.

Cloves have somewhat the form of a nail, consisting of a globular head, formed of the four petals of the corolla, and four leaves of the calyx not yet expanded; (but this part is often wanting, being easily broken off,) and a germen situated below, nearly cylindrical, but somewhat narrower towards the bottom, scarcely an inch in length, and covered with another thicker calyx, divided above into four parts. Their colour should be of a deep brown, their smell strong, peculiar, and grateful; their taste acrid, aromatic, and permanent. The best cloves are also large, heavy, brittle, and when pressed with the nail, exude a little oil. When light, soft, wrinkled, dirty, pale, and without smell or taste, they are to be rejected.

The Dutch, from whom we had this spice, frequently mixed it with cloves from which the oil has been distilled, and the fraud may be continued. These, though in time they regain from the others a considerable share both of taste and smell, are easily distinguishable by their weaker flavour and lighter colour.

Cloves yield by distillation with water about one-seventh of their weight of volatile oil; 960 parts also gave to Neumann 380 of a nauseous, somewhat astringent, watery extract. The same quantity gave only 300 of excessively fiery alcoholic extract. When the alcoholic extract is freed from the volatile oil by distillation with water, the oil that arises proves mild, and the resin that remains insipid. Its pungency therefore seems to depend on the combination of these principles. The Dutch oil of cloves is extremely hot and fiery, and of a reddish brown colour, but it is greatly adulterated, both with fixed oils and resin of cloves; for the genuine oil, when recently distilled, is comparatively quite mild and colourless, although it gradually acquires a yellow colour. It is heavier than water, and rises in distillation with some difficulty, so that it is proper to use a very low-headed still, and to return the distilled water several times upon the residuum.

Vauquelin obtained from the leaves of the *Agathophyllum ravensara* an essential oil absolutely the same with oil of cloves in respect to colour, taste, smell, and gravity, being heavier than water. It was only somewhat less limpid, owing, probably, to the leaves having been long kept, and the oil in consequence resinified.

Medical use.—Cloves, considered as a medicine, are very hot stimulating aromatics, and possess in an eminent degree the general virtues of substances of this class.

EUPHORBIA OFFICINARUM. *Lond.*

Willd. *g.* 959, *sp.* 7. *Dodecandria Trigynia.*—Nat. ord. *Tricoccæ.*

Officinal euphorbia.

Officinal—The gum-resin.

GUMMI RESINA EUPHORBIÆ. *Lond.*

THE London College have restored this drastic and corrosive substance to their list of officinals. It is produced from several species of the African genus Euphorbia; such as the *E. officinarum* of the Cape of Good Hope, the *E. antiquorum* which grows in Egypt, Arabia, and the East Indies, and which is said to have furnished the Euphorbium of the ancients, and the *E. Canariensis*. Mr Jackson, in his account of Morocco, has described it, but unfortunately not in the language of science. *Furbiune*, he says, is the Arabic name of this gum, which is produced by a very curious succulent plant, growing on the Atlas mountains, and called by the Shellahs and Arabs *Dergmuse*. From the main body of the plant, proceed several solid leafless branches, about three inches in circumference and one in diameter, from the top of which shoot out smaller

ones, each bearing on its summit a vivid crimson flower; these branches are scolloped, and have on their outer side small knots, from which grow five extremely sharp-pointed thorns, about one-third of an inch in length. The stalk is at first soft and succulent, but becomes hard in a few years, when the plant assumes the above-mentioned form, and may then be considered as at its maturity. The inhabitants of the lower regions of Atlas make incisions in the branches of the plant with a knife, from which a corrosive lacteous juice issues, which, after being heated by the sun, becomes a substance of a whitish yellow colour, and in the month of September drops off, and forms the gum Euphorbium. The plants produce abundantly only once in four years; but this fourth year's produce is more than all Europe can consume; for, being a very powerful cathartic, it is there little used. The people who collect the gum are obliged to tie a cloth over their mouth and nostrils, to prevent the small dusty particles from annoying them, as they produce incessant sneezing. The branches are used in the tanning of Morocco leather, and it is in great request among the women as a *depilatory*.

The gum is brought to us immediately from Barbary, in drops of an irregular form; some of which, on being broken, are found to contain little thorns, small twigs, flowers, and other vegetable matters; others are hollow, without any thing in their cavity; the tears, in general, are of a pale yellow colour externally, but somewhat white within: they break easily between the fingers. Braconnot has analysed euphorbium. He got from 100 parts, 37 of resin, 19 of wax, 20.5 of malate of lime, 2 of malate of potass, 13.5 of woody matter, 5 of water, and there was 3 of loss. Euphorbium is extremely troublesome to pulverize; the finer part of the powder, which flies off, affecting the head in a violent manner. The acrimony of this substance is so great, as to render it unfit for internal use: It burns with an agreeable smell and a bright flame.—When applied to the tongue, it seems at first to have no taste, but on being held some time in the mouth, it excites a very violent biting and burning; which lasts a long time, and cannot be abated by washing out the mouth.

FERRUM. *Lond. Dub. Ed.*
Iron.

THIS is the most common of all metals. It seems even to be a constituent of organic substances, and is the only metal which, when taken into the body, exerts no deleterious action upon it. The numerous ores of iron which are found in every part of the globe may be reduced to the following genera.

1. Native iron. Immense isolated masses of this have been found in Siberia and in South America. Their origin is still perfectly problematical.
2. Carburetted iron. Plumbago.
3. Sulphuretted iron. Pyrites.
4. Oxidized iron.
   a Protoxide. Magnetic iron ore; colour black or grey.
   b. Peroxide. Not magnetic; colour red or brown.
   c. Carbonated.
   d. Arseniated.
   e. Tungstated.

The properties of iron, when obtained from any of these ores by the usual processes of fusion, &c. have been already described. As its mechanical division is extremely difficult, it is directed to be kept in the shops in the state of filings or wire, and the scales of black oxide, which are found around the smith's anvil. Soft malleable iron is the only kind fit for internal use, as steel and cast-iron always contain impurities, and often arsenic.

Iron is prescribed,

I. In its metallic state.

a. Limatura ferri. *Ed.*
——— purificata. *Ed.*
Ramenta ferri. *Lond.*
Scobs ferri. *Dub.*
b. Fila ferri. *Lond. Ed.*

II. Oxidized.

1. Protoxide,
   a. Oxidum ferri nigrum. *Ed.*
   Squamæ oxydi ferri. *Dub.*
   b. Oxidum ferri nigrum purificatum. *Ed.*
   Oxydum ferri nigrum. *Dub.*
2. Peroxide,
   Oxidum ferri rubrum. *Ed. Dub.*
3. Sulphuretted,
   Sulphuretum ferri. *Ed.*
4. Supercarbonated; as in the chalybeate mineral waters.
5. Carbonated,
   a. Subcarbonas ferri præparatus. *Ed.*
   Rubigo ferri. *Dub.*
   b. Carbonas ferri præcipitatus. *Ed.*
   Carbonas ferri. *Lond. Dub.*
6. Sulphated,
   Sulphas ferri. *Ed. Lond. Dub.*

7. Subsulphated,
   Sulphas ferri exsiccatus. *Ed. Dub.*
8. Muriated,
   a. Tinctura muriatis ferri. *Ed. Lond. Dub.*
   b. Tinctura muriatis ferri cum oxydo rubro. *Dub.*
9. With muriate of ammonia,
   Murias ammoniæ et ferri. *Ed. Dub.*
   Ferrum ammoniatum. *Lond.*
   Tinctura ferri ammoniati. *Lond.*
10. With nitrate of potass,
    Liquor ferri alkalini. *Lond.*
11. Acetated,
    Acetas ferri. *Dub.*
    Tinctura acetatis ferri. *Dub.*
    Tinctura acetatis ferri cum alcohol. *Dub.*
12. With tartrate of potass,
    Ferrum tartarizatum. *Lond.*
    Tartras potassae et ferri. *Ed.*
    Tartarum ferri. *Dub.*
    Vinum ferri. *Dub.*

FERRUM, s. s. Ferri ramenta et fila. *Lond.*
FILA FERRI. *Ed.*
LIMATURA FERRI. *Ed.*
SCOBS FERRI. *Dub.*
Iron. Iron-filings. Iron-wire.

Medical use.—The general virtues of this metal, and the several preparations of it, are, to constringe the fibres, to quicken the circulation, to promote the different secretions in the remoter parts, and at the same time to repress inordinate discharges in the intestinal tube. By the use of chalybeates, the pulse is very sensibly raised; the colour of the face, though before pale, changes to a florid red; the alvine, urinary, and cuticular excretions, are increased. Fetid eructations, and black coloured fæces, are marks of their taking due effect.

When given improperly, or to excess, iron produces headach and anxiety, heats the body, and often causes hæmorrhagies, or even vomiting, pains in the stomach, and spasms and pains of the bowels.

Iron is given in most cases of debility and relaxation.

1. In passive hæmorrhagies.
2. In dyspepsia, hysteria, and chlorosis.
3. In most of the cachexiæ, and it has been lately recommended as a specific in cancer.
4. In general debility produced by disease, or excessive hæmorrhage.

Where either a preternatural discharge, or suppression of natural secretions, proceeds from a langour and sluggishness of the fluids, and weakness of the solids, this metal, by increasing the motion of the former, and the strength of the latter, will suppress the flux, or remove the suppression; but where the circulation is already too quick, the solids too tense and rigid, where there is any stricture or spasmodic contraction of the vessels, iron and all its preparations will aggravate both distempers.

Iron probably has no action on the body when taken into the stomach, unless it be oxidized. But during its oxidizement, hydrogen gas is evolved; and, accordingly, we find that fetid eructations are considered as a proof of the medicine having taken effect. It can only be exhibited internally in the state of filings, which may be given in doses of from five to twenty grains, either in the form of powder, with some aromatic, or made into an electuary or bolus or pills with any bitter extract. Iron-wire is to be preferred for pharmaceutical preparations, both because it is the most convenient form, and because it is always made of the purest iron.

NIGRUM OXIDUM FERRI. *Ed.*
OXYDI SQUAMÆ FERRI. *Dub.*
The scales of iron. The scales of the oxide.

WHEN iron is heated to redness in the smith's forge, to render it more malleable, its surface becomes oxidized by the action of the atmospheric air; and as the oxide formed does not adhere to the iron, it is easily separated by percussion on the anvil, and flies off in the state of sparks, which, when cool, constitute the scales of iron. In these the iron is oxidized to that degree in which it is soluble in acids, without the production of hydrogen gas; therefore, when taken into the stomach, they do not produce the distention and flatulence occasioned by the use of the filings.

SULPHAS FERRI. *Dub. Ed. Lond.*
Sulphate of iron. Green vitriol. Copperas.

THE sulphate of iron of commerce is commonly obtained by the spontaneous oxidizement of sulphuretted iron, and subsequent lixiviation and crystallization. It is never pure, and often contains zinc or copper. The copper may be separated by adding some metallic iron to the solution; but we have no means of separating the zinc; therefore, in order to obtain it in a state of purity, we must prepare it by dissolving iron in diluted sulphuric acid. Its crystals are transparent rhomboidal prisms, of a fine green colour. They are soluble in two

parts of cold, and in less than their own weight of boiling water. They are insoluble in alcohol.

They are composed of

Black oxide of iron,	28	36	Green hydro-oxide of iron.
Water of composition	8	26	Sulphuric acid.
		38	Water of crystallization.
		100	

Green sulphate of iron is decomposed by all the earths and alkalies, and by those salts whose base forms an insoluble compound with sulphuric acid. It is also decomposed by exposure to the air, especially when in solution, and by all substances which part readily with their oxygen. The oxide of iron absorbs oxygen, and passes to the state of red oxyde, which forms a red sulphate, possessing properties very different from those of the green sulphate.

Taken internally, the green sulphate is apt to excite pain in the stomach, and spasms in the bowels; and in large doses it causes vomiting. In small doses, however, of from one to three grains, it is sometimes given as a tonic, astringent, or anthelmintic.

FERULA ASSAFŒTIDA. *Ed. Lond. Dub.*

Willd. *g.* 539, *sp.* 11.—*Pentandria Digynia.*—Nat. ord. *Umbellatæ.*

Assa fœtida.

Officinal—The gum-resin.

GUMMI RESINA FERULÆ ASSÆ FŒTIDÆ. *Ed.*

GUMMI RESINA ASSAFŒTIDÆ. *Lond.*

ASSAFŒTIDA. *Dub.*

THE plant which furnishes assa fœtida is perennial, and a native of the south of Persia. The gum-resin is procured from the roots of plants which are at least four years old. When the leaves begin to decay, the stalk is twisted off, and the earth removed from about their large tapering roots. The top of the root is some time afterwards cut off transversely; and in forty-eight hours, the juice which has exuded is scraped off, and a second transverse section is made. This operation is repeated until the root be entirely exhausted of juice. After being scraped off, the juice is exposed to the sun to harden.

It is brought to us in large irregular masses, composed of

various little shining lumps or grains, which are partly of a whitish colour, partly reddish, and partly of a violet hue. Those masses are accounted the best which are clear, of a pale reddish colour, and variegated with a great number of elegant white tears.

This drug has a strong fetid smell, somewhat like that of garlic; and a bitter, acrid, biting taste. It loses some of its smell and strength by keeping, a circumstance to be particularly regarded in its exhibition.

Neumann got from 1920 parts 1350 alcoholic extract and afterwards 190 watery; and inversely, 550 watery, and also 60 grains of volatile oil, in which the smell resides entirely. Tromsdorff got from four ounces 33 grains of volatile oil, lighter than water, 20 of heavy oil, 7 drachms 12 grains of bright brown resin, and 2 ounces 4 drachms of brown bitter extract of a nauseous and slightly alliaceous taste, which rises in distillation both with alcohol and water.

The seeds of a congenerous species growing in the north of Persia, the *Ferula Persica*, sent by Dr Guthrie of St Petersburgh to Dr Hope, vegetated and even produced fertile seeds at Edinburgh.

Medical use.—It is the most powerful of all the fetid gums, and is a most valuable remedy. It acts as a stimulant, antispasmodic, expectorant, emmenagogue, and anthelmintic. Its action is quick and penetrating.

It is often serviceable,

1. In spasmodic croup.
2. In dyspepsia, amenorrhœa, and chlorosis.
3. In asthma, dyspnœa, and hysteria.
4. In tympanites and worms.

It is exhibited,

1. In substance, in the form of pills; in doses of from five to twenty grains, either alone, or combined with bitter extracts or purgatives.
2. Dissolved in some simple distilled water.
3. Dissolved in alcohol.
4. In the form of clyster, to the extent of about two drachms.

FICUS CARICA. *Ed. Lond. Dub.*

Willd. *g.* 1931, *sp.* 1. *Polygamia Diœcia.*—Nat. ord. *Scabridæ.*

The fig-tree.

Off.—The preserved fruit.

FRUCTUS FICUS CARICÆ. Fructus siccatus. *Ed.*

FRUCTUS CARICÆ. *Dub.* Fructus conditus. *Lond.*

This tree is probably a native of Asia, but grows plentifully in the south of Europe. The fresh fruit is very pulpy, but when dried is easily preserved without any other preparation, which the explanation of the London College, *conditus*, would imply. To this country figs are chiefly brought from the Levant. They consist almost entirely of sugar and mucilage, and are therefore demulcent. They also form a very convenient suppurating cataplasm, either roasted or boiled, and applied as hot as can be borne to parts where other cataplasms cannot easily be kept applied.

Fucus vesiculosus. *Lond. Dub.*
Murray, *g.* 1205, *sp.* 8.—Nat. ord. *Algæ.*
Off.—Yellow bladder wrack.
Fucus. *Lond.*
Quercus marina, herba fructibus præsentibus. *Dub.*

This is one of the most common sea-weeds found on our shores. Its value in the manufacture of kelp is well known. In medicine it is little used; though Dr Russel recommended the mucus of the vesicles as a resolvant, when applied externally to scrofulous swellings. The charcoal obtained by burning it in close vessels has in some places got the name of Æthiops vegetabilis. It is to be considered as a compound of charcoal and carbonate of soda.

Galla, ex variis quercus speciebus. *Ed.*
Gallæ, Cynipidum nidi. *Dub.*
Galla, Cynipis quercusfolii nidus. *Lond.*
Nutgalls, the nest of the cynips quercusfolii.

Olivier has, in his travels in the Ottoman Empire, given us an accurate botanical description of the oak which produces the nut-gall, and which, he says, was till then unknown to botanists. He calls it *Quercus infectoria*, and characterizes it *foliis ovato oblongis, sinuato dentatis, glaberrimis, deciduis; fructibus sessilibus, longissimis.* It is scattered through all Asia Minor, from the Bosphorus to Syria, and from the shore of the Archipelago to the frontiers of Persia. It has a crooked stem, and seldom reaches the height of six feet. It oftener has the appearance of a shrub than of a little tree. The gall-nuts come at the shoots of the young boughs, and are produced by the puncture of *diplolepsis gallæ tinctoriæ* to deposite an egg. They acquire from four to twelve lines in diameter, and are generally round and covered with tuberosities. They are in perfection when they have acquired their full size and weight, but before the insect has pierced them, after which

they get a brighter colour, and lose some of their weight. The harvest takes place about the middle of *Messidor*. The galls first picked are laid apart, and are known under the name of *Yorli*, and in commerce are called *Black* and *Green* galls. Those gathered later are called *White* galls, and are very inferior in value. In commerce they occur of different sizes, smooth or knotty on the surface, of a whitish, reddish, or blackish colour, and generally penetrated with a small hole. Internally they consist of a spongy, but hard, more or less brown substance, and they have a very rough astringent taste. Good galls are of a blackish-grey, or yellow colour, heavy, and tuberculated on the surface. They are the most powerful astringents we possess; and since the discovery of the tanning principle by Mr Seguin, have very much engaged the attention of chemists. Neumann got from 960 grains of coarsely powdered galls 840 watery extract, and afterwards only 4 alcoholic; and inversely, 760 alcoholic, and 80 watery. But the most minute analysis is that of Sir H. Davy, who found that 500 grains of good Aleppo galls gave, by lixiviating them until their soluble matters were taken up, and evaporating the solution slowly, 185 grains of solid matter, which, when examined by analysis, appeared to consist of,

Tannin, - - -	130
Mucilage, and matter rendered insoluble by evaporation, - - -	12
Gallic acid, and a little extractive matter,	31
Remainder, calcareous earth and saline matter,	12

From my experiments, I am disposed to think that Sir H. Davy has under-rated the tannin of nut-galls; for by simple repeated infusions in hot water, the residuum of 500 grains in one experiment amounted only to 158, and in another only to 136 grains. The quantity of tannin, estimated in Sir H. Davy's way, amounted in the first to 220 grains, and in the second to 256. The great difference in these results from Sir H. Davy's must be entirely ascribed to some differences in the galls themselves, or in the mode of operation. A saturated decoction of galls, on cooling, deposites a copious pale yellow precipitate, which seems to be purer tannin than what can be got by any other process; but it still requires and deserves a more minute examination. In my experiments, a very weak infusion of nut-galls was precipitated by sulphuric acid, lime-water, sub-carbonate of potass, acetate of lead, sulphate of copper, nitrate of silver, sulphate of iron, tartrate of antimony, nitrate of mercury, infusion of officinal cinchona, and solution of gelatine; it was not precipitated by nitrous acid, ammonia, sul-

phate of zinc, muriate of mercury, infusion of quassia, or infusion of saffron. To what principles these precipitates are owing remains still to be ascertained. Vauquelin justly observes, that the infusions of nut-galls and of cinchona agree in precipitating both gelatine and tartrate of antimony, but that they precipitate each other. Another fact equally curious occurred in my experiments: a mutually saturated mixture of the infusions of nut-galls and cinchona still precipitates gelatine; but these infusions, separately saturated by gelatine, do not act on each other. Hence it appears, that the action of these infusions on each other depends on principles contained in each, compatible with the presence of tannin, but re-acting on each other, and that gelatine precipitates these principles along with the tannin. Sir H. Davy has concluded that tannin and gelatine unite in fixed proportions, viz. 46 of tannin with 54 gelatine: were this correct, it would very much facilitate the analysis of astringents, but unfortunately my experiments do not confirm it. A twelve hours' infusion of 500 grains of nut-galls in twelve ounces of water, precipitated successively with equal quantities of solution of gelatine, containing each twenty-four grains, gave precipitates weighing 98, 64, 48, and 36 grains: hence, if we suppose the whole gelatine used to be contained in each precipitate, these consisted of 24 grains of gelatine, and 74, 40, 24, and 12 grains of tannin; so that, from the weight of the precipitate alone, we cannot estimate the tannin. Dr Bostock has drawn the same conclusions from a set of experiments which he made, without any knowledge of mine. It has been generally asserted, that the precipitate of tannin and gelatine is insoluble in water, either cold or hot; but I find that in boiling water it not only becomes soft and viscid, but a certain portion is dissolved, which separates again when the solution cools. I may also remark, that if the precipitate be dried without any heat, it has a yellowish-white appearance, opaque, and without lustre; but if exposed to a very moderate increase of temperature before it be dry, it seems to undergo a kind of fusion, and acquires transparency, a dark brown-red colour, and a resinous lustre; with a higher temperature, even when almost dry, it will become so fluid as to pass through filtering paper. Sir H. Davy discovered that it is soluble in excess of gelatine. It is also extremely soluble in ammonia, forming a red solution.

Medical use.— An infusion or decoction of galls may be used with advantage as an astringent gargle; and an ointment of one part of finely powdered galls to eight of any simple ointment is applied with success in hæmorrhoidal affections.

Gambogia. Gummi resina ex Stalagmitide Cambogioide et quibusdam aliis arboribus. *Ed.*

Gambogia. Gummi resina Stalagmitidis Cambogioidis. *Dub.*

Cambogia. Gummi resina Stalagmitidis Cambogioidis. *Lond.*

Gamboge; a gum-resin obtained from the Stalagmitis Cambogioides and some other trees.

The tree which furnishes the gamboge is of middling size, and grows wild in the kingdom of Siam and in Ceylon. Its systematic reference is, Willd. *g.* 1888, *sp.* 1. *Polygamia Monoecia.*—Nat. ord. *Tricoccæ.* In Siam the gum-resin is obtained in drops by breaking the leaves and young shoots; hence probably its name Gummi-guttæ; but in Ceylon it is extracted from the wood of the tree in the form of a juice, which soon becomes solid. Gamboge, or at least a very similar substance, is also got in the same way from different species of Garcinia, especially the Gambogia, (the Gambogia Gutta of Lin.) Willd. *g.* 938, *sp.* 3. *Dodecandria Monogynia*, and from different species of Hypericum, especially the Bacciferum. It is brought from the East Indies in large cakes or rolls. The best sort has a deep yellow or orange colour, shining fracture, and is free from impurities. It has no smell, and very little taste, unless kept in the mouth for some time, when it impresses a slight sense of acrimony. Neumann got from 16 ounces, 14 of alcoholic extract, and one of watery; and inversely, 13 of watery, and 2 of alcoholic. He also found it almost entirely soluble in water, impregnated with a moderate proportion of fixed alkaline salt. According to my experiments, which confirm these observations, the watery solution is opaque and yellow. With alcohol it forms a transparent solution of a bright golden colour; and the residuum is totally soluble in water. The alcoholic solution is decomposed by water, becoming yellow and opaque; but the precipitate remains long suspended, and cannot be separated by common filtering paper. Ammoniated alcohol dissolves gamboge with similar phenomena. Gamboge is readily soluble in solution of potass, acquiring a bright red colour the moment it is thrown into it, and forming a dark-coloured solution, which is not decomposed by water; but the addition of any acid immediately produces a copious yellow precipitate, very soluble in excess of acid. Gamboge is also dissolved by acids, but at the same time a mutual decomposition takes place. The acid solution is precipitated by water.

Bracconot says it consists of one-fifth of gum, and four-fifths of an acidiferous resin, from which he extracted, by analysis, 22.5 dry muriatic acid, 35 charcoal, 42 gases. This requires to be confirmed.

Medical use.—Gamboge evacuates powerfully both upwards and downwards; some condemn it as acting with too great violence, and occasioning dangerous hypercatharsis; while others are of a contrary opinion. Geoffroy seems particularly fond of this medicine, and informs us, that he has frequently given from two to four grains, without its proving at all emetic; that from four to eight grains both vomit and purge without violence; that its operation is soon over; and that, if given in a liquid form, and sufficiently diluted, it does not need any corrector; that in the form of a bolus or pill it is most apt to prove emetic, but very rarely has this effect if joined along with *calomel*. He nevertheless cautions against its use where the patients cannot easily bear vomiting.

It has been used in dropsy with cream of tartar or jalap, or both, to quicken their operation. It is also recommended by some to the extent of fifteen grains, with an equal quantity of vegetable alkali, in cases of the tape-worm. This dose is ordered in the morning; and if the worm is not expelled in two or three hours, it is repeated even to the third time with safety and efficacy. It is asserted, that it has been given to this extent even in delicate habits.

It is an ingredient, and probably the active one, in most of the nostrums for expelling tæniæ.

GENTIANA LUTEA. *Ed. Lond. Dub.*

Willd. *g.* 512, *sp.* 1. *Pentandria Digynia.*—Nat. ord. *Rotaceæ.*

Gentian.

Off.—The root.

RADIX GENTIANÆ LUTEÆ. *Ed.*

RADIX GENTIANÆ. *Lond. Dub.*

GENTIAN is a perennial plant which grows upon the Alps, Pyrenees, Appennines, and other mountainous situations in the temperate parts of Europe.

The roots are long, thick, externally of a brown colour, and wrinkled: internally spongy, and of a yellow colour, without any remarkable smell, but surpassing in bitterness all other European vegetables. Alcohol dissolves only the bitter extractive, water both the extractive and mucilage.

Neumann got from 960 grains 390 alcoholic, and after-

wards 210 insipid watery extract; and inversely, 540 watery, and only 20 alcoholic.

Medical use.—Gentian possesses the general virtues of bitters in an eminent degree, and it is totally devoid of astringency. On dead animal matter it acts as an antiseptic. Taken into the stomach, it proves a powerful tonic, and in large doses it evacuates the intestines. It is useful in debility of the stomach, in general debility, and in gout. Combined with astringents, it cures intermittents. Externally, it is applied to putrid ulcers.

GEOFFROYA INERMIS. *Dub.* Geoffræa inermis. *Ed.*
Willd. *g.* 1362, *sp.* 3. *Diadelphia Decandria.*—Nat. ord. *Papilionaceæ.*
Cabbage-tree.
Off.—The bark.
CORTEX GEOFFRÆÆ INERMIS. *Ed.*
CORTEX GEOFFRŒÆ. *Dub.*

THE bark of this tree, which grows in the low savannahs of Jamaica, is of a grey colour externally, but black and furrowed on the inside. The powder looks like jalap, but is not so heavy. It has a mucilaginous and sweetish taste, and a disagreeable smell.

Medical use.—Its medical effects are much greater than its sensible qualities would lead us to expect. When properly exhibited, it operates as a powerful anthelmintic, especially in cases of lumbrici. It is given in form of powder, decoction, syrup, and extract, but should always be given in small doses. The decoction is preferred; and is made by slowly boiling an ounce of the fresh dried bark in a quart of water, till it assume the colour of Madeira wine. This sweetened is the syrup; evaporated it forms an extract. It commonly produces some sickness and purging; sometimes violent effects, as vomiting, delirium and fever. These last are said to be owing to an over-dose, or to drinking cold water; and are relieved by the use of warm water, castor oil, or a vegetable acid.

GEUM URBANUM. *Dub.*
Willd. *g.* 1002, *sp.* 3. Smith, *g.* 237, *sp.* 1. *Icosandria Polygynia.*—Nat. ord. *Senticosæ.*
Common avens. Herb Bennet.
Off.—The root.
RADIX GEI URBANI. *Dub.*

AVENS is a common perennial plant in shady uncultivated places, and flowers from May to August. The root is fibrous, externally of a dark red colour, internally white, and has the

flavour of cloves, with a bitterish astringent taste. Its virtues are said to be increased by cultivation, and the large roots are preferred to the smaller fibres. It must be dug up in spring, when the leaves begin to appear, for the smell is then strongest; indeed, it is hardly to be perceived when it flowers. It must be dried in the air, but not with a strong heat, as its flavour would be dissipated, and its virtues diminished. It tinges both water and alcohol red. Half an ounce yielded 30 grains of resinous, and 20 of gummy extract; the former had the smell of the root, the latter was without smell, and merely astringent. Water distilled from it has a pleasant flavour, and carries over a little thickish essential oil. It has been more recently analyzed by Melandri and Moretti, who got from two ounces 118 grains of tannin, 181 extractive, 61 of saponaceous extract and saline matter, 92 of mucous extract, 23 of resin, 496 of woody fibres, and 76 of volatile oil, water and loss.

Medical use.—Avens is an old febrifuge mentioned by Ray, but again brought into notice by Buckhave. It is recommended as a substitute for cinchona, in intermittent fevers, dysentery, and chronic diarrhœas, flatulent colic, affections of the primæ viæ, asthmatic symptoms and cases of debility. Half a drachm or a drachm of the powder may be given four times a-day, simply, or made up into an electuary with honey or rhubarb. Two table spoonfuls of the decoction may be given every hour, or a table spoonful of a tincture, made with an ounce of the root to a pound of alcohol, three or four times a-day. As an indigenous remedy it deserves notice.

GLYCYRRHIZA GLABRA. *Ed. Lond. Dub.*

Willd. *g.* 1366, *sp.* 4. *Diadelphia Decandria.* Nat. ord. *Papilionaceæ.*

Liquorice.

Off.—The root and the extract.

a) RADIX GLYCYRRHIZÆ GLABRÆ. *Ed.*
RADIX GLYCYRRHIZÆ. *Lond. Dub.*

b) EXTRACTUM GLYCYRRHIZÆ GLABRÆ. *Ed.*

LIQUORICE is a perennial plant, and a native of the south of Europe; but the roots, which are raised for medical purposes in considerable quantities in England, are preferred to those imported from abroad, which are very frequently mouldy and spoiled. The roots are very long, about an inch thick, flexible, fibrous, externally of a brown colour, internally yellow, and when fresh, juicy. Their taste is very sweet, combined with a slight degree of bitter when long kept in the mouth. They are prepared for use by peeling them, cutting

away all the fibres and decayed parts. It is necessary to preserve them in a very dry place, as they are extremely apt to spoil.

The powder of liquorice usually sold is often mingled with flour, and perhaps also with substances not so wholesome. The best sort is of a brownish yellow colour, the fine pale yellow being generally sophisticated, and it is of a very rich sweet taste, much more agreeable than that of the fresh root.

Neumann got from 960 parts of dried liquorice, 300 alcoholic extract, and afterwards 210 watery; and inversely, 540 watery, and only 30 alcoholic. The original alcoholic extract is the sweetest.

Robiquet obtained from liquorice root, 1. Amylaceous feculum; 2. A saccharine substance having no resemblance to sugar; 3. A new crystalline substance; 4. A resinous oil, which is the cause of the acrimony in the decoctions; 5. Phosphate and malate of lime and magnesia; 6. Woody fibre.

Medical use.—Its predominant constituents being saccharine and mucilaginous matter, its only action is that of a mild demulcent, and as such it is frequently used in catarrh, and in some stomach complaints, which seem to arise from a deficiency of the natural mucus which should defend the stomach against the acrimony of the food, and the fluids secreted into it.

On account of its bulk it is rarely exhibited in substance, but more frequently in infusion or decoction.

Extract of Liquorice.

As this extract is never prepared by the apothecary, but commonly imported from other countries, the Edinburgh college have inserted it in their list of materia medica. It is imported in cylindrical rolls, covered with bay leaves. It should be perfectly black, brittle when cold, and break with a smooth and glassy fracture, have a sweet taste, without empyreuma, and be entirely soluble in water. It is prepared from the fresh roots by expression, decoction, and inspissation.

The best foreign extract of liquorice is prepared in Catalonia, but it is not so pure as the refined liquorice sold in the shops, in small cylindrical pieces, not thicker than a goose-quill.

Neumann got from 480 parts of Spanish extract, 460 watery extract, and the residuum was not affected by alcohol; and inversely, he got 280 alcoholic, and 180 watery extract. In this last case the alcoholic extract contained all the sweetness, the watery having scarcely any taste. From the similarity of their taste, and its not being crystallizable, Dr Thom-

son has referred its saccharine matter to his new genus sarcocol.

The extract possesses the same properties with the root, and is used for the formation of several kinds of troches.

GRATIOLA OFFICINALIS. *Ed. Dub.*
Willd. *g.* 49, *sp.* 1. *Decandria Monogynia.*—Nat. ord. *Personatæ.*
Hedge-hyssop.
Off.—The plant.
HERBA GRATIOLÆ OFFICINALIS. *Ed.*
HERBA GRATIOLÆ. *Dub.*

THIS is a perennial plant, a native of marshy situations in the south of Europe. It is gathered for use when in flower. It has no smell, but a very bitter, somewhat nauseous taste. It is a drastic purgative and emetic, and a very powerful anthelmintic, but its use requires caution. In substance it may be given to the extent of half a drachm, and in infusion to three drachms.

Vauquelin has analysed hedge-hyssop. Its expressed juice contains, in a state of solution, 1. A brown gummy matter; 2. A particular resinous matter extremely bitter; 3. A small quantity of animal matter; 4. Muriate of soda, and perhaps malate of potass. What remains after expression, contains malate and phosphate of lime and iron, probably in the state of phosphate. M. Vauquelin thinks, that the active and purgative ingredient is the substance soluble in alcohol, which he has called a resinoid, as it is the only one possessing taste. Its solubility in water, which is increased by the gum and salts, explains why the infusion, and still more the decoction, are drastic purgatives.

GUAIACUM OFFICINALE. *Ed. Lond. Dub.*
Willd. *g.* 819, *sp.* 2. *Decandria Monogynia.*—Nat. ord. *Gruinales.*
Guaiac.
Off.—The wood and resin.
a) LIGNUM GUAIACI OFFICINALIS. *Ed.*
LIGNUM GUAIACI. *Lond. Dub.*
b) RESINA GUAIACI OFFICINALIS. *Ed.*
RESINA GUAIACI. *Lond.*
GUMMI-RESINA GUAIACI. *Dub.*

THIS tree is a native of the West Indies, and grows to a middling size. The wood is heavier than water, very hard, resinous, and of a greenish-black colour. Its taste is bitter-

ish, and when kindled it gives out a pleasant smell. It is brought either in pieces which are sometimes covered with a pale yellow alburnum, or already rasped, when by division its colour appears greenish-brown, or yellow. The bark is thin, of an ash-grey, or blackish colour, and apparently composed of several laminæ. It is less resinous than the wood. Neumann got from 7680 parts of the wood, 1680 alcoholic, and 280 watery extract; and inversely, 740 watery, and 960 alcoholic. From 3840 of the bark he got 560 alcoholic, and 320 watery; and inversely, 620 watery, and 240 alcoholic. The resin exudes spontaneously in tears, but is principally obtained by sawing the wood into billets about three feet long, which are then bored with an augre longitudinally. One end of these is laid upon a fire, so that a calabash may receive the melted resin, which runs through the hole as the wood burns. It may be also obtained by boiling the chips or sawings of the wood in water and muriate of soda. The resin swims at the top, and may be skimmed off.

Guaiac resin has a brownish-yellow colour externally; when held against the light is transparent, breaks with an uniform smooth shining fracture, of a bluish-green colour, is pulverizable, and the powder has a white colour, gradually becoming bluish-green; is fusible in a moderate heat, but not softened by the heat of the fingers; without proper smell or taste, but when thrown on hot coals diffusing an agreeable odour, and when swallowed in a state of minute division, causing an insufferable burning and prickling in the throat. Its specific gravity is 1.23. Neumann got from 480 parts, 400 alcoholic, and only 10 watery extract; and inversely, 80 watery, and 280 alcoholic. Mr Brande has more lately investigated this substance with much care. Digested with water, about one-tenth of it is dissolved, the water acquiring a sweetish taste and greenish-brown colour. The liquid, when evaporated, leaves a brown substance, soluble in hot water and alcohol, but scarcely in sulphuric ether, and precipitating the muriates of alumina and tin. Alcohol readily forms with guaiac a deep brown-coloured solution, rendered milky by water, and precipitated pale green by the muriatic and sulphuric acids, brown by the nitric, and pale blue by the oxymuriatic, but not by the acetic acid or alkalies. The solution in ether exhibits nearly the same properties. Guaiac is soluble in about 15 parts of solution of potass, and in 38 of ammonia; and the solutions are precipitated by the nitric, muriatic, and diluted sulphuric acids. Sulphuric acid dissolves it, and nitric acid converts it into oxalic acid. On being burnt it leaves a large proportion of charcoal. Dr Wollaston has discovered a cu-

rious property of guaiac. By exposure to air and light, it acquires a green colour. This effect is produced in the greatest degree by the most refrangible rays. In the least refrangible rays it is disoxydized, and the yellow colour is restored. The same effect is produced by hot metal. According to this analysis, it differs from the resins in the changes of colour produced on it by water and light, and the action of the acids, in not forming tannin when treated with nitric acid, and in the large proportion of charcoal it affords when burnt. It is sometimes adulterated with colophony or common resin; but the fraud is easily detected by the smell of turpentine emitted when thrown on live coals.

Medical use.—Taken internally, guaiac commonly excites a sense of warmth in the stomach, a dryness of the mouth, with thirst. It increases the heat of the body, and quickens the circulation. If the patient be kept warm, it produces diaphoresis; if exposed freely to the air, an increased flow of urine. In large doses it is purgative.

Guaiac is a useful remedy,

1. In rheumatism and gout.
2. In certain venereal symptoms; as in foul indolent ulcers, and a thickened state of the ligaments or periosteum, remaining after the body is reduced by a mercurial course. Guaiac will also suspend the progress of some of the secondary symptoms.
3. In cutaneous diseases.
4. In ozena, and scrofulous affections of the membranes and ligaments.

The wood is always exhibited in decoction. From the resinous nature of the active constituent of this substance, this cannot be a very active preparation, as the menstruum is totally incapable of dissolving, though it may suspend a little of the resin. The decoction of an ounce may be drunk in cupfuls in the course of a day.

The resin may be exhibited,

1. In substance, made either into pills, or suspended in water in the form of an emulsion. In this way, from 10 to 30 grains of the resin may be taken in the day.
2. In solution; in alcohol. About half an ounce of the tincture, with three ounces of water, is a sudorific dose for an adult, if he attend to keep himself warm.
3. Combined with an alkali.

HÆMATOXYLON CAMPECHIANUM. *Ed. Dub. Lond.*
Willd. *g.* 830, *sp.* 10. *Decandria Monogynia.*—Nat. ord. *Lomentaceæ.*

Logwood.

Off.—The wood.

LIGNUM HÆMATOXYLI CAMPECHIANI. *Ed.*
LIGNUM HÆMATOXYLI. *Lond. Dub.*

THIS tree was introduced from the Honduras into Jamaica, where it is now very common. The wood is firm, heavy, and of a dark red colour. Its taste is sweet, with a slight degree of astringency. It forms a precipitate with a solution of gelatine, very readily soluble in excess of gelatine, and with sulphate of iron it strikes a brighter blue than any other astringent I have tried. It is used principally as a dye-wood, but also with considerable advantage in medicine.

Its extract is sweet and slightly astringent; and is therefore useful in obstinate diarrhœas, and in chronic dysentery.

HELLEBORUS.
Willd. *g.* 1089. Smith, *g.* 256. *Polyandria Polygynia.*—Nat. ord. *Multisiliquæ.*

Sp. 2. Willd. HELLEBORUS NIGER. *Ed. Lond.* Melampodium. *Dub.*

Black hellebore.

Off.—The root.

RADIX HELLEBORI NIGRI. *Ed. Lond. Dub.*

THIS plant, which was formerly called *Melampodium*, is perennial, and grows wild in the mountainous parts of Austria, and on the Pyrenees and Appennines. The earliness of its flowers, which sometimes appear in December, has gained it a place in our gardens.

The roots consist of a black furrowed roundish head, about the size of a nutmeg, from which short articulated branches arise, sending out numerous corrugated fibres, about the thickness of a straw, from a span to a foot in length, deep brown on the outside, white or yellowish-white within, and of an acrid, nauseous and bitterish taste, exciting a sense of heat and numbness in the tongue, and of a nauseous acrid smell. These fibres only are used in medicine, and the head and decayed parts are rejected. For the roots of the real black hellebore, the roots of the Adonis vernalis, Trollius Europæus, Actæa spicata, Astrantia major, Helleborus viridus fœtidus, Veratrum album, and Aconitum neomontanum, are often substituted. The last is a most virulent poison, and may be distinguished by its roots being fusiform, or nearly

globular, sending out numerous very brittle fibres, of a greyish-black or brown colour, as thick as a man's finger, and repeatedly divided. But the surest way to avoid mistakes, is by the apothecary cultivating the plant itself in his own garden.

Neumann got from 2880 grains 380 alcoholic, and 181 watery extract; and inversely, 362 watery, and 181 alcoholic. Its active constituent seems to be of a volatile nature; for it loses its virtues by keeping, and water distilled from it has an acrid taste.

Medical use.—In large doses, hellebore is a drastic purgative; in smaller doses, it is diuretic and emmenagogue. It is principally used as a purgative in cases of mania, melancholy, coma, dropsy, worms and psora, and as an emmenagogue. But its use requires very great caution, for its effects are very uncertain, and affected by many circumstances.

It is commonly exhibited in the form of extract, although its activity be much dissipated by the preparation. An infusion and tincture certainly promise to be medicines of more uniform powers. Willdenow says, that the black hellebore of the ancients is his fifth species, the Helleborus orientalis.

Sp. 6. Willd.; *sp.* 2. *Smith.* HELLEBORUS FŒTIDUS. *Lond. Dub.*

Bears foot. Stinking hellebore. Settiswort.

Off.—The leaves.

FOLIA HELLEBORI FŒTIDI. *Lond.*

FOLIA HELLEBORASTRI. *Dub.*

THIS species is a native of England. It is perennial, grows in shady places, and under hedges, and flowers in March and April. The leaves have an acrid, bitter, nauseous taste, and unpleasant smell, especially when they are fresh. When dried, they are frequently given as a domestic medicine to destroy worms; but they must be used sparingly, being so violent in their operation, that instances of their fatal effects are recorded.

HIRUDO MEDICINALIS. *Dub.*

The Leech.

Cl. Vermes. Ord. *Helmintheca.*

ONLY one species of leech is used in medicine. It has a flat and slimy body, composed of rings, tapering towards the head, which is turbinated, commonly about two or three inches long, and of the thickness of a goose-quill, but capable of elongating or contracting itself very much. Its back is of

a dull olive-green colour, divided into three nearly equal parts by four yellow longitudinal lines, the two lateral entire, the two central broken with black. Besides these, between the lateral and central lines on each side, there are two others, resembling a chain of black and yellow. The belly is turkey blue, irregularly marked with yellow spots. It attaches itself to solid substances by either end, being furnished with a circular sucker at the anal extremity, and a horse-shoe one at the head, with a triangular mouth in the centre.

They should be collected in summer, in waters having a clear sandy bottom, as the bite of those found in stagnant waters and marshes is said to cause pain and inflammation. For the same reason, the horse-leech, which is entirely brown, or only marked with a marginal yellow line, is commonly rejected, although they are used frequently in the North of Europe, and during the late scarcity of leeches have occasionally been employed, without any bad consequences, in this country. The vulgar story of their drawing the whole blood out of the body, by evacuating it at one end as fast as they sucked it in at the other, if true, would give them a superiority over the others, as when a sufficient quantity of blood was drawn, there could be no difficulty in making them quit, even without passing a ligature round their necks.

Leeches are best preserved for use in a bottle half filled with pure spring or river water, and covered with gauze or muslin, although they are said not to die even in an exhausted receiver, or in a vessel filled with oil. It is advisable frequently to change the water in which they are kept, although there are instances of their living many months, and even years, in the same water; and it is remarkable that water, in which they are, keeps much longer sweet than by itself. It is scarcely necessary to observe, that whenever the water becomes turbid, or foul, or gets an unpleasant smell, or any of the leeches dies in it, it should be changed. They should always be kept in a moderate temperature, about 50° Fahr. Some recommend throwing a little bran into the water; but it is so well ascertained that they will live for years without any such addition, that it is better not to attempt to feed them, until we are better acquainted with their natural food. Though apparently so hardy, leeches are sometimes subject to great mortality, from unknown causes, as in 1798 and 1799. Infection in some cases seems evident. To avoid danger from this source, they should be kept in several small vessels, rather than in one large reservoir; and when fresh leeches are procured, they should always be kept by themselves, and their health ascertained, before they are added to the general stock. When they have gorged themselves with blood, they frequently die

of indigestion, and cause a great mortality even among those which have not been used. To avoid this danger, leeches, which have recently sucked, should also be kept by themselves, until they have recovered their usual vigour. The treatment of the individuals which have performed their office has been the subject of some controversy. One recommends using no means to make them disgorge the blood they have sucked, but only to immerse them for half an hour in milk-warm water, and to change their water regularly every second day for some time; others advise stripping them, as it is called, that is, taking hold of the tail between the finger and thumb of the left hand and drawing the animal through those of the right, so as to evacuate the blood; while others, again, apply salt to their heads, until they vomit all the blood they have sucked. Leeches change their skin frequently. At that time they are subject to indisposition, and will not bite. The removal of the old cuticle may sometimes be assisted by wiping them with a bit of soft linen.

Medical use.—Leeches are a very old and useful remedy in every case requiring local blood-letting. They cause less irritation than cupping, and can often be applied nearer to the part.

They are used,

1. In the headach of the first or inflammatory stage of continued fever.
2. In inflammation of all kinds, ophthalmia, phrenitis, cynanche, rheumatisms, odontalgia, podagra.
3. In some cases of rubeola and scarlatina.
4. In suppressed natural or habitual hæmorrhagies, especially piles.
5. In plethora of the head, chincough, in mania from suppressed discharges.
6. Dysuria phlogistica.

The application of leeches is sometimes attended with difficulty. When changing their skin, they will not bite, and are averse to it in cloudy rainy weather, and in the evening. When kept out of the water some minutes before they are applied, and allowed to crawl on dry linen, they are said to bite more eagerly. The part to which they are to be applied should be very well washed, first with soap and water, and afterwards with water, or milk and water, and if covered with strong hairs, should be shaved. When they are not inclined to bite, the part may be moistened with milk, or a little blood drawn from it by a scratch with a lancet. When they fix, they inflict, without causing much pain, a wound of three minute flaps, meeting at equal angles, from which they suck

blood until they are gorged, and drop off spontaneously, or are forced to quit their hold by sprinkling on them a little salt. A large leech will draw about an ounce of blood; but the quantity may be much increased by bathing the wounds with tepid water, or applying over them cupping glasses. Sometimes it is even difficult to stop the bleeding; but it will always cease on applying a little lint, and continuing pressure a sufficient length of time.

HORDEUM DISTICHON. *Ed. Dub. Lond.*

Willd. *g.* 151. *sp.* 3. *Triandria Digynia.*—Nat. Ord. *Gramina.*

Barley.

Off.—The seed called Pearl-barley.

SEMINA HORDEI DISTICHI. Semina decorticata. *Dub. Ed.*

SEMINA HORDEI. Semina tunicis nudata. *Lond.*

BARLEY is an annual plant, cultivated in almost every country of Europe. Linnæus says that it is a native of Tartary, but without adducing sufficient proof.

Pearl-barley is prepared by grinding off the husk of rough barley, and forming the grain into little round granules, of a pearly whiteness. In this state, barley consists almost solely of amylaceous matter; when boiled it forms an excellent article of nourishment; and a decoction of it, properly acidulated, is one of the best beverages in acute diseases.

Barley meal, according to Fourcroy and Vauquelin, contains a little unctuous coagulable oil, sugar, starch, an animal substance partly soluble in water, and partly in glutinous flocculi; phosphate of lime and magnesia, silica, iron, and a little acetic acid.

HUMULUS LUPULUS. *Lond.*

Willd. *g.* 1795, *sp.* 415. Smith, *g.* 415, *sp.* 1. *Diœcia Pentandria.*—Nat. ord. *Scabridæ.*

Hop.

Off.—The strobiles dried.

STROBILI HUMULI. Strobili siccati. *Lond.*

STROBILI HUMULI LUPULI.

THE hop is an indigenous perennial climbing plant, cultivated to a great extent in Kent, and some other counties in England, for its leafy tops, which are used in the brewing of ale and porter; and as a very considerable revenue arises from the duty imposed on them, the use of all other bitters, such as quassia, &c. is prohibited by act of parliament; as,

indeed, hops themselves once were. In the north of Europe, the young shoots are eaten instead of asparagus.

Hops are intensely bitter, aromatic, and astringent. By simple infusion the aroma is extracted; by short boiling the bitter, and by long-continued boiling, the aroma is dissipated, and the astringency predominates. The aroma resides in a volatile oil, and the astringency in a species of tannin, for sulphate of iron is blackened by it. It also contains a resin from which it has its bitterness, and a nauseous mucilaginous extractive, which alcohol precipitates from the infusion. Crystals of nitrate and muriate of potash appear in a long kept extract. The old writers say, that hops are added to malt liquors on account of the lithontriptic virtues which they were supposed to possess; thus Ray affirms, that since the Londoners added hops to their beer, they have been less subject to calculous complaints; and if we were to believe Lobb, a very hard urinary calculus was softened by a decoction of hops. Their evident effects are to impart an aromatic bitter, and to retard the acetous fermentation; for malt liquors keep longer in proportion to the quantity of hops added, and the bitterness decreases as the liquor becomes ripe, and disappears as it verges to acidity. Bergius supposes that the sweetness of the malt would hurt the stomach, were it not corrected by the bitterness of the hop. It also probably communicates a narcotic quality. A pillow stuffed with hops is said to have long been a popular remedy, and recent experiments have confirmed the fact, and led to the employment of various preparations of hops in medicine. The dose of the powder is about three grains, although it may be remarked that it is very difficult to powder. It produced sleep, in the experiments of Dr De Roches, in rheumatic, syphilitic, and pectoral complaints. The tincture seemed to possess the same anodyne virtues, but it was not so uniform in its action. Dr Maton gave it in the form of tincture and extract with the best effect, in articular rheumatisms. He did not observe that it had any influence in relaxing the bowels, but the contrary; and he is disposed to believe that the pulse is reduced in frequency, and increased in firmness, by this medicine, in a very direct manner. An ointment compounded with the hop is said, by Mr Freake, to have eased the violent pain in the last stage of cancer, when all other applications were ineffectual.

HYDRARGYRUM. *Dub. Lond.*
HYDRARGYRUS. *Ed.*
Mercury. Quicksilver.

THE general chemical and physical properties of this metal

have been already enumerated. We shall now treat of it more minutely, as forming an important article in the materia medica.

It is found,

1. In its metallic state:
   a. Uncombined.
   b. Alloyed with silver.
   c. Alloyed with copper.
   d. Combined with sulphur (Cinnabar.)
   e. Combined with hydroguretted sulphur (Æthiops minerale.)
2. Oxidized.
   a. Combined with muriatic acid.
   b. ——————— sulphuric acid.

There are considerable mines of mercury in Hungary and in Spain; and what is employed in England is principally imported from the former country.

Mercury, taken into the stomach in its metallic state, has no action on the body, except what arises from its weight or bulk. It is not poisonous, as was vulgarly supposed, but perfectly inert; but, in its various states of combination, it produces decided sensible effects. It quickens the circulation, and increases all the secretions and excretions. According to circumstances, the habit of the body of the patient, the temperature in which he is kept, the nature of the preparation, and the quantity in which it is exhibited, its effects are indeed various: it sometimes increases one secretion more particularly, sometimes another; but its most characteristic effect is the increased flow of saliva which it generally excites, if given in sufficient quantity. Its particular effects, and means of producing each of them, will be noticed hereafter.

Mercury, or some of its preparations, is exhibited,

1. As an errhine. The sub-sulphate of mercury.
2. As a sialogogue. Mercury, in almost any form.
3. As a cathartic. The sub-muriate of mercury, (calomel.)
4. As a diuretic. The oxides, the muriate, and the sub-muriate, combined with other diuretics.
5. As a sudorific. Calomel, conjoined with a sudorific regimen.
6. As an emmenagogue.
7. As an astringent. Muriate of mercury.
8. As a stimulant. Muriate of mercury.
9. As an antispasmodic.
10. As an anthelmintic.

With some of these views, mercury is frequently exhibited,

1. In febrile diseases; in obstinate agues.
2. In inflammatory diseases; in indolent and chronic inflammations, especially of the glandular viscera, as the liver, spleen, &c.
3. In exanthematous diseases; variola.
4. In profluvia; in dysentery.
5. In spasmodic diseases; tetanus, trismus, hydrophobia, &c.
6. In cachectic diseases; anasarca, ascites, hydrothorax, hydrocephalus, &c.
7. In impetigines; scrofula, syphilis, lepra, icterus, &c.
8. In local diseases; in caligo corneæ, amaurosis, gonorrhœa, obstipatio, amenorrhœa suppressionis, tumours of various kinds, herpes, tinea, psora, &c.

Mercury occasionally attacks the bowels, and causes violent purging, even of blood. The effect is remedied by intermitting the use of the medicine, and by exhibiting opium.

At other times it is suddenly determined to the mouth, and produces inflammation, ulceration, and an excessive flow of saliva. In this case, too, the use of the mercury must be discontinued for a time; when, according to Mr Pearson's advice, the patient should be freely exposed to a dry cold air, with the occasional use of cathartics, Peruvian bark, and mineral acids, and the assiduous application of astringent gargles. On the other hand, the sudden suppression of ptyalism is not without danger. It is most frequently caused by cold liquids being taken into the stomach, or exposure to cold and moisture, while under the influence of mercury. The danger is to be obviated by the quick introduction of mercury, so as to affect the gums, with the occasional use of the warm bath.

Sometimes also a morbid condition of the system occurs during a mercurial course, and tends to a fatal issue. Mr Pearson has termed it Erethismus. It is characterised by great depression of strength; a sense of anxiety about the præcordia; frequent sighing, trembling, partial or universal; a small quick pulse; sometimes vomiting; a pale contracted countenance, a sense of coldness, while the tongue is seldom furred, or the vital or natural functions much disordered. In this state, a sudden or violent exertion of muscular power will sometimes prove fatal. To prevent dangerous consequences, the mercury must be discontinued, whatever may be the stage, extent, or violence of the disease for which it has been exhibited, and the patient must expose himself freely to a dry and cool air, in such a manner as shall be at-

tended with the least fatigue; and in the course of ten or fourteen days, he will sometimes be so far recovered, that he may safely resume the use of mercury.

In some particular habits it also produces an exanthematous disease, which sometimes proves fatal, well known by the name of erythema or eczema mercuriale and hydrargyria.

From many motives, both laudable and culpable, mercury has been tortured into a greater variety of forms than any other article of the materia medica. Of these Swediaur has given a complete table, in the last edition of his works on the venereal disease. It is too long for insertion in this place: I shall therefore give a systematic view of those mercurial preparations only which enter at least one of the British Pharmacopœias.

Mercury is exhibited,

I. Purified by distillation.
Hydrargyrum purificatum. *D. L.*
Hydrargyrus purificatus. *E.*

II. Oxidized.

A. Protoxide.

1. By precipitation, from its solution in nitrous acid, by ammonia.
Oxidum hydrargyri cinereum. *E. L.*
Pulvis hydrargyri cinereus. *D.*
Unguentum oxidi hydrargyri cinerei. *E.*

2. By trituration.

a. With unctuous substances.
Unguentum hydrargyri. *E. D.*
——————— fortius. *L.*
——————— mitius. *L. D.*
Linimentum hydrargyri. *L.*
Emplastrum ammoniaci cum hydrargyro. *L. D.*
——————— hydrargyri. *E. L.*

b. With saccharine substances,
Pilulæ hydrargyri. *L. D. E.*

c. With carbonate of lime,
Hydrargyrum cum creta. *L. D.*

d. With carbonate of magnesia,
Hydrargyrum cum magnesia. *D.*

B. Peroxide.

1. By the action of heat and air.
Oxydum hydrargyri. *D.*
Oxydum hydrargyri rubrum. *L.*

2. By the action of nitrous acid,
Oxidum hydrargyri rubrum *per acidum nitricum*. *E.*
Oxydum hydrargyri nitricum. *D.*
Nitrico-oxydum hydrargyri. *L.*

Unguentum oxidi hydrargyri rubri. *E.*
———— subnitratis hydrargyri. *D.*
———— hydrargyri nitrico-oxydi. *L.*

III. Oxidized and combined with acids;
A. Protoxide.
1. With nitrous acid:
a. Unguentum nitratis hydrargyri. *L.*
———— supernitratis hydrargyri. *D.*
———— nitratis hydrargyri fortius, *vulgo* Unguentum citrinum. *E.*
b. Unguentum nitratis hydrargyri mitius. *E.*
2. With sulphuric acid:
Sub-sulphas hydrargyri flavus. *E.*
Oxydum hydrargyri sulphuricum. *D.*
3. With muriatic acid:
a. By sublimation.
Sub-murias hydrargyri. *L.*
Sub-murias hydrargyri *mitis* sive *Calomelas.* *E.*
Sub-murias hydrargyri sublimatum. *D.*
Pilulæ hydrargyri sub-muriatis. *L.*
b. By precipitation.
Sub-murias hydrargyri præcipitatus. *E. D.*
4. With acetic acid:
Acetas hydrargyri. *E.*
Acetis hydrargyri. *D.*
B. Peroxide.
1. Muriate.
Murias hydrargyri corrosivus. *E.*
———— corrosivum. *D.*
Oxymurias hydrargyri. *L.*
Liquor oxymuriatis hydrargyri. *L.*
2. Sub-muriate with ammonia,
Submurias hydrargyri ammoniatum. *D.*
Hydrargyrum præcipitatum album. *L.*
Unguentum sub-muriatis hydrargyri ammoniati. *D.*
Unguentum hydrargyri præcipitati albi. *L.*

IV. Combined with sulphur.
1. By trituration,
Sulphuretum hydrargyri nigrum. *E. D.*
2. By sublimation,
Sulphuretum hydrargyri rubrum. *L. D.*

HYOSCYAMUS NIGER. *Ed. Lond. Dub.*
Willd. *g.* 378, *sp.* 1. Smith, *g.* 99. *sp.* *Pentandria Monogynia.*—Nat. ord. *Solanaceæ.*
Common henbane.
Off.—The herb and seeds.
a) HERBA HYOSCIAMI NIGRI. *Ed.*
FOLIA HYOSCIAMI. *Lond.*

HERBA HYOSCIAMI. *Dub.*
b) SEMINA HYOSCIAMI NIGRI. *Ed.*
SEMINA HYOSCIAMI. *Lond.*

HENBANE is an annual plant, which grows in great abundance in most parts of Britain, by the road sides, and among rubbish, and flowers in July. Its smell is strong and peculiar, and, when bruised, something like tobacco, especially when the leaves are burnt; and, on burning, they sparkle, as if they contained a nitrate: when chewed, however, they have no saline taste, but are insipid, mild, and mucilaginous. Henbane, in a moderate dose, often produces sweat, and sometimes an eruption of pustules, and generally sound sleep, succeeded by serenity of mind, and recruited vigour of the body; but like the other narcotics, instead of these, it sometimes gives rise to vertigo, headach, and general uneasiness. With particular individuals, it occasions vomiting, colic pains, a copious flow of urine, and sometimes purging. In excessive doses, its effects are fatal; general debility, delirium, remarkable dilatation of the pupils of the eyes, convulsions, death. Upon the whole, like opium, it is a powerful anodyne; and, like cicuta, it is free from any constipating effect, having rather a tendency to move the belly.

Med. use.—From the writings of Dioscorides and others, it appears, that different species of henbane have been long used in the practice of medicine. By Celsus it was applied externally as a collyrium in ophthalmia; for allaying the pain of the toothach; and he gave it internally as an anodyne.

Its use, however, was for a long period entirely relinquished, until revived by Dr Störk of Vienna, in those cases where an anodyne is requisite, and where there are objections to the use of opium. It is employed in wandering rheumatic pains, in indurations of the mammæ from retained milk, painful swellings, whether scirrhous or not, scrofulous and cancerous ulcers, inflamed piles, and spasms of the bowels from increased irritability; under the form of a cataplasm of the bruised leaves, with bread and milk; of an ointment, made of the powder of the leaves, with wax and oil; of a simple powder, sprinkled on the sore, or of a decoction in milk as an injection. An infusion prepared by digesting the bruised leaves in olive oil is also usefully applied in inflammation of the bowels, kidneys, testicles, urethra, painful retention of urine, and in blind piles.

An extract from the leaves, or from the seeds, is the form in which it is given internally; and it has been used with advantage in a variety of nervous affections, as mania, melancholia, epilepsy, hysteria, trismus, and spasms from injured nerves, in rheumatism and arthritis, in glandular swellings,

in obstinate ulcerations, and in every case where it is desirable either to allay inordinate action, or to mitigate pain. Its dose may be gradually increased from half a grain. Collin pushed it to the length of 30 grains for a dose.

The extract of henbane has been lately much used by oculists for dilating the pupils of the eyes, in order to facilitate the extraction or breaking down of the cataract, to diminish sensibility, to destroy adhesions, to reduce protrusions of the iris, and to dilate contraction of the pupil. The mode of application is by dropping a few drops of solution of the extract into the eye, or applying them with a camel's hair brush. The greatest effect is produced in about four hours, and it is generally over in twelve. Vision is not impaired during its action.

HYSSOPUS OFFICINALIS. *Ed. Dub.*

Willd. *g.* 1096, *sp.* 1. *Didynamia Gymnospermia.*—Nat. ord. *Verticillatæ.*

Hyssop.

Off.—The herb and leaves.

HERBA HYSSOPI OFFICINALIS. *Ed.*

FOLIA HYSSOPI. *Dub.*

HYSSOP is a perennial herb which grows wild in Germany. Its leaves have an aromatic smell, and a warm pungent taste. Its virtues depend entirely on an essential oil which rises in distillation both with water and with alcohol. Besides the general virtues of aromatics, its preparations were formerly recommended in humoral asthmas, coughs, and other disorders of the breast and lungs, and were said to promote expectoration.

ICHTHYOCOLLA. *Dub.*

Isinglass.

Isinglass is prepared from many species of Acipenser. The Dublin college specify the *A. sturio* or Beluga, and the *A. Ruthenus* or Sterlet, besides which a great deal is obtained from the *A. sturio*, the Sturgeon, and *A. stellatus*, the Serruga.

The preparation of isinglass is almost peculiar to Russia. It is made in all places where the large species of sturgeon are caught, as on the Dneiper, the Don, and especially on the Caspian sea, also on the Volga, the Ural, the Oby, and the Irtysh. That prepared from the sturgeon is reckoned the best, and next to it, that from the beluga. It also various according to the mode of preparation. On the Volga and Ural, the sounds are watered while fresh, and dried to a certain degree. The outer skin is next taken off, and the inner glossy white membrane is

twisted, and then completely dried. The best is usually rolled into the form of a snake or heart; the second folded in leaves like a book; and the worst is dried without any care. In other places, as at Gurief, fish-glue is extracted from the sounds by boiling. This is cut into slabs or plates, is perfectly transparent, and has the colour of amber. On the Okka, where the sterlet only is to be had, the sounds are beat just as they are extracted from the fish, and dried into glue.

Good isinglass is white, in some degree transparent, dry, composed of membranes, not too thick, and without any smell.

The properties of isinglass depend entirely on the gelatin, of which it principally consists. One hundred grains of good isinglass were found by Mr Hatchett to contain rather more than ninety-eight of matter soluble in water. A nutritious jelly may be prepared from it. A watery solution of it is used as a test of the presence of tannin, and for the clarification of spiritous liquors. Sir H. Davy's solution for the former purpose consists of 120 grains of isinglass dissolved in twenty ounces of water; and if properly made, it has a tendency to gelatinize, at temperatures below 50° F.

It is employed in the preparation of English court-plaster.

INULA HELENIUM. *Dub.*

Willd. *g.* 1489, *sp.* 1. Smith, *g.* 369, *sp.* 1. *Syngenesia superflua.*—Nat. ord. *Compositæ radiatæ.*

Elecampane.

Off.—The root.

RADIX ENULÆ CAMPANÆ. *Dub.*

THIS is a very large downy perennial plant, sometimes found wild in moist rich soils. It flowers in July and August. The root, especially when dry, has an agreeable aromatic smell: its taste, on first chewing, is glutinous, and, as it were, somewhat rancid; in a little time it discovers an aromatic bitterness, which by degrees becomes considerably acrid and pungent.

Neumann got from 480 grains of the dry root, 390 watery, and 5 alcoholic extract; and inversely, 150 alcoholic, and 300 watery. In distillation, alcohol elevated nothing; but the distilled water was first observed by Geoffroy to be milky, and mixed with flocculi of a cineritious concrete volatile oil, partly swimming, and partly sinking in the water. He also ascertained that it was fusible, and compares it to camphor or benzoic acid. Neumann likewise examined it, and considered it as a peculiar substance, having some resemblance to camphor. He found that it melts with a gentle heat, and when cold appears softer and more unctuous; that it never

assumes a crystalline form, but when dry proves opaque and crumbly; that laid on burning coals it totally exhales; that it is soluble in alcohol, but insoluble in water; and that by keeping it gradually loses the smell of elecampane. This root has also been discovered by Rose to contain a matter having some analogy with starch, the properties of which have been described under the title of Inulin.

According to Funke's analysis, elecampane root contains, 1. A crystallizable volatile oil; 2. A peculiar feculum; 3. An extractive matter; 4. Free acetic acid; 5. A crystallizable resin; 6. Albumen; 7. Fibrous matter. The ashes contain carbonates of lime and of magnesia, silica, and a trace of iron.

Medical use.—It is a gently stimulating medicine, nearly similar in its action to angelica. The extract is merely a slight bitter, as the essential oil is totally dissipated in the preparation.

IPECACUANHA.

RADIX IPECACUANHÆ. *Ed.*

RADIX IPECACUANHÆ. Callicocca Ipecacuanha. Brotero, Transactions of the Linnæan Society, vol. vii. *Lond. Dub.*

IPECACUAN, in the language of South America, means vomiting root, and is applied to various vegetables which possess that property in any remarkable degree; hence the confusion and contradictions which have long prevailed concerning the plant which furnishes our officinal Ipecacuan: and this confusion is increased by several varieties of Ipecacuan being found in the shops.

1st, The ash-coloured or Peruvian ipecacuan is a small wrinkled root, bent and contorted into a great variety of figures, brought over in short pieces, full of wrinkles and deep circular fissures, quite down to a small white woody fibre that runs in the middle of each piece: the cortical part is compact, brittle, looks smooth and resinous upon breaking: it has very little smell; the taste is bitterish and subacrid, covering the tongue as it were with a kind of mucilage. This, according to Mutis, is obtained from the Psycotria emetica, and is that commonly used.

2d, The brown ipecacuan is small, and somewhat more wrinkled than the foregoing; its bark is of a brown or blackish colour without, and white within; this is brought from Brazil, and is the root of a Cephaëlis, which is perennial, and grows in moist shadowy situations. A complete monography of it, and an excellent plate, were published, in the sixth volume of the Transactions of the Linnæan Society, by Professor Brotero, who calls it the Callicocca Ipecacuanha; but the

genus Callicocca has been united by Willdenow with that of Cephaëlis, to which we have therefore referred it. The plate of Brotero corresponds with that published in Woodville's Medical Botany, vol. iii., from a plant sent in spirits from Brazil by Governor Philips to Sir Joseph Banks, but which unfortunately was not in flower, and also with the rude draught of Piso, who first examined it. It has been sometimes observed, even in a small dose, to produce violent effects.

3d, The white sort is woody, has no wrinkles, and no perceptible bitterness in taste. It is probably the root of a viola. Though taken in a large dose, it has scarcely any effect at all.

Besides these, the name of Ipecacuan is given to various species of Cynanchum, Asclepias, Euphorbia, Dorstenia, and Ruellia. With regard to their comparative strengths, Decandolle says, that vomiting is produced by 22 grains of the Cynanchum Ipecacuanha, 24 of the Psycotria emetica, 60 to 72 of the Viola calceolaria, and one to three drachms of the Viola Ipecacuanha.

Ipecacuan was first brought into Europe about the middle of last century, and an account of it published about the same time by Piso; but it did not come into general use till about the year 1686, when Helvetius, under the patronage of Lewis XIV. introduced it into practice.

Neumann got from 7680 parts, 1440 alcoholic, and afterwards 1880 watery extract; and inversely, 2400 watery, and 600 alcoholic. It has also been analysed by Mr Henry, who supposes it to contain a free acid decomposable by heat, salts of lime, and a matter resembling caoutchouc; and by M. Massonfour, who found in it gallic acid, gum or mucilage, extractive and resin. On the contrary, I find that the tincture of ipecacuan does not redden infusion of litmus, or precipitate solution of gelatine; that it is precipitated by water, by red sulphate of iron, readily acquiring a green colour from excess of the chalybeate, and by infusion of nut-galls. According to Dr Irving, the watery solution is more emetic than the alcoholic, the decoction than the distilled water, and the cortical than the ligneous part. Others have found, that the resinous part is more apt to act upon the intestinal canal, and to operate by stool. By long-continued boiling, it becomes almost inert; and the emetic property of ipecacuan is most effectually counteracted by means of the acetic acid, insomuch that thirty grains of the powder, taken in two ounces of vinegar, produced only some loose stools.

From these experiments it evidently appears, that ipecacuan contains cinchonin and a resin, and that its emetic property does not depend upon the latter, although we can

scarcely attribute it to the former, as in other substances it does not manifest any emetic property. It is, therefore, probably owing to some other principle, soluble in water and alcohol.

Med. use.—The primary effect of ipecacuan is that of stimulating the stomach. If the dose be sufficiently large, it excites vomiting, by inverting the peristaltic motion of the stomach and duodenum; in a smaller dose it only produces nausea, and operates by stool; and in a still smaller dose it gently stimulates the stomach, increases the appetite, and facilitates digestion. Its secondary effects depend on the sympathy of other parts with the stomach; and in this way only can we explain its action as an antispasmodic, diaphoretic, expectorant, and in checking hæmorrhagies. Its beneficial effects, in some cases, also seem to be owing to the general concussion given to the whole system during the action of vomiting.

Ipecacuan, properly administered, often proves serviceable,

1. In intermittent fevers. It has frequently succeeded in stopping these, when given about an hour before an accession was expected, and also when given so as to produce vomiting at the time of an accession, or at the end of the cold stage.

2. In continued fevers. We have never seen more decidedly beneficial effects from the use of any medicine whatever, than from the exhibition of ipecacuan in the precursory stage of typhus fever. An emetic, succeeded by diluent diaphoretics, when administered sufficiently early in the disease, very frequently cuts it short at once; and when it fails in this desirable object, it always has a beneficial influence on the progress of the fever.

3. In inflammatory diseases, rheumatism, bubo, swelled testicle.

4. In exanthematous diseases, when the eruption is disposed to recede.

5. In hæmorrhagies, when given in nauseating doses.

6. In profluvia, especially in dysentery, so much so, that it was formerly esteemed a specific against that disease. But Cullen attributes its good effects, in this instance, to its producing a steady determination of the peristaltic motion of the intestine downwards, when given in repeated small doses.

7. In many spasmodic diseases; in epilepsy, asthma, dyspnœa, pertussis, chronic diarrhœa, hysteria, melancholy, mania.

8. In cachectic diseases, as in some kinds of dropsy.

9. In impetiginous diseases; in jaundice.

10. In local diseases; in amaurosis, and several of the dysorexiæ.

11. Lastly, in every instance when we wish to evacuate the stomach, as when it is overloaded with food, or when poison, especially opium, has been swallowed.

The use of ipecacuan, as an emetic, is contra-indicated,

1. Where there is a disposition to hæmorrhagy.
2. Where there is an increased flow of blood towards the head.
3. In very irritable subjects.
4. In pregnant women, and persons afflicted with hernia.

Ipecacuan is exhibited,

1. In substance, in powder. Full vomiting will generally be produced in an adult by a scruple or half a drachm; and though less might answer the purpose, fortunately an overdose is scarcely attended with any inconvenience, as the whole of it is vomited with the contents of the stomach as soon as it operates. The vomiting is promoted and facilitated by drinking copiously of warm watery fluids. On the contrary, when vomiting is not intended, liquids must be rather drunk sparingly, and the dose must be diminished to a grain or less. In such small doses it is conveniently combined with any proper adjunct, in the form of powder, pill, or bolus.
2. In infusion. One drachm may be infused in four ounces of water, and taken in repeated doses till it operate.
3. Infused in wine.

Ipecacuan not only checks the narcotic effects of opium, and is therefore one of the best antidotes for its poison, but reciprocally the emetic powers of ipecacuan are checked by the addition of opium, and the combination operates by increasing the cuticular discharge.

IRIS FLORENTINA. *Ed.*

Willd. *g.* 97, *sp.* 7. *Triandria Monogynia.*—Nat. ord. *Ensatæ.*

Off.—The root. Florentine Orris.

RADIX IRIDIS FLORENTINÆ.

THIS is a perennial plant, a native of the south of Europe. The dried roots are imported from Italy. They are white, flattish, knotty, and have a very slightly bitter taste, and an agreeable smell, resembling that of violets.

Neumann got from 480 parts, 77 alcoholic, and afterwards 100 watery, and inversely 180 watery, and 8 alcoholic extract. The distilled water smells a little of the root, but ex-

hibits no appearance of oil. They are chiefly used as a perfume.

JUNIPERUS.

Willd. *g.* 1841. Smith, *g.* 421. *Dioecia Monadelphia.*—Nat. ord. *Coniferæ.*

Sp. 10. Willd. *sp.* 1. Smith, JUNIPERUS COMMUNIS. *Ed. Lond. Dub.*

Common juniper.

Off.—The berries and tops.

a) BACCÆ JUNIPERI. *Lond. Dub.*

BACCÆ JUNIPERI COMMUNIS. *Ed.*

b) CACUMINA JUNIPERI. *Lond.*

THIS is an evergreen shrub, growing on heaths and hilly grounds in all parts of Europe. It flowers in May. The berries are chiefly brought from Holland and from Italy. The Italian berries are in general reckoned the best. Juniper berries have a strong, not disagreeable smell, and a warm pungent sweet taste, which, if they are long chewed, or much bruised, is followed by a bitterish one. Their predominant constituents are essential oil, and a sweet mucilaginous matter.

Medical use.—To the oil they are indebted for their stimulating, carminative, diaphoretic, and diuretic properties. They are most commonly used in the form of infusion, as a diuretic drink in dropsy. The essential oil may be separated by distillation. It possesses the same properties in a higher degree, and imparts them to ardent spirits. The peculiar flavour and well-known diuretic effects of Hollands, are owing to the oil of juniper. The decoction and extract are very inert preparations of the class of bitters.

Every part of the plant contains the same essential oil; therefore an infusion of the tops is likewise diuretic. The wood also was formerly officinal. In warm countries a resin exudes from the juniper-tree. It is called sandarac, and is often mixed with mastich. It is not a pure resin; for, according to Mr Giese, about one-fifth of it is not soluble in water, or in alcohol, but in ether, resembling in these respects copal.

Sp. 6. JUNIPERUS SABINA. *Ed. Lond. Dub.*

Savine.

Off.—The leaf.

FOLIA JUNIPERI SABINÆ. *Ed.*

FOLIA SABINÆ. *Lond. Dub.*

THIS is an evergreen shrub, a native of Siberia and Tarta-

ry, but not unfrequent in our gardens. The leaves have a bitter, acrid, biting taste, and a strong disagreeable smell: distilled with water, they yield an essential oil in considerable quantity.

Medical use.—Savine is a warm stimulating medicine, capable of producing diaphoresis, and increasing all the secretions, but apt to excite hæmorrhagy, especially from the uterus. It is also recommended as an anthelmintic, and is said to be very efficient in the cure of gout.

Internally, a conserve of the fresh leaves is exhibited in doses of from half a drachm to a drachm.

Externally, the leaves are applied in the form of powder or infusion to warts, carious bones, and old ulcers, and in cases of gangrene, psora, and tinea; an excellent issue ointment is also prepared with the powder. The essential oil is a very active remedy.

Sp. 14. JUNIPERUS LYCIA. *Ed. Lond. Dub.*
Olibanum.

Off.—A gum resin.
GUMMI-RESINA JUNIPERI LYCIÆ. *Ed.*
OLIBANUM; gummi-resina. *Lond. Dub.*

OLIBANUM is principally collected in Arabia, and brought from Mecca to Cairo, from whence it is imported into Europe. It consists of transparent brittle grains of different sizes, not larger than a chesnut, of a red or yellow colour, having little taste and a peculiar aromatic smell. Neumann got from 480 grains, 346 alcoholic, and 125 watery extract, and inversely, 200 watery, and 273 alcoholic. The distilled spirit and oil both smelt of olibanum, but no oil separated. Braconnot says it is composed of a gum and a resin, acquiring peculiar properties by the action of nitrous acid. Olibanum forms a transparent solution with alcohol, and a milky fluid when triturated with water: it is not fusible, but inflammable, and burns with an agreeable smell. It is the frankincense of the ancients; and the diffusion of its vapour around the altar still forms part of the ceremonies of the Greek and Roman catholic churches.

KINO. Succus spissatus Eucalypti resiniferæ. *Ed.*
KINO; Butea frondosa. *Dub.*
KINO. Arboris, nondum descriptæ, Africanæ, gummi resina. *Lond.*

Kino, the inspissated juice of the brown gum-tree of Botany Bay. The resin of the Butea frondosa. The gum-resin of a non-descript African tree.

KINO was first noticed by Dr Fothergill, who received it

from a druggist as a very fine kind of dragon's blood, and described it as the produce of an African tree called the Pau de Sangue. In Moor's travels up the Gambia, there is a very imperfect account of the tree from which it exudes, and a copy of directions from the African company to their factors, to collect and purchase this gum: but it seems to have been brought to them only in very small quantities, and mixed with gum Senegal. This kind is no longer to be met with in commerce, and is not even mentioned by Mr Jackson among the exports from Mogodore, or by Mr Winterbottom, in his account of Sierra Leone.

I have found in commerce three kinds of kino, easily distinguished by their external appearance.

The first is in very small jet-black fragments, perfectly opaque, without smell, crackling under the teeth when chewed, not colouring the saliva, after some time imparting only a slight astringent taste, not fusible, and difficultly reduced to powder. Powder dark chocolate-brown. Although this has been the longest known in commerce in this place, I have not been able to trace the place of its origin.

The second is in large fragments, on some of which the impression of the vessel into which it had been received while fluid, and in which it had hardened, was evident; colour very dark brown, fracture resinous, appearance homogeneous, with small air bells; in very thin splinters, transparent, and of a ruby red colour: crackling under the teeth when chewed, taste at first somewhat acid, but afterwards becoming considerably bitter and astringent, succeeded by a peculiar sweetness; infusible, and friable; powder of a reddish-brown. This is said to be the extract of the Coccoloba uvifera or seaside grape; and indeed by comparing it with the specimens of that extract, I have no doubt of the accuracy of my information. The kino imported by the East India Company resembles this in many particulars, but is in smaller fragments.

The third is in dark brown masses of various sizes, either smooth or rounded on the surface, or in fragments often covered with a reddish-brown powder, fracture resinous and very unequal, appearance sometimes homogeneous, but more commonly heterogeneous, mixed with bits of twigs, leaves, &c.; splinters transparent, ruby red; no smell, scarcely crackling under the teeth, but sometimes gritty, from the accidental mixture of sand; taste simply astringent, succeeded by sweetness, and, when long chewed, a portion adheres to the teeth; infusible and friable; powder reddish-brown. This is certainly obtained from the Eucalyptus resinifera, or brown gum-tree of New South Wales, by allowing the juice, which

either flows from it spontaneously, or is procured by wounding the tree, to harden in the sun. Some specimens of it in its fluid state have even reached this country.

The Dublin college have indicated the Butea frondosa as the source of kino, but certainly erroneously. It however produces in large quantities a red juice, very analogous to kino, and which may unquestionably be used as a substitute for it. The production of these substances, from so many different trees in Africa, America, Asia, and New Holland, shew that kino is to be considered as a genus of which these are species.

The analysis of kino, published in the first edition of this Dispensatory, has since been confirmed by Vauquelin, as well as the conclusion drawn from it, that it consists principally of tannin, and cannot with propriety be classed among the resins or gum-resins. But the undoubted origin of the third kind, and the examination of a red astringent matter which I picked from a cavity in a specimen of the Cassuarina, or beef-wood, prove that I was hasty in supposing that kino was always obtained from astringent barks by decoction and evaporation.

Kino is much more soluble in boiling than in cold water. The decoction, therefore, on cooling, becomes turbid with a very copious red sediment. The residuum seems to be softened by the heat of boiling water, at least it agglutinates into masses resembling melted red sealing wax dropt into water. By repeated decoctions with very large quantities of water, I have never been able to exhaust it of its soluble parts: the last decoctions had still a deep red colour, and blackened solutions of iron. This residuum is not more soluble in alcohol than in water, and is not fusible, but when thrown on live coals burns away without flame. Vauquelin observed, that when the whole quantity of water necessary to dissolve the soluble parts of kino is not employed at once, the residuum becomes more insoluble. Alcohol dissolves the whole of the Botany-bay kino except its impurities. With a certain proportion of water, this tincture lets fall a copious red precipitate, which may be separated by filtration, but with a larger proportion of water its transparency is only slightly disturbed. It is also remarkable, that alcohol dissolves kino entirely, but does not dissolve the residuum of the decoction. This fact would shew, that the portion extracted by the water had the property of rendering the residuum soluble in alcohol. The solutions of kino precipitate gelatine, and, according to Vauquelin, silver, lead, and antimony, white; and iron, green. I find that it resembles other astringents, in

forming a black precipitate with red sulphate of iron, which however is converted into green by the slightest excess of the sulphate, and by a larger excess is dissolved into a bright green liquid.

Med. use.—Kino is a powerful remedy in obstinate chronic diarrhœas and dysenteries; in all passive hæmorrhagies, especially from the uterus; in fluor albus; and in diseases arising from laxity of the solids.

It is exhibited internally, in doses of from ten to thirty grains, in substance, or dissolved in diluted alcohol.

Externally, it is applied as a styptic, to check hæmorrhagies from wounds or ulcers, and to diminish the discharge of sanious or ichorous matter from ill-conditioned ulcers.

LACTUCA. *Ed.*

Willd. *g.* 1404, Smith, *g.* 342. *Syngenesia æqualis.*—Nat. ord. *Compositæ semiflosculosæ.*

Sp. 12. LACTUCA VIROSA. *Ed.*

Strong-scented lettuce.

Off.—The herb.

HERBA LACTUCÆ VIROSÆ. *Ed.*

THIS plant flowers in August and September, is biennial, and grows wild on rubbish and rough banks, in many places in this country.

The whole plant abounds with a milky juice, intensely bitter, considerably acrid, and having a strong virose smell like opium.

Medical use.—An extract prepared from the expressed juice of the leaves of the strong-scented lettuce, gathered when in flower, has been given in dropsies of long standing, proceeding from visceral obstructions, to the extent of half an ounce a-day. It is said to agree with the stomach, to quench thirst, to be gently laxative, powerfully diuretic, and somewhat diaphoretic. Plentiful dilution is allowed during its operation. Dr Collin of Vienna asserts, that out of twenty-four dropsical patients, all but one were cured by this medicine.

Sp. LACTUCA SATIVA. *Ed.*

Garden lettuce.

Off.—The herb.

HERBA LACTUCÆ SATIVÆ. *Ed.*

THIS succulent vegetable, which is a valuable sallad, and abounds with a cooling bland and pellucid juice before its flower stem shoots, after that abounds with a milky juice of an intensely bitter taste, which becomes brown on drying by

exposure to the air. This juice has been analyzed by Mr John of Berlin, and found to consist of water, caoutchouc as its principal constituent, a trace of resin, a small quantity of bitter extractive, and phosphats, muriats, and sulphats. According to this analysis, the milky juice of lettuce would seem a very inert substance, as the caoutchouc, which is its principal solid constituent, has no action on the body. But the remarkable similarity of the taste of shot-lettuce to that of opium, induced Dr Coxe of Philadelphia to make a series of comparative experiments with lettuce opium on frogs, as well as on the human subject. "These experiments were made on frogs as well as on the human subject. The laudanum made from the opium of the lettuce increases the pulse in force and frequency, and produces generally the same effects as result from similar doses of common laudanum. It has been used with advantage in allaying the pain of chronic rheumatism and cholic; in checking the frequent stools accompanying diarrhœa; in allaying cough, &c. &c." Dr Duncan senior has also taken much pains to discover the best method of preparing lettuce opium, and his trials have been so successful, that it has obtained a place in the last edition of the Edinburgh Pharmacopœia, under the title of LACTUCARIUM.

LAURUS.

Willd. g. 798. *Enneandria Monogynia.*—Nat. ord. *Olerace*æ.

Sp. 1. LAURUS CINNAMOMUM. *Ed. Lond. Dub.*
The cinnamon tree.

Off.—The inner bark and its essential oil.

a) CORTEX LAURI CINNAMOMI. *Ed.*
CORTEX CINNAMOMI. *Dub.* (Liber) *Lond.*

b) OLEUM CINNAMOMI. Ejus oleum essentiale. *Lond.*
OLEUM ESSENTIALE CINNAMOMI. *Dub.*

THIS valuable tree is a native of Ceylon, where it was guarded with unremitting jealousy by the Dutch, that they might monopolize the commerce of its productions. They failed, however, in the attempt; and the cinnamon tree is now cultivated, not only in other parts of the East Indies, but also in Jamaica, and other islands in the West Indies. Ceylon now belongs to the British, and Captain Perceval has published a very interesting account of the cinnamon tree. It is found in greatest perfection in the immediate neighbourhood of Columbo, and grows from four to ten feet high, very bushy. The leaves resemble those of the laurel, and, when chewed, have the hot taste and smell of cloves. The blossom is white and very abundant, but diffuses no odour. The fruit

resembles an acorn, and a species of fixed oil is obtained from it. There are several different species of cinnamon trees, or trees resembling them in Ceylon, but four only are barked by government; the honey cinnamon, the snake cinnamon, the camphor cinnamon, which is inferior to these, and yields camphor from its roots, and camphor mixed with gum from incisions made into it, and the *cabatte* cinnamon, which is harsher and more astringent than the others. The bark is collected at two seasons; the grand harvest lasts from April to August, the little harvest is in December. Such branches as are three years old are lopped off, the epidermis is then scraped off, the bark slit up, loosened, and removed entire, so as to form a tube open at one side. The smaller of these are inserted within the larger, and they are spread out to dry. They are then packed up in bundles. The tasting of those bundles to ascertain their quality is a very disagreeable duty imposed on the surgeons. It excoriates the tongue and mouth, and causes such intolerable pain as renders it impossible for them to continue the occupation two or three days successively. In their turns, however, they are obliged to resume it, and they attempt to mitigate the pain by occasionally eating a piece of bread and butter. It is then made up in large bundles about four feet long, and eighty pounds in weight. In stowing the bales on shipboard, the interstices are filled up with black pepper, a practice which is supposed to improve both spices.

The best cinnamon is rather pliable, and ought not much to exceed stout writing paper in thickness. It is of a light yellowish colour; it possesses a sweet taste, not so hot as to occasion pain, and not succeeded by any after-taste. The inferior kind is distinguished by being thicker, of a darker and brownish colour, hot and pungent when chewed, and succeeded by a disagreeable bitter after-taste. The Dutch were accused of deteriorating their cinnamon by mixing it with a proportion of real cinnamon, but which had been deprived of its essential oil by distillation. This fraud could only be detected by the weaker smell and taste. It is also often mixed with cassia bark. This last is easily distinguishable by its fracture being smooth, and by its slimy mucilaginous taste, without any of the roughness of the true cinnamon.

By distillation with water, it furnishes a small quantity of very pungent and fragrant oil; the water itself remains long milky, and has a strong flavour of cinnamon. The watery extract in Neumann's experiment amounted to 720 from 7680 parts. With alcohol the oil does not arise in distillation, but remains in the extract, which amounts to 960.

The essential oil of cinnamon has a whitish-yellow colour, a pungent burning taste, and the peculiar fine flavour of cinnamon in a very great degree. It should sink in water, and be entirely soluble in alcohol. It is principally prepared in Ceylon.

Medical use.—Cinnamon is a very elegant and useful aromatic, more grateful both to the palate and stomach than most other substances of this class. Like other aromatics, the effects of cinnamon are stimulating, heating, stomachic, carminative, and tonic; but it is rather used as an adjunct to other remedies, than as a remedy itself.

The oil is one of the most powerful stimulants we possess, and is sometimes used as a cordial in cramps of the stomach, and in syncope; as a stimulant in paralysis of the tongue, or to deaden the nerve in toothach. But it is principally employed as an aromatic, to cover the disagreeable taste of other drugs.

Sp. 2. LAURUS CASSIA. *Ed. Dub.*
The cassia tree.
Off.—The bark and flower-buds gathered before they open.
a) CORTEX LAURI CASSIÆ. *Ed.*
CORTEX CASSIÆ LIGNEÆ. *Dub.*
b) FLORES LAURI CASSIÆ. Flores nondum expliciti. *Ed.*
FLORES NONDUM EXPLICITI CASSIÆ LIGNEÆ. *Dub.*

THIS tree is very similar to the former. The bark, which is imported from different parts of the East Indies and from China, has a great resemblance to the true cinnamon, from which it is only distinguishable by being of a thicker and coarser appearance, and by its breaking short and smooth, while the cinnamon breaks fibrous and shivery.

It resembles cinnamon still more exactly in its aromatic flavour and pungency than in its external appearance, and seems only to differ from it in being considerably weaker, and in abounding more with a mucilaginous matter.

Cassia buds are the flower-buds, which are gathered and dried before they expand. They have the appearance of a nail, consisting of a round head, about the size of a peppercorn, surrounded with the imperfect hexangular corolla, which gradually terminates in a point. They have a brown colour, and the smell and taste of cinnamon.

Medical use.—Both the bark and buds of cassia possess the same properties with cinnamon, though in an inferior degree.

The bark is very frequently, and sometimes unintentionally, substituted for the more expensive cinnamon; and the

products obtained from cassia bark and buds, by distillation, are in no respect inferior to those prepared from cinnamon.

Sp. 3. LAURUS CAMPHORA. *Ed. Lond. Dub.*
Camphor tree.
See CAMPHORA.

Sp. 10. LAURUS NOBILIS. *Ed. Lond.*
Bay tree.

Off.—The leaves, berries, and expressed oil of the berries.
a) FOLIUM LAURI NOBILIS. *Ed. Lond.*
FOLIA LAURI. *Lond.*
b) BACCÆ LAURI NOBILIS. *Ed.*
BACCÆ LAURI. *Lond.*
c) OLEUM FIXUM LAURI NOBILIS. *Ed.*

THIS tree is a native of the south of Europe, but bears the winters of this climate perfectly well. Both leaves and berries contain a considerable quantity of essential oil, which renders them aromatic stimulating substances.

The berries are generally brought from the Mediterranean, and are more pungent than the leaves. In Spain and Italy, a considerable quantity of oil is obtained by expression from the fresh berries. It has a green colour, and strong aromatic taste and smell. As it therefore is not a fixed oil, but a mixture of fixed and volatile oil, and as its peculiar properties depend entirely on the presence of the latter, it is incorrectly stated to be a fixed oil by the Edinburgh college. It should rather have been denominated, from the mode of its preparation, an expressed oil.

Medical use.—It is only used externally as a stimulant.

Sp. 34. LAURUS SASSAFRAS. *Ed. Lond. Dub.*
Sassafras.

Off.—The wood, root, and bark.
a) LIGNUM LAURI SASSAFRAS. *Ed.*
LIGNUM SASSAFRAS. *Lond. Dub.*
b) RADIX LAURI SASSAFRAS. *Ed.*
RADIX SASSAFRAS. *Lond. Dub.*
CORTEX SASSAFRAS. *Dub.*

THIS tree is a native of North America, and is cultivated in Jamaica. It is the root which is commonly employed. It is brought to us in long branched pieces. It is soft, light, and of a spongy texture; of a rusty white colour; of a strong pleasant smell, resembling that of fennel; and a sweetish, aromatic, sub-acrid taste. The bark is rough, of a brown-ash colour on the outside, and ferruginous colour within;

spongy and divisible into layers, and of a stronger taste and smell than the wood.

Neumann got from 480 grains, 80 of alcoholic, and afterwards 60 of watery extract, and inversely 120 watery, and 7.5 alcoholic. In distillation, alcohol elevates nothing, but water a ponderous essential oil, in the proportion of about 10 from 480.

Medical use.—Sassafras, from the quantity of volatile oil it contains, is a gently stimulating, heating, sudorific, and diuretic remedy.

It is best given in infusion. The decoction and extract are mere bitters, as the oil is dissipated by the preparation.

The essential oil may be obtained separate by distillation. It is of a whitish-yellow colour, and sinks in water. It is highly stimulating and heating, and must be given only in very small doses.

LAVANDULA SPICA. *Ed. Lond. Dub.*

Willd. *g.* 1099, *sp.* 1. *Didynamia Gymnospermia.*—Nat. ord. *Verticillatæ.*

Lavender.

Off.—The flowering spikes.

FLORES LAVANDULÆ SPICÆ. *Ed.*

FLORES LAVANDULÆ. *Lond. Dub.*

LAVENDER is a well-known, small, shrubby, perennial plant, a native of the south of Europe, but frequently cultivated in our gardens, for the sake of its perfume. There are two varieties. The flowers of both have a fragrant, agreeable smell, and a warm, pungent, bitterish taste; the broad-leaved variety is the strongest in both respects, and yields in distillation thrice as much essential oil as the other; its oil is also hotter, and specifically heavier: hence, in the southern parts of France, where both kinds grow wild, this only is used for the distillation of what is called oil of spike. The narrow-leaved is the variety commonly met with in our gardens.

Medical use.—Lavender is a warm stimulating aromatic. It is principally used as a perfume.

LEONTODON TARAXACUM. *Ed. Lond. Dub.*

Willd. *g.* 1407, *sp.* 1. Smith, *g.* 344, *sp.* 1. *Syngenesia æqualis.*—Nat. ord. *Compositæ semiflosculosæ.*

Common dandelion.

Off.—The root and leaves.

a) HERBA LEONTODI TARAXACI. *Ed.*

FOLIA TARAXACI. *Dub.*

b) Radix leontodi taraxaci. *Ed.*
Radix taraxaci. *Lond. Dub.*

This perennial plant is very common in grass fields, and uncultivated places. It flowers from April to July. The whole plant contains a bitter milky juice, which, however, is most abundant in the roots before the flower-stem shoots. The bitterness is destroyed by drying, and therefore the recent roots only should be used.

Medical use.—Its vulgar name in all languages shews a popular belief of its possessing diuretic properties; and it was lately a very fashionable remedy in Germany, given in the form of an expressed juice or decoction, or extract prepared from either of them; but it seems to be merely a mucilaginous bitter.

Lichen.
Murray, *g.* 1202. *Cryptogamia, algæ, lichenes.*
Sp. 50. Lichen islandicus. *Lond. Dub. Ed.*
Iceland moss. Eryngo-leaved liverwort.

Off.—The plant.
Lichen. *Lond.*
Lichen islandicus. *Dub. Ed.*

This is a perennial lichen, very common in Iceland, but also found in the forests and dry sterile woods of Switzerland and Germany, growing upon stones and on the earth. It has dry coriaceous leaves, divided into lobes and laciniæ, which are again notched and subdivided, with elevated margins, beset with short, very minute, rigid, parallel hairs, and marked with white spots, reddish towards the points. Amongst the leaves are found peltated, somewhat excavated, shining, viscid bodies, internally of a brown colour: these are the pericarpiums. When fresh, the colour of this lichen is greenish-yellow, or greyish-brown; but when dried, greenish-white or grey. In Sweden principally, and in Germany, a variety is found, with smaller, tenderer, crisper leaves, destitute of hairs on the margin, of a paler lead colour, orange beneath. It is gathered in rainy weather, because it is then more easily detached from the stones. In the countries where it abounds, it is used for the nourishment both of cattle and of man. Mr Proust has analysed it with much success. A pound of dry lichen immersed in cold water soon resumed its fresh colour, and weighed two pounds two ounces, gave out a pale fawn colour to the water, but none of its bitterness. When previously powdered, it gives out a bitter, pale, yellow juice, losing about three *per cent.* in cold, and six in boiling water.

This bitterness resides in an extractive, which is employed in Iceland to dye a brown colour. By boiling lichen a quarter of an hour, it becomes sufficiently tender for use as an esculent vegetable. Lichen cooked in this manner has a kind of membranous elasticity, peculiar to some of the algæ and fungi; and after being dried, has only to be moistened with boiling water to resume this elasticity. Its appearance is not very prepossessing, having an unequal yellow colour, and a slight marine smell. A pound of dry lichen by boiling weighs three pounds, and when dried again, is reduced to two-thirds of a pound.

The decoction has a clear yellow colour, and a slightly bitter taste, which, even when made with eight waters, on cooling becomes a tremulous jelly, without any viscidity. This jelly on standing, contracts, expresses the water, cracks, and dries into transparent angular fragments, of a deep red colour, insoluble in cold water, soluble in boiling water, from which it is precipitated by infusion of galls. By nitric acid it is converted into oxalic acid. The insoluble part dissolves readily in nitric acid, forming oxalate of lime and oxalic acid, and is converted into a gelatinous pulp by potass.

According to this analysis, one hundred parts of dried lichen give, of

Bitter extractive,	3
Matter soluble in hot water,	33
Matter insoluble in hot water,	64 = 100

The last substance has much analogy with gluten, and the second with starch, particularly in the remarkable property of being precipitated by infusion of galls. It differs from it, however, in not being glutinous, and in the solid matter of the jelly contracting and separating from the fluid, as curd does from whey.

Medical use.—From the analysis of this lichen, it appears to consist principally of a nutritious substance, combined with a bitter; and on the combination of these, its medical virtues probably depend. It is used, according to Arnemann,

1. In cough with expectoration, threatening to terminate in consumption; after neglected catarrhs, the consequence of peripneumony, when the expectoration becomes more copious and purulent.
2. In emaciation from measles, (Schoenheide;) from wounds and ulcers with great discharge, (Plenk;) after salivation; and from actual ulcers in the lungs, when there is no fever, (Scopoli,) especially after neglected colds, or from translated morbid matter. In a

high degree of the disease it does little good, but the night sweats are diminished by it, (Millin.) In pituitous phthisis it is of great service.

4. In hæmoptysis, (Frize.)
5. In chincough, (Tode.)
6. In diabetes, as a tonic and palliative remedy.

It is commonly exhibited in decoction with water, broth, or milk, after the bitter has been extracted from it by steeping it in warm water; or in substance, boiled in chocolate or cocoa, or made into a jelly with boiling water. Half an ounce, or an ounce, must be used daily, and continued for some time. Proust disbelieves its specific virtues, but recommends it strongly as an article of diet in times of scarcity, and as a very convenient antiscorbutic vegetable in long sea voyages.

Sp. 115. LICHEN ROCELLA. *Dub.*
Orchill.

Officinal.—Litmus, turnsole.
LITMUS, lacmus tinctorius. *Dub.*

THIS lichen is found in Guernsey and Portland island, but it is from the Canary islands that it is chiefly obtained. It is not sold in the state of the plant merely dried, but manufactured by the Dutch into a paste, called *Litmus*, *Orseille en pate*. It is sold in square masses, about an inch in length, and half an inch in breadth and thickness, hard and brittle, having the appearance of a violet-coloured earth, with white spots. It has a violet smell, probably from the addition of oris root powder; and when tasted, speedily tinges the saliva, and gives a sense of heat in the mouth. This paste is prepared by making the lichen undergo a kind of fermentation in vats with urine and lime-water, forming the whole into a pulp, and then dividing it into squares to dry.

Litmus is chiefly used as a dye-stuff, and by chemists as a very valuable test of the presence of uncombined acids. I must frankly confess my ignorance of the grounds upon which the Dublin college have introduced it into their *Materia Medica*. The translator of the Pharmacopœia merely says, "it "has been used medicinally with an intention of allaying the "tickling attendant on phthisis, and in hysterical coughs."

LINUM.

Willd. *g.* 590. Smith, *g.* 163. *Pentandria Pentagynia.*—Nat. ord *Gruinales.*

Sp. 1. Willd. Smith. LINUM USITATISSIMUM. *Ed. Lond. Dub.*
Common flax.

Off.—The seed.

SEMINA LINI USITATISSIMI. *Ed. Lond.*

SEMINA LINI. *Dub.*

THIS valuable annual plant is said to have come originally from those parts of Egypt which are exposed to the inundations of the Nile. It now grows wild in the fields in the south of England, and is cultivated in large quantities. It flowers in July.

Lintseed contains about one-fifth of mucilage, and one-sixth of fixed oil. The mucilage resides entirely in the skin, and is separated by infusion or decoction. The oil is separated by expression. It is one of the cheapest fixed oils; but is generally rancid and nauseous, and unfit for internal use. The cake which remains after the expression of the oil contains the farinaceous and mucilaginous part of the seed, and is used in fattening cattle, under the name of Oil-cake.

Medical use.—Lintseed is emollient and demulcent. The entire seeds are used in cataplasms. The infusion is much employed as a pectoral drink, and in ardor urinæ, nephritic pains, and during the exhibition of corrosive sublimate.

Sp. 26. Willd.; *sp.* 4. Smith. LINUM CATHARTICUM. *Dub. Lond.*

Purging flax. Mill-mountain.

Officinal.—Herba. The herb.

LINUM CATHARTICUM. *Lond.*

HERBA LINI CATHARTICI. *Dub.*

THIS is an annual indigenous plant, found wild on dry meadows and pastures. It flowers from June to August. It is extremely bitter. An infusion in water or whey of a handful of the fresh herb, or a drachm of it in substance, when dried, is said to purge without inconvenience.

LITHRUM SALICARIA. *Dub.*

Willd. *g.* 951, *sp.* 1. Smith, *g.* 223, *sp.* 1. *Dodecandria Monogynia.*—Nat. ord. *Calycanthemæ.*

Purple-spiked Willowstrife, Loosestrife.

Officinal.—The herb.

HERBA LITHRI SALICARIÆ. *Dub.*

THIS perennial plant is indigenous, and grows in marshes, and on the banks of rivers. The dried leaves have a herbaceous taste, somewhat astringent, and when moistened soon give out a ropy mucilage. Hence it is difficult to swallow the powder mixed with water. An ounce of the plant yielded to Sagar three drachms of watery, and only two drachms and

24 grains of spiritous extract, and the former was more disagreeably austere and exsiccative.

The decoction of this plant has been long celebrated in Ireland in diarrhœas. In the same disease, it is a popular remedy in Sweden; and De Haen and Stork and others have given it with success in laxity of the intestines from an accumulation of sordes. After premising a purgative, a drachm or more of the powder may be given morning and evening, or three times a-day. A decoction also of the plant or root may be given in diarrhœa or dysentery. Its properties are evidently mucilaginous and astringent.

LYTTA VESICATORIA.—See CANTHARIS.

MAGNESIÆ SULPHAS, s. s. Sulphas magnesiæ purificata. *L.*
SULPHAS MAGNESIÆ. *Ed.*
SULPHAS MAGNESIÆ, *olim* Sal catharticum amarum. *Dub.*
Sulphate of magnesia. Epsom salt. Bitter purging salt.

THIS salt is contained in several mineral springs, and also in sea-water, from which it is obtained by evaporation. It crystallizes in tetrahedral prisms, has a very bitter taste, and is soluble in its own weight of water at 60°, and in three-fourths of its weight of boiling water. Sulphate of magnesia, when perfectly pure, effloresces; but that of commerce generally contains foreign salts, such as the muriate of magnesia, which renders it so deliquescent that it must be kept in a close vessel or bladder. By the action of heat it undergoes the watery fusion, and loses its water of crystallization, but does not part with its acid. It is decomposed by baryta, strontia, the alkalis, and all the salts formed by these salifiable bases, excepting the alkaline muriates; and by the nitrate, muriate, and carbonate of lime.

Medical use.—It is a mild and gentle purgative, operating with sufficient efficacy, and in general with ease and safety, rarely occasioning any gripes, sickness, or the other inconveniences of resinous purgatives. Six or eight drachms may be dissolved for a dose in a proper quantity of common water; or four, five, or more, in a pint or quart of the purging mineral waters. These solutions may likewise be so managed as to promote evacuation by the other emunctories; if the patient be kept warm, they increase perspiration: and by moderate exercise in the cool air, the urinary discharge. Some allege that this salt has a peculiar effect in allaying pain, as in colic, even independently of evacuation.

It is also used in great quantities for the preparation of the carbonate of magnesia.

MALVA SYLVESTRIS. *Ed. Lond.*
Willd. *g.* 1290, *sp.* 43. Smith, *g.* 317, *sp.* 1. *Monadelphia Polyandria.*—Nat. ord. *Columniferæ.*
Common mallow.

Off.—The leaves and flowers.
a) HERBA MALVÆ SYLVESTRIS. *Ed.*
MALVA. *Lond.*
b) FLORES MALVÆ SYLVESTRIS. *Ed.*

THIS is a perennial plant, common in Britain, under hedges, near footpaths, and among rubbish. It flowers from May to August.

The whole plant abounds with mucilage. The leaves were formerly of some esteem in food for loosening the belly; at present, decoctions of them are sometimes employed in dysenteries, heat, and sharpness of urine, and in general for obtunding acrimonious humours; their principal use is in emollient glysters, cataplasms, and fomentations.

MANGANESIUM. *Dub.*
Manganese; the black oxide of Manganese.

THIS metallic oxide is now, for the first time, introduced into the materia medica. It is to be regretted that the Dublin college has given, as the officinal name of the oxide, that which scientifically belongs to the metal.

Manganese is found,
I. Metallic.
1. Native manganese.
II. Oxidized. Grey ore, containing its black oxide.
1. Foliated grey ore.
2. Radiated.
3. Compact.
4. Earthy.
III. Sulphuretted. The black ore.
IV. Carbonated. The red ore.

The varieties of the grey ore are the most common. It is found in greatest purity at Exeter, and at Howth near Dublin. It is chiefly used for destroying the colour which iron imparts to glass, and has hence been called Glass-maker's soap, and for preparing the oxymuriatic acid, now so much used in bleaching. The recent application of the same acid to the destruction of contagion, and to other medical purposes, has procured the black oxide of manganese a place in the list of the materia medica.

MANNA. Succus concretus Fraxini orni. *Lond. Dub. Ed.*
Manna, the concrete juice of the manna ash.

The tree which is indicated as yielding the officinal manna is the *Fraxinus ornus.* Willd. *g.* 1908, *sp.* 15. *Polygamia Diœcia.*—Nat. ord. *Ascyrbideæ.* It is obtained from other species of fraxinus besides the ornus, and especially from the rotundifolia. It is principally collected in Calabria, Apulia, and Sicily. In the warmest season of the year, from the middle of June to the end of July, a clear juice exudes from the stem and branches of these trees, which, when naturally concreted on the plants, and scraped off, is called Manna in the tear; but if allowed to exude on straws, or chips of wood fastened to the tree, it is called canulated, or flaky manna. The common or fat manna is got by incisions made after the spontaneous exudation is over, and is in larger masses, and of a redder colour. The best Calabrian manna is in oblong, light friable pieces or flakes, of a whitish or pale yellow colour, and somewhat transparent. The inferior kinds are moist, unctuous, and dark coloured.

Denon, in his travels in Sicily, has given an account of the manna produced there, which, though less known, is dearer than that of Calabria, and preferred to it. As soon as the trees are seven or eight years old, and about eight feet high, horizontal incisions are begun to be made in the bark one over the other, from the surface of the earth to the top of the tree. The operation is repeated every two days, from the 15th July, until the rains or fogs of autumn suspend the circulation or deteriorate the quality of the saccharine juice which exudes. The liquor first appears like a white froth extremely light, pleasing to the palate, and of a very agreeable flavour. The heat of the sun coagulates this frothy juice, and gives it the form of stalactites. The glutinous and more highly coloured liquor that now distils from the wounds is received on leaves of the Indian fig, placed for the purpose at the foot of the tree. This too becomes at length congealed by the sun, and being then taken up in lumps, forms what is called *Fat manna*, which is heavier, more purgative, and of much less value.

The wood of the manna ash is hard, heavy, and bitter, and the decoction of it is said to be aperient, and of great efficacy in the dropsy.

Olivier mentions different kinds of manna found in Persia, one called *Cherker*, more purgative than Calabrian manna, got from the north of Khorassan and Little Tartary; another very good to eat, which must be collected before sun-rise, because it melts with the heat of the sun; and a third, called *Therenjabri*, the product of the *Hedysarum alagi*, in the warmest provinces of Persia and Arabia. It is gathered during a

month at the end of summer. It is found in all parts of the plant, especially the young shoots, in little round grains which have the taste and consistence of well-crystallized sugar, and like it crackle under the teeth. It is very common, and found in all the druggists' shops of Persia, but commonly mixed with leaves and other impurities. It is not more purgative than honey, and is much used as a pectoral.

Manna appears often to be formed and deposited by insects. Manna is said to be sometimes counterfeited by a composition of sugar and honey, mixed with a little scammony: there is also a factitious manna, which is white and dry, said to be composed of sugar, manna, and some purgative ingredient, boiled to a proper consistence. This may be distinguished by its weight, solidity and transparent whiteness, and by its taste, which is different from that of manna.

According to Neumann, manna dissolves in alcohol. On setting the solution in a digesting heat, it gradually deposites 5-8ths of the manna, of a fine white colour, light, spongy, and in some degree crystalline, melting instantly upon the tongue, and impressing an agreeable sweet taste, without any of the nauseousness of the manna. By further evaporation 1-4th more is obtained, similar to manna; and on continuing the evaporation, a thick extract is formed, of the consistence of a balsam, which can scarcely be fully exsiccated, but continues moist, and resembles civet grown brown by age. This extract, which is about 1-8th, contains all the nauseous matter of the manna. The experiments which I have made verify these observations. The quantity of matter which a hot alcoholic solution of manna deposites on cooling is various: a saturated solution concretes into a perfectly dry, white, spongy, crystallized mass. When much less concentrated, it deposites a congeries of most beautiful snow-white acicular crystals. A saturated solution in boiling water also forms a solid crystallized mass on cooling. Fourcroy says, that when a solution of manna is clarified with whites of eggs, and sufficiently concentrated, crystals of sugar may be obtained from it. But with Dr Thomson the experiment did not succeed: its crystals were always acicular, and more difficultly formed.

Medical use.—Manna is a mild agreeable laxative, and may be given with safety to children and pregnant women: nevertheless, in some particular constitutions, it acts very unpleasantly, producing flatulency, and distension of the viscera: these inconveniences may be prevented by the addition of any grateful warm aromatic. Manna operates so weakly as not to produce the full effect of a cathartic, unless taken in large doses; and hence it is rarely given by itself with this inten-

tion. It may be commodiously dissolved in the purging mineral waters, or joined with the cathartic salts, senna, rhubarb, or the like.

MARRUBIUM VULGARE. *Ed. Lond. Dub.*
Willd. g. 1111, *sp.* 8. Smith, *g.* 270, *sp.* 1. *Didynamia Gymnospermia.*—Nat. ord. *Verticillatæ.*
White horehound.

Off.—The leaves.
HERBA MARRUBII VULGARIS. *Ed.*
FOLIA MARRUBII ALBI. *Dub.*
MARRUBIUM. *Lond.*

THIS is a perennial plant, which grows wild on road-sides, and among rubbish, and flowers in July. The leaves have a very strong, not disagreeable smell, and a roughish, very bitter taste. Neumann got from 480 grains, 270 watery, and 30 alcoholic extract, and inversely 150 alcoholic, and 140 watery. They promote the fluid secretions in general, and liberally taken, loosen the belly.

MEL. *Lond. Dub. Ed.*
Honey.

THIS is a well-known substance; and although it is most probably of vegetable origin, it is not procured in any quantity except as an animal excretion from the bee (apis mellifica.) This industrious insect, in the summer-time, flies from flower to flower, to collect the sweet juice secreted in them. When sufficiently loaded, it returns to its hive, where it deposites the honey, as a winter's supply, in the cells of the comb it has prepared of wax to receive it. What change it undergoes in the body of the insect is unknown; but it is certain that honey varies very much, according to the nature of the plants from which it is collected.

The best honey is that which is freest from colour, and contains the largest grains when it concretes. For medical use, it should also be as free of flavour as possible. That obtained from young bees, and which flows spontaneously from the combs, is the purest and finest, and is known by the name of Virgin honey. When separated from the wax by expression, it is less pure; and there is another sort still inferior, obtained by heating the combs before they are put into the press.

Honey consists principally of sugar, but it also probably contains mucilage and an acid, and is often impregnated with the essential oil of the flowers from which the bees have gathered it, as in the perfumed honey of the Crimea. In

some parts of Asia and America, poisonous honey is met with from the bees feeding on poisonous flowers. Neumann exsiccated honey in the water-bath: the vapour which arose, he says, took fire on the approach of a candle, and diffused its smell widely; and the liquor which was condensed was manifestly impregnated both with the smell and taste of honey, and amounted to three ounces, from eight of honey. Dissolved in water, it undergoes the vinous fermentation, forming mead. Treated with alcohol, Proust says it may be separated into two kinds, one liquid, and the other crystalline. Cavellazzi obtained crystals of sugar from it, by saturating its acid with carbonate of lime; and it is converted into oxalic acid by the action of nitric acid.

Medical use.—From the earliest ages, honey has been employed as a medicine. Besides the general properties of saccharine bodies, it possesses others peculiar to itself, probably depending on the presence of an acid. For internal use, sugar is commonly to be preferred, as honey, in some constitutions, produces gripes and colic pains. From its stimulus, however, it forms an excellent gargle, and facilitates the expectoration of viscid phlegm; and it is sometimes employed as an emollient application to abscesses, and as a detergent to ulcers. It is also preferable to sugar in forming electuaries, as it is not so apt to crystallize.

MELALEUCA LEUCADENDRON. *Ed. Dub.*
MELALEUCA CAJUPUTI. *Lond.*
Willd. *g.* 1428. *Species nova. Polyadelphia Polyandria.*—Nat. ord. *Hesperideæ.*
The broad-leaved cajeput tree.
Off.—The essential oil called Cajeput oil.
OLEUM VOLATILE MELALEUCÆ LEUCADENDRI. *Ed.*
OLEUM CAJUPUTI, oleum essentiale. *Lond.*
OLEUM CAJEPUT. *Dub.*

THE tree which furnishes the cajeput oil is frequent on the mountains of Amboyna, and the other Molucca islands. Drs Maton and Smith have lately examined specimens of this tree, which correspond with Rumphius, tab. 17, vol. ii.; and, as an unclassified species, have named it Melaleuca cajuputi. But, as Thunberg says, it is got from the leucadendron, perhaps both species yield it. Indeed, Rumphius himself would lead us to the same opinion. The oil is obtained by distillation from the dried leaves, and is prepared in great quantities, especially in the island of Banda, and sent to Holland in copper flasks. As it comes to us, it is of a green colour, very limpid, lighter than water, of a strong smell, resembling

camphor, and has a strong, pungent taste, like that of cardamoms. It burns entirely away, without leaving any residuum. It is often adulterated with other essential oils, coloured with the resin of milfoil. In the genuine oil, the green colour depends on the presence of copper; for, when rectified, it is colourless.

Medical use.—Like other aromatic oils, it is highly stimulating, and is principally recommended in hysteria, epilepsy, flatulent colic, and paralysis of the tongue. The dose is from one to four drops on a lump of sugar.

It is applied externally, where a warm and peculiar stimulus is requisite; and is employed for restoring vigour after luxations and sprains; and for easing violent pain in gouty and rheumatic cases, in toothach, and similar affections.

MELISSA OFFICINALIS. *Ed.*

Willd. *g.* 1118, *sp.* 1. *Didynamia Gymnospermia.*—Nat. ord. *Verticillatæ.*

Balm.

Off.—The herb.

FOLIA MELISSÆ OFFICINALIS. *Ed.*

BALM is a perennial plant, which grows wild on the Alps and Pyrennees, and is frequently cultivated in our gardens. It has a pleasant smell, and a weak, roughish, aromatic taste. The young shoots have the strongest flavour; the flowers, and the herb itself, when old, or produced in very moist rich soils, or rainy seasons, are much weaker, both in smell and taste.

It is principally used in the form of a watery infusion, which is drunk in the manner of tea.

MENISPERMUM COCCULUS. *Ed.*

Willd. *g.* 1826, *sp.* 7. *Diœcia Dodecandria.*—Nat. ord.

Cocculus Indicus.

Off.—The berry.

BACCÆ MENISPERMI COCCULI.

THIS tree is a native of Ceylon, Malabar, Java, and other places of India. The nuts are about the size of large peas, of a grey colour, and wrinkled surface. They contain a kidney-shaped seed, within a very thick shell. The seed is intensely bitter, and very acrid. M. Boullay analysed them, and found them to contain about half their weight of a concrete waxy oil, albumen, a particular colouring matter, a new bitter poisonous principle, which he has named *Picro-*

toxine, fibre and various saline matters. The picrotoxine acts as a poison, resembles camphor in its action, but is much more powerful. The cocculus indicus is used to intoxicate fishes in order that they may be caught; and it is said to be employed by some porter brewers to give bitterness to their beer, to render it more intoxicating. An ointment made with it has long been a domestic remedy in some places to kill vermin on the head, and is successfully applied in cases of tinea capitis.

MENTHA.

Willd. *g.* 1102. Smith, *g.* 262. *Didynamia Gymnospermia.* —Nat. ord. *Verticillatæ.*

Sp. 7. Willd. *sp.* 3. Smith. MENTHA VIRIDIS. *Lond. Dub.* Spearmint.

Officinal.—The plant.
MENTHA VIRIDIS. *Lond.*
FOLIA MENTHÆ SATIVÆ. *Dub.*

SPEARMINT is perennial, and a native of Britain. It flowers in August. The leaves have a warm, roughish, somewhat bitter taste, and a strong, not unpleasant, aromatic smell.—Their virtues are stomachic and carminative.

Sp. 13. Willd. *sp.* 4. Smith. MENTHA PIPERITA. *Ed. Dub. Lond.* Peppermint.

Off.—The plant.
HERBA MENTHÆ PIPERITÆ. *Ed.*
MENTHA PIPERITA. *Lond.*
HERBA MENTHÆ PIPERITIDIS. *Dub.*

THIS species of mint is also perennial, and a native of Britain, where it is cultivated in very great quantities, for the sake of its essential oil. It flowers in August and September.

The leaves have a strong, rather agreeable smell, and a pungent, aromatic taste, somewhat resembling that of pepper, and accompanied with a peculiar sensation of coldness.

Its predominant constituents are essential oil and camphor, both of which rise in distillation, and are combined in what is called Oil of Peppermint.

Medical use.—Peppermint is principally used as a carminative and antispasmodic. The distilled water is a domestic remedy for flatulent colic, and the essential oil is often given with advantage, in doses of a few drops, in cramps of the stomach.

Sp. 20. Willd. *sp.* 12. Smith. MENTHA PULEGIUM. *Ed. Lond. Dub.*

Penny-royal.

Off.—The herb.

HERBA MENTHÆ PULEGII. *Ed.*

PULEGIUM. *Lond. Dub.*

THIS is also perennial, and a native of Britain. It flowers in September. In its sensible qualities it is warm, pungent, and aromatic, somewhat similar to spearmint, but less agreeable. It is seldom used.

MENYANTHES TRIFOLIATA. *Ed. Lond. Dub.*

Willd. *g.* 299. *sp.* 4. Smith, *g.* 84, *sp.* 1. *Pentandria Monogynia.*—Nat. ord. *Rotaceæ.*

Buckbean, Marsh trefoil.

Off.—The leaves.

FOLIA MENYANTHIS TRIFOLIATÆ. *Ed.*

MENYANTHES. *Lond.*

TRIFOLIUM PALUDOSUM. *Dub.*

THIS perennial plant is very common in marshy situations, and is one of the most beautiful of our native flowers. It flowers in June and July.

The leaves grow, by threes, on footstalks. They are excessively bitter, and their bitterness is extracted by infusion. They are said to be sometimes used in brewing ale, and that one ounce will go as far as half a pound of hops.

Medical use.—A drachm of them in powder purges and vomits. In infusion or extract, they have been recommended in intermittents, and in several cachectic and cutaneous diseases. The dose of the extract is from ten to twenty grains.

MOMORDICA ELATERIUM. *Lond. Dub.*

Monoecia Syngenesia. Willd. *g.* 7139, *sp.* 13.—Nat. ord. *Cucurbitaceæ.*

Wild cucumber.

Off.—The fresh fruit when almost ripe.

a) POMA ELATERII. Poma recentia. *Lond.*

FRUCTUS ELATERII. *Dub.*

b) ELATERIUM. *Ed.*

THIS plant is a native of the south of Europe, and is perennial. When cultivated in this country it does not survive the winter. The fruit is oblong, about an inch and a half long, and an inch in diameter. It is of a green colour, and beset with stiff hairs. When nearly ripe, it bursts on a slight touch, separates from its stalk, and sheds its seeds with great violence. From this circumstance it was named by the

Greeks *Elaterium*, which name was also applied to the fecula of the juice of the fruit, the only preparation used in medicine, and is now used in that sense by the Edinburgh College.

Medical use.—In a few grains it operates as a drastic purgative, and was sometimes used in dropsies. It is high priced and seldom used, though lately recommended by Dr Ferriar.

MORUS NIGRA.

Monoecia Tetrandria. Willd. *g.* 1664, *sp.* 5.—Nat. ord. *Scabridæ.*

Mulberry tree.

Off.—The fruit.

BACCÆ MORI. *Lond.*

THIS tree, which is supposed to have come originally from Persia, bears the cold of our winters, and ripens its fruit in England. The fruit has the same properties with other subacid fruits. Its juice contains tartaric acid.

MOSCHUS. *Ed. Dub.* Concretum sui generis. *Lond.*

Musk.

THE musk animal, Moschus Moschiferus, is an inhabitant of the most elevated region of Asia, particularly of the Altayan Alps, and the mountains which divide Thibet from China. It is gentle and timid, and its chace is difficult and dangerous. It is about three feet in length, and in its general form resembles the deer tribe. In the male, behind the navel, and before the prepuce, there is situated an oval bag, flat on one side, and convex on the other, about three inches long, and two broad, projecting about an inch, and having a small open orifice, beset with short hairs. In the young animal it is empty, but in the adult it is filled with a secreted matter, known by the name of Musk. When the bag becomes too full, the animal expresses part of its contents, by rubbing itself against stones or trees. The musk expressed in this manner is said to be the purest, but none of it probably reaches this country. The best musk is brought from Tonquin, an inferior sort from Agria and Bengal, and a still worse from Russia.

Fine musk comes to us in round thin bladders, which are generally about the size of a pigeon's egg, covered with short brown hairs, lined with a thin brown membrane, well filled, and without any appearance of having been opened. The musk itself is dry, with a kind of unctuosity, of a dark reddish brown or rusty blackish colour, in small round grains, with very few hard black clots, and perfectly free from sandy, or other visible foreign matter. If chewed, and rubbed with

a knife on paper, it looks smooth, bright, yellowish, and is free from grittiness. Laid on a red-hot iron, it catches flame, and burns almost entirely away, leaving only an exceedingly small quantity of light greyish ashes. The largest and fullest bag scarcely contains more than two drachms of musk.

Its taste is somewhat bitterish, and its smell extremely powerful and peculiar. Neumann got from thirty grains of musk twelve of watery and four of alcoholic extract; and inversely, ten of alcoholic, and six of watery. Its smell and taste were elevated in distillation with water, but not with alcohol. Neither the fixed nor volatile oils dissolve it.

The very great price of musk has given rise to many modes of adulterating it. To increase its weight, sand, and even particles of lead, are introduced through very small openings into the bags. The real musk is frequently abstracted from the bag, and its place supplied with dried blood, coarsely powdered, or some mixture with asphaltum. These adulterations are to be detected by discovering that the bag has been opened. The presence of blood is also known by the fetid smell it emits when heated sufficiently, and by the formation of ammonia, when rubbed with potass. Asphaltum is known by its shining fracture, and melting on hot iron, while musk is converted into charcoal. But there are even artificial bags filled with a composition containing some real musk. These are in general thicker, and covered with longer hair, and want the internal brown membrane which lines the real musk-bag.

Medical use.—Musk is still believed by some to be a medicine of very great efficacy. According to them, properly administered, it sometimes succeeds in the most desperate circumstances; it raises the pulse, without heating much; allays spasms, and operates remarkably on the brain, increasing the powers of thought, sensation, and voluntary motion.

It may be employed in every instance of typhus fever, especially when attended with delirium, or spasmodic affection of any particular organ, or of the whole system, or subsultus tendinum, &c. It is also used with the greatest benefit in exanthematous and phlegmonic diseases, accompanied with typhoid fever; and in many spasmodic affections, as chincough, epilepsy, trismus, &c.

It is most conveniently given in substance in powder, in doses of three grains or upwards, repeated every one or two hours. Its best preparation is the tincture.

Murias.

Muriate is the generic term for those secondary com-

pounds which contain muriatic acid. Their general properties have been already mentioned.

The muriates may be divided into three families;

1. Alkaline muriates,—soluble in water, fusible and vaporizable without decomposition, forming no precipitate with alkaline carbonates.

2. Earthy muriates,—generally soluble in water, decomposible by heat, forming a white precipitate with alkaline carbonates.

3. Metalline muriates.—The muriatic acid is capable of combining with many metals, in two states of oxidizement. The muriates which contain the metal in the state of protoxide, are in general very acrid, and soluble both in water and in alcohol. The muriates which contain the metal in the state of peroxide are often insoluble, have a white colour, and contain an excess of base, or are submuriates. The muriates are also the most volatile of the metalline salts, and often rise undecomposed in sublimation or distillation.

The officinal muriates are the muriate of ammonia and muriate of soda; and the preparations are the muriate of iron, of ammonia and iron, of barytes, of mercury, mild and corrosive, and of antimony. An account of each of these will be found under their respective bases, except the first, which we insert here, having been omitted in its proper place.

MURIAS AMMONIÆ. *Ed.*
AMMONIÆ MURIAS, s. s. Murias ammoniæ. *Lond.*
SAL AMMONIACUM, s. s. Murias ammoniæ. *Dub.*
Muriate of ammonia. Sal ammoniac.

MURIATE of ammonia is found native, especially in the neighbourhood of volcanoes. It was first prepared in Egypt from the soot of camel-dung by sublimation; but the greatest part of that now used is manufactured in Europe, either by combining ammonia directly with muriatic acid, or by decomposing the sulphate of ammonia by means of muriate of soda; or the muriates of lime and magnesia by means of ammonia.

In commerce, muriate of ammonia occurs, either sublimed in firm, round, elastic, concavo-convex cakes, or crystallized in conical masses. The latter commonly contain other salts, especially muriate of lime, which renders them deliquescent; and, therefore, the sublimed muriate of ammonia is to be preferred for the purpose of medicine.

Muriate of ammonia has an acrid, pungent, urinous taste. It is soluble in about three times its weight of water at 60°,

and in an equal weight at 212°. During its solution, it produces 32° of cold. It is also soluble in about 4.5 parts of alcohol. It is permanent in the ordinary state of the atmosphere. By a gentle heat, it may be deprived of its water of crystallization, and reduced to the form of a white powder. At a higher temperature it sublimes unchanged. Its crystals are either six-sided pyramids, aggregated in a plumose form, or still more commonly, four-sided pyramids. It consists of 32.75 muriatic acid, 25.00 ammonia, and 32.25 water. It is decomposed by the sulphuric and nitric acids; by baryta, potass, soda, strontia, and lime; by several secondary salts containing these acids or bases; and by those metalline salts whose bases form with muriatic acid an insoluble compound.

Medical use.—Muriate of ammonia is now seldom used internally. It was formerly supposed to be a powerful aperient and attenuant of viscid humours.

Externally applied, it is a valuable remedy. It may act in two ways.

1. By the cold produced during its solution.

It is from this cause that fomentations of muriate of ammonia probably prove beneficial in mania, apoplexy from plethora, lesions of the head, and in violent headachs. When used with this intention, the solution should be applied as soon as it is made.

2. By the stimulus of the salt.

On this principle we may explain its action as a discutient, in indolent tumours of all kinds, contusions, gangrene, psora, ophthalmia, cynanche, and in stimulating clysters. In some cases, as in chilblains, and other indolent inflammations, both modes of action may be serviceable. When first applied, the coldness of the solution will diminish the sense of heat and uneasiness of the part, and the subsequent stimulus will excite a more healthy action in the vessels.

MYRISTICA MOSCHATA. *Ed. Lond.*
MYRISTICA OFFICINALIS. *Dub.*
Willd. *g.* 1351, *sp.* 1. *Monoecia Monandria.*—Nat. ord. *Oleraceæ.*
The nutmeg tree.

Off.—Nutmeg; oil of nutmeg; oil of mace.

a) NUCLEUS MYRISTICÆ MOSCHATÆ. *Ed.*
NUCLEI MYRISTICÆ. *Lond.*
NUX MOSCHATA. *Dub.*

b) INVOLUCRUM NUCLEI MYRISTICÆ MOSCHATÆ, *vulgo* MACIS. *Ed.*
MACIS, Nucis moschatæ involucrum. *Dub.*

OLEUM ESSENTIALE NUCIS MOSCHATÆ. *Dub.*
d) OLEUM EXPRESSUM NUCIS MOSCHATÆ. *Dub.*
OLEUM EXPRESSUM NUCLEORUM MYRISTICÆ. *Lond.*

THE tree which furnishes this elegant spice is a native of the Molucca islands. It is not, however, cultivated in any of them except Banda, from which all Europe has been hitherto supplied with mace and nutmeg. The entire fruit is about the size of a peach, and is marked with a longitudinal furrow. The external covering is smooth, fleshy and bitter. As the fruit ripens, this bursts, and discloses the mace, which is an oily membranous pulp, of a dark red colour, and aromatic flavour, divided into narrow branched slips. Within the mace is inclosed the nut, which consists of a brown, thin, hard shell, and a fatty parenchymatous kernel, of an oval shape. The fruit is gathered three times a-year. The external covering is separated on the spot, and the mace and nut carried home where they are carefully dried in the sun. After they are dried, the nutmegs are dipt in lime water, and the mace is sprinkled with salt water, probably to preserve them from the attacks of insects.

Mace, by drying, acquires a reddish-yellow colour. When good, it is flexible, thin, oily, of a deep colour, has a strong agreeable smell, and an aromatic, bitterish acrid taste. When brittle, divided into fewer slips, of a whitish, or a pale yellow colour, and of little smell or taste, it is to be rejected.

Neumann got from 7680 parts of mace, 2160 alcoholic, and 1200 watery extract; and inversely, 1920 watery, and 1440 alcoholic extract, with 300 of volatile oil heavier than water, which arose during the inspissation of the watery extract. The expressed oil of mace is less consistent than that of nutmegs.

Nutmegs are oval, flattened at both ends, of a grey-brown colour, and reticularly furrowed on the outside, of a yellow colour within, variegated with brown undulating lines, solid, hard, unctuous to the feel, and easily cut with a knife, and have a balsamic smell, and agreeable aromatic taste. The small round nutmegs are better than the large oval ones; and they should have a strong smell and taste, and should neither be worm-eaten, musty, nor variegated with black lines. Their activity is, however, confined to the dark-coloured veins, which are not apt to be worm-eaten.

Neumann got from 1920 parts of nutmeg, 480 of an oily alcoholic extract, and 280 watery, with 320 fixed oil: these two last were both insipid: and inversely, 600 watery extract, with 50 of fixed oil, which rose to the surface during the inspissation, and 10 of volatile oil which distilled over; and af-

terwards, 120 unctuous alcoholic extract, and 300 more of fixed oil. By expression 1920 gave 540 of oil, and afterwards 480 of watery extract, a pretty strongly tasted distilled water, and 80 unctuous alcoholic extract, with 60 of insipid fixed oil.

Volatile oil of nutmeg. By distillation nutmegs yield a considerable quantity of essential oil, of a whitish-yellow colour, lighter than water, and possessing the aromatic taste and smell in an eminent degree. In doses of a few drops, it is a powerful carminative and stomachic.

Expressed oil of mace. Nutmegs also yield by expression a considerable quantity of limpid yellow oil, which, on cooling, acquires a sebaceous consistence. They are first beaten to a soft paste in a warm mortar, then inclosed in a linen bag, exposed to the vapour of hot water, and squeezed in a press, of which the plates have been heated.

It is a mixture of the volatile oil on which the flavour depends, and of a fixed oil, of a white colour, without taste or smell; and as the properties which characterize it depend on the presence of the volatile oil, the denomination of Fixed oil is less correct than that of Expressed oil, given from the manner of its preparation.

In the shops we meet with three sorts of unctuous substances called Oil of mace, though really expressed from the nutmeg. The best is brought from the East Indies, in stone jars; this is of a thick consistence, of the colour of mace, and of an agreeable fragrant smell. The second sort, which is paler coloured, and much inferior in quality, comes from Holland, in solid masses, generally flat, and of a square figure. The third, which is the worst of all, and usually called Common oil of mace, is an artificial composition of suet, palm oil, and the like, flavoured with a little genuine oil of nutmeg. 7680 of the second sort yielded to Neumann 330 volatile oil heavier than water, 2880 of fluid expressed oil, and 4560 of solid but fusible sebaceous matter, perfectly insipid, inodorous, and of a chalky whiteness.

Med. use.—Both mace and nutmegs are rather to be considered as aromatic spices, than as articles of medicine. From the essential oil they contain, they are heating and stimulating; and they are added to other medicines for the sake of their agreeable flavour.

MYROXYLON PERUIFERUM. *Ed. Lond. Dub.*

Willd. *g.* 829, *sp.* 1. *Decandria Monogynia.*—Nat. ord. *Lomentaceæ.*

Sweet-smelling balsam tree.

Off.—The balsam called Peruvian Balsam.
Balsamum myroxyli peruiferi. *Ed.*
Balsamum peruvianum. *Lond. Dub.*

This tree grows in the warmest provinces of South America, and is remarkable for its elegant appearance. Every part of it abounds with resinous juice; even the leaves are full of transparent resinous points, like those of the orange tree.

The balsam, as brought to us, is commonly of the consistence of thin honey, of a reddish-brown colour, inclining to black, an agreeable aromatic smell, and a very hot biting taste.

It is very often adulterated; and sometimes what is sold for Peruvian balsam is a spurious mixture of resin and essential oil, flavoured with benzoin. These frauds are not easily detected, and fortunately they are of little importance.

It is said to be obtained by boiling the cuttings of the twigs in water, and skimming off with a spoon the balsam, which swims on the top.

By incision this tree yields a much more fragrant white or colourless balsam, which, when inspissated by the heat of the sun, forms the red or dry balsam of Peru; but it is very rarely used in Britain, and almost never to be met with in our shops.

Peruvian balsam consists of a volatile oil, resin, and benzoic acid; it is, accordingly, entirely soluble in alcohol, and in essential oils. Water dissolves part of the benzoic acid, and fixed oil combines with the resin. It may be suspended in water by trituration with mucilage and yolk of egg.

Medical use.—Balsam of Peru is a very warm aromatic medicine, considerably hotter and more acrid than copaiva. Its effects are stimulating and tonic. Hence its use in some kinds of asthmas, gonorrhœas, dysenteries, suppressions of the uterine discharges, and other disorders proceeding from debility. It is also employed externally for cleansing and healing wounds and ulcers, and sometimes against palsies and rheumatic pains.

Myrrha, gummi-resina. *Dub. Ed.* Arboris nondum descriptæ gummi-resina. *Lond.*
Myrrh. The gum resin of a non-descript tree.

The tree which produces this gum-resin is not yet ascertained. Mr Bruce has given some reasons for supposing that it is a mimosa; but we may observe, that all the mimosas, with which we are sufficiently acquainted, furnish a pure gum, and not a gum-resin. The best myrrh is brought from Tro-

glodytitia, a province of Abyssinia, on the borders of the Red Sea; but what we receive comes from the East Indies, and is produced on the eastern coast of Arabia Felix.

The best myrrh is in the form of tears, of a yellow or reddish-yellow colour, becoming redder when breathed on; light, brittle, of an unctuous feel, pellucid, shining; presenting white semicircular striæ in their fracture; of a very bitter aromatic taste, and a strong, peculiar, not unpleasant odour. It is not good if whitish, dark-coloured, black, resinous, ill-smelled, or mixed with impurities, which is too commonly the case.

Neumann ascertained that water and alcohol are both of them capable of taking up the whole of the taste and smell of the myrrh, the extract made by either after the other being insipid. The alcohol distilled from the tincture elevated none of the flavour of the myrrh; but during the inspissation of the decoction a volatile oil arose, containing the whole of the flavour of the myrrh, and heavier than water, while the extract was merely bitter. From 7680 parts of myrrh, he got 6000 watery extract, 180 volatile oil, and 720 alcoholic: and inversely, 2400 alcoholic, and 4200 watery. Braconnot found that myrrh chiefly consisted of a gum, differing from all others. 1. It acquires cohesion by heat, which renders it partly insoluble in water, when the solution is evaporated. 2. It furnishes ammonia by distillation, and azote with nitric acid. 3. It precipitates lead, mercury and tin from their solution. Myrrh also contains 2.3 parts in the 100 of a bitter, very fusible, resinous matter. I have observed that the tincture is transparent, and when poured into water, forms a yellow opaque fluid, but lets fall no precipitate, while the watery solution is always yellow and opaque; and that myrrh is not fusible, and is difficultly inflammable. Mr Hatchett found it soluble in alkalies.

Vauquelin obtained from the root of the *Andropogon Schoenanthus*, by means of alcohol, a thick brown oil, having an acrid, burning taste, like an essential oil, and exactly the smell of myrrh. It differs from myrrh chiefly in having less solidity; but Vauquelin thinks, that if it was united to a gummy matter, it would exactly resemble it. He does not suppose, however, that this is the plant which produces the myrrh of commerce, but considers it as a proof that myrrh is formed in various vegetables.

Medical use.—Myrrh is a heating stimulating medicine. It frequently occasions a mild diaphoresis, and promotes the fluid secretions in general. Hence it proves serviceable in cachectic diseases arising from inactivity of the system, and

is supposed to act especially upon the uterine system, and to resist putrefaction.

It is exhibited,

1. In substance, in the form of powder, or made up into pills, in doses of 10 to 60 grains.
2. Dissolved in water, as in Griffith's celebrated, but unchemical, myrrh mixture.
3. Dissolved in alcohol.

MYRTUS PIMENTA. *Ed. Lond. Dub.*

Willd. *g.* 973, *sp.* 28. *Icosandria Monogynia.*—Nat. ord. *Hesperideæ.*

Pimento tree.

Off.—The fruit of the Pimento, commonly called Jamaica Pepper.

FRUCTUS MYRTI PIMENTÆ. *Ed.*

BACCÆ PIMENTÆ. *Lond.*

PIMENTO; (Piper Jamaicense) baccæ. *Dub.*

THIS is a native of Jamaica, and grows in all the woodlands on the north side. Soon after the trees have blossomed, the berries become fit for gathering, without being suffered to ripen, as when ripe they are moist and glutinous, and therefore difficult to cure, and when dried become black and tasteless. The berries are dried by spreading them on a terrace, exposed to the sun for about seven days, during which time they gradually lose their green colour, and become of a reddish-brown.

The smell of this spice resembles a mixture of cinnamon, cloves, and nutmegs; its taste approaches to that of a mixture of the whole three; whence it has received the name of *all-spice*.

Neumann ascertained that its flavour resides entirely in a volatile oil, heavier than water, and its pungency, in a resin or a substance soluble in alcohol, and insoluble in water. From 480 parts, he got 120 watery extract, 30 volatile oil, and 20 alcoholic extract; and inversely, 66 alcoholic, and 100 watery.

Medical use.—Pimento is a warm aromatic stimulant, and is much used as a condiment in dressing food. As a medicine, it may be advantageously substituted for the more costly spices, especially in hospital practice.

NICOTIANA TABACUM. *Ed. Lond. Dub.*

Willd. *g.* 379, *sp.* 1. *Pentandria Monogynia.*—Nat. ord. *Solanaceæ.*

Tobacco.

Off.—The dried leaves.
FOLIA NICOTIANÆ TABACI.
FOLIA TABACI. *Lond.*
FOLIA NICOTIANÆ. *Dub.*

TOBACCO is an annual plant, a native of America, from whence it was brought into Europe, about the year 1560. It is now sometimes cultivated, for medicinal use, in our gardens; but in general it is imported from America in large quantities. The leaves are about two feet long, of a pale green colour while fresh, and when carefully dried of a lively yellowish tint. They have a strong disagreeable, narcotic smell, and a very acrid burning taste.

The active constituent of tobacco was supposed to be an essential oil; for, by long boiling, the decoction and extract of tobacco become almost inert; and by distillation, an oil is obtained from it, so active, that small animals are almost instantly killed, when wounded by a needle dipped in it.

Vauquelin has lately analysed tobacco, both in its fresh and prepared state. The expressed juice is manifestly acid, and contains a great quantity of albuminous matter, super-malate of lime, acetic acid, nitrate and muriate of potass, muriate of ammonia, a red matter soluble in alcohol and in water, which swells and becomes charred by heat, and an acrid principle on which its peculiar properties depend. The infusion of prepared tobacco is alkaline, and contains, beside the same principles, carbonate of ammonia, and muriate of lime, proceeding from the mutual decomposition of the muriate of ammonia and lime which is added to give it pungency. The principle to which the acrimony of tobacco is owing, is soluble in alcohol and in water, is volatile, but still may be concentrated by slowly evaporating its solution in water, and still more easily its tincture. Its volatility is also diminished by the malic acid with which it is combined. It is obtained in a state nearest to purity in the distilled water of the infusion of the dry, or of the expressed juice of the fresh plant. This water is colourless, but has the acrid smell and taste of tobacco smoke: with acetate of lead and nitrate of mercury, it forms white precipitates, soluble in acids, and with infusion of galls one soluble in alcohol and the alkalies. The principle on which the properties of tobacco depends seems not easily destructible, as it is the same in the dry and in the fresh plant, and is not destroyed by oxymuriatic acid.

Medical use.—On the living body, whether taken into the stomach in substance or solution, or into the lungs in the form of smoke, or applied to abraded surfaces, tobacco is ca-

pable of producing deleterious effects. It often proves virulently cathartic or emetic, and occasions intolerable cardialgia, anxiety and vertigo.

The system becomes easily habituated to the action of tobacco; and many people use very large quantities of it in several ways as a luxury, without experiencing any other bad effect than what arises from their being unable to relinquish it after the habit is confirmed.

As a medicine, it is exhibited in various forms:

1. In substance. When chewed, it causes an increased flow of saliva, and sometimes relieves the toothach; and reduced to powder, it proves an excellent errhine and sternutatory when snuffed up the nostrils.
2. In infusion in water or wine. Taken in such small doses as to have little effect on the stomach, it proves powerfully diuretic, and was employed by Dr Fowler, with very great success, in cases of dropsy and dysuria. It is also applied externally for the cure of psora, tinea, and other cutaneous diseases.
3. In the form of smoke, it is injected into the anus by means of a bellows of a peculiar construction. By acting as a stimulus to the rectum, it sometimes succeeds in reviving the vital powers in some kinds of asphyxia, and in evacuating the intestines in cases of obstinate constipation.

NITRAS.

NITRATE is the generic term for secondary compounds, which consist of nitric acid, combined with any base. Their general characters have been already mentioned. There are three families of nitrates.

1. Alkaline nitrates;—soluble in water; solubility increased by increase of temperature; crystallizable; forming no precipitate with alkaline carbonates. *Off.*—Nitrate of potass.

2. Earthy nitrates;—soluble in water; forming a white precipitate with alkaline carbonates.

3. Metallic nitrates; generally soluble, both in water and in alcohol; decomposable by heat, furnishing nitric oxide gas, and leaving the metal oxidized to a maximum.

OLEA EUROPÆA. *Lond. Ed. Dub.*

Willd. *g.* 36, *sp.* 1. *Diandria Monogynia.*—Nat. ord. *Sepiariæ.*

The olive tree.

Off.—Olive oil. The fixed or expressed oil of the fruit.

OLEUM FIXUM OLEÆ EUROPÆÆ. Ex fructu. *Ed.*
OLEUM OLIVÆ. Drupæ oleum expressum. *Lond.*
OLEUM OLIVARUM. *Dub.*

THE olive tree is a native of the south of Europe and north of Africa. It is cultivated in France, Spain, and Italy, for the sake of its fruit, and the oil expressed from it. Olives, when fresh, have an acrid, bitter, and extremely disagreeable taste; but they are only eaten when pickled. They are first steeped for several days in a ley of wood-ashes, and then pickled in a strong solution of muriate of soda.

They are principally valued for the oil they afford by expression.

For this purpose they are gathered when fully ripe, and immediately bruised, and subjected to the press. The finest oil flows first, and a very bad oil is obtained by boiling the magma, which remains after expression in water. According to Baumé, they are gathered when sufficiently ripe: they are then dried, to deprive the mucilage, of which they contain a large quantity, of its water, and are expressed after being bruised, and moistened with a little water, to render the oil more fluid. By rest, the mucilage and water, which may have passed with it, separate. Olive oil is sometimes mixed with oil of poppy seeds: but by exposing the mixture to the freezing temperature, the olive oil freezes, while that of the poppies remains fluid; and as oils which freeze with most difficulty are most apt to become rancid, olive oil is deteriorated by the mixture of poppy oil.

Good olive oil should have a pale yellow colour, somewhat inclining to green, a bland taste, without smell, and should congeal at 38° Fahrenheit. In this country, it is frequently rancid, and sometimes adulterated.

Medical use.—Taken internally, it operates as a gentle laxative, and is given in cases of worms. It is also given in large quantities to mitigate the action of acrid substances taken into the stomach. It is used externally in frictions, in gargles, and in clysters; but its principal employment is for the composition of ointments and plasters.

ONISCUS ASELLUS. *Dub.*
Insecta aptera.

Off.—Slaters, killed by the vapour of alcohol.
MILLEPEDÆ, spiritus vini vapore enecatæ.

THESE insects are found in cellars, under stones, and in cold moist places; in warm countries they are rarely met with.

They have a faint disagreeable smell, and a somewhat pungent, sweet, nauseous taste.

Neumann got from 480 parts 95 watery and ten alcoholic extract; and inversely 52 alcoholic and 45 watery. Nothing rose in distillation with either.

Their medical virtues have been very much overrated.

ORIGANUM.

Willd. *g.* 1116, Smith, *g.* 273. *Didynamia Gymnospermia.* —Nat. ord. *Verticillatæ.*

Sp. 10. Willd. *sp.* 1. Smith. ORIGANUM VULGARE. *Lond. Dub.*

Common marjoram.

Off.—The herb.

ORIGANUM. *Lond.*

FOLIA ORIGANI. *Dub.*

THIS is a perennial plant, which is met with upon dry, chalky hills, and in gravelly soils, in several parts of Britain, and flowers in July and August. It has an agreeable smell, and a pungent taste, warmer than that of the garden marjoram, and much resembling thyme, with which it seems to agree in virtue. An essential oil distilled from it is kept in the shops, and is very acrid.

Sp. 15. Willd. ORIGANUM MAJORANA. *Ed. Dub.*

Sweet marjoram.

Off.—The plant.

HERBA ORIGANI MAJORANÆ. *Ed.*

HERBA MAJORANÆ. *Dub.*

SWEET marjoram is an annual plant, which grows wild in Portugal, but is cultivated in our gardens, principally for culinary purposes. It is a moderately warm aromatic, yielding its virtues both to aqueous and spiritous liquors by infusion, and to water in distillation.

OSSA. *Ed.*

Bones.

RECENT bones consist of about half their weight of phosphate of lime, a third of their weight of cartilage or gelatin, and one-tenth of carbonate of lime. They also contain a little fluate of lime, phosphate of magnesia, soda, and muriate of soda. M. Darcet has shown how a great deal of nourishment can be extracted from them, by removing the earthy salts by means of muriatic acid; but in pharmacy bones are only used for the preparation of phosphate of lime, by burning them,

and of phosphate of soda, and phosphate of antimony and lime, by decomposition.

Ovum. Phasianus Gallus. *Lond.*
Egg of the dunghill fowl.

From what country this useful bird originally came, is not ascertained. It is now domesticated almost every where, and furnishes one of the most wholesome and delicate articles of food.

The egg only is officinal. The shell consists principally of carbonate of lime, with a small quantity of phosphate of lime and animal matter. When burnt the animal matter and carbonic acid are destroyed, and we obtain a lime, mixed with a little phosphate of lime.

The contents of the egg consist of two substances, the white and the yolk. The white is albumen conbined with a little soda and sulphur. The yoke is also albuminous, but contains moreover a bland oil, and some colouring matter The yolk is sometimes used in pharmacy for suspending oily and resinous substances in water. The white is used for clarification.

Oxalis acetosella. *Lond.*
Willd. *g.* 918, *sp.* 25. Smith, *g.* 217, *sp.* 1. *Decandria Pentagynia.*—Nat. ord. *Gruinales.*
Common wood-sorrel.

Off.—The leaves.
Acetosella. *Lond.*

This is a small perennial plant, which grows wild in woods, and under shady hedges, and flowers in April and May. The leaves contain a considerable quantity of superoxalate of potass, and have an extremely pleasant acid taste. They possess the same powers with the vegetable acids in general, and may be given in infusion, or beaten with sugar into a conserve, or boiled with milk, to form an acid whey. The super-oxalate of potass is extracted in large quantities from them, and sold under the name of *Essential Salt of Lemons.*

Twenty pounds of the fresh leaves yielded to Neumann six pounds of juice, from which he got two ounces two drachms, and a scruple of salt, besides two ounces and six drachms of an impure saline mass.

Papaver.
Willd. *g.* 1015, *sp.* 4. Smith, *g.* 243. *Polyandria Monogynia.*—Nat. ord. *Rhœades.*

Sp. 5, Willd. *sp.* 4. Smith. PAPAVER RHŒAS. *Lond. Dub.*
Corn-rose, or red poppy.

Off.—The flower.
PETALA RHŒADOS. *Lond.*
PETALA PAPAVERIS ERRATICI. *Dub.*

THIS species of poppy is annual, and very common in our corn fields. It flowers in June and July, and the petals give out a fine red colour when infused, and are supposed to possess slightly anodyne powers.

Sp. 7. Willd. *sp.* 8. Smith. PAPAVER SOMNIFERUM. *Ed. Lond. Dub.*
White Poppy.

Off.—Poppy heads.
a) CAPSULÆ PAPAVERIS SOMNIFERI. *Ed.*
CAPSULÆ PAPAVERIS ALBI. *Dub.*
CAPSULÆ PAPAVERIS, capsulæ maturæ. *Lond.*
b) OPIUM, Succus concretus papaveris somniferi. *Ed.*
OPIUM, capsularum immaturarum succus concretus (Turcicus.) *Lond.*
OPIUM, Succus concretus. *Dub.*

THE white poppy is also an annual, and is sometimes found wild in this country, but it is originally a native of the warmer parts of Asia. It flowers in July, and is frequently cultivated for the beauty and the variety of its flowers, and for its seeds. Some attempts have been made in this country to obtain opium from its capsules; and Mr Ball received a premium from the Society for encouraging the arts, for specimens of British opium, in no respect inferior to the best eastern opium. Mr Young, an ingenious surgeon-apothecary of this city, has also obtained it in considerable quantity. But we apprehend that the climate of this country is an insuperable obstacle to its becoming a profitable branch of horticulture.

The leaves, stalks, and capsules of the poppy, abound with a narcotic milky juice, which is partially extracted, together with a considerable quantity of mucilage, by decoction. The liquor, strongly pressed out, suffered to settle, clarified with whites of eggs, and evaporated to a due consistence, yields about one-fifth, or one-sixth of the weight of the heads, of extract, which possesses the virtues of opium in a very inferior degree, and does not come to this country, unless when used to adulterate the genuine opium.

A strong decoction of the dried heads, mixed with as much sugar as is sufficient to reduce it to the consistence of a syrup, becomes fit for keeping in a liquid form, and is the only

officinal preparation of the poppy. It is, however, a very unequal preparation, as the real quantity of opium it contains is very uncertain; and as a medicine, it is by no means equal to syrup, to which a certain quantity of solution of opium is added.

The seeds of the poppy are simply emulsive, and contain none of the narcotic principle. They yield a considerable quantity of fixed oil by expression.

Off.—Turkey opium; the concrete juice of the capsules before they are ripe.

OPIUM. *Ed. Lond. Dub.*

Opium is the inspissated juice of the poppy. In the evening several superficial longitudinal incisions are made in the capsules, when they are almost ripe, with a knife having from three to five blades. The juice which exudes during the night, next day after it has been thickened, by the heat of the sun, is collected by means of iron scrapers, and put into an earthen pot. The operation is repeated as long as the heads furnish juice in sufficient quantity, and the opium is worked into masses with a wooden spatula, in the heat of the sun, until it acquires the due degree of thickness, when the masses are covered with poppy or tobacco leaves.

Two kinds of opium are found in commerce, distinguished by the names of Turkey and East-India opium.

Turkey opium is a solid compact substance, possessing a considerable degree of tenacity; when broken, having a shining fracture and uniform appearance; of a dark-brown colour; when moistened, marking on paper a light-brown interrupted streak, and becoming brown when reduced to powder; scarcely colouring the saliva when chewed, exciting at first a nauseous bitter taste, which soon becomes acrid, with some degree of warmth; and having a peculiar heavy disagreeable smell. The best kind is in flat pieces, and besides the large leaves in which they are enveloped, they are covered with the reddish capsules of a species of rumex used in packing it. The round masses which have none of the capsules adhering to them are evidently inferior in quality. Opium is bad if it be soft or friable, mixed with any impurities, have an intensely dark or blackish colour, a weak or empyreumatic smell, a sweetish taste, or draw upon paper a brown continuous streak.

East-Indian opium has much less consistence, being sometimes not much thicker than tar, and always ductile. Its colour is much darker; its taste more nauseous, and less bitter; and its smell rather empyreumatic. It is considerably cheaper than Turkish opium, and is supposed to be of only

half the strength. One-eighth of the weight of the cakes is allowed for the enormous quantity of leaves with which they are enveloped. In the East Indies, when opium is not good enough to bring a certain price, it is destroyed under the inspection of public officers.

Opium is not fusible, but is softened even by the heat of the fingers. It is highly inflammable. It is partially soluble both in alcohol and in water. Neumann got from 1920 parts of opium, 1520 alcoholic, and afterwards 80 watery extract, 320 remaining undissolved; and inversely 1280 watery, and 200 alcoholic extract, the residuum being 440.

The solutions of opium are transparent, and have a brown or vinous colour. The watery solution is not decomposed by alcohol. A small quantity of matter, which, as far as my experiments go, is neither fusible nor remarkably inflammable, is separated from the alcoholic solution by water. I have also observed that the watery solution of opium, and the alcoholic, after it has been precipitated by water, does not redden vegetable blues, is not precipitated by acids or alkalies, but is precipitated copiously by carbonate of potass, muriate and super-nitrate of mercury, oxymuriate of tin, sulphate of copper, sulphate of zinc, acetate of lead, nitrate of silver, and red sulphate of iron. The precipitate in the last case was of a dirty brown colour, not resembling those by alkaline or astringent substances. The solutions of opium, especially the watery, are also copiously precipitated by infusion of galls. This precipitate seems to resemble that produced by cinchonin, and to be different from that produced by gelatine.

The narcotic virtues of opium are imparted by distillation to alcohol and to water, and they are diminished, or entirely dissipated, by long boiling, roasting, or great age. The part of opium which is not soluble either in water or in alcohol is albumen, according to Gren; caoutchouc, according to Bucholz; a virulent glutinous substance, according to Josse; and Proust says it contains wax. From experiments made some years ago, I concluded that it was perfectly similar to the gluten of wheat flour, or fibrine. Long ago it was proposed to separate the resinous parts of opium by the same process that the fibrine of wheat flour is obtained. The fact is, that if Turkey opium be kneaded in a large quantity of water, the soluble parts are removed, and there remains in the hand an adhesive plastic mass, of a paler colour, not fusible, but becoming ductile when immersed in hot water, inflammable, imparting some colour to alcohol, but not soluble in it. East-India opium, treated in the same way, is entirely

dissolved or diffused in the water, and leaves no plastic mass in the hand.

Upon the whole, it appears that the active constituent of opium, though not perfectly understood, is of a volatile nature, but sometimes fixed by its combination with the other constituents; that it is soluble both in water and in alcohol; that it is dissipated in the processes recommended for purifying opium by solution and evaporation; and that the attempts made by some pharmaceutists, to obtain a preparation of opium, which should possess only its sedative, without its narcotic effects, only succeeded in so far as they diminished its activity.

Neumann, Haller, and Tralles had all obtained crystals from opium, and Derosnes and Pagenstecher pointed out the method of procuring them in greater quantity.

By evaporating a watery solution of opium, to the consistence of a syrup, Derosnes obtained a precipitate, which was increased by diluting it with water. He dissolved this in hot alcohol, from which it again separated on cooling. When purified by repeated solutions, it crystallized in rectangular prisms, with rhomboidal bases, had no taste or smell, was insoluble in cold water, and soluble in 400 parts of boiling water, did not affect vegetable blues, was soluble in 24 parts of boiling alcohol, and 110 cold; soluble in hot ether and volatile oils, and separated from them as they cooled; very soluble in all acids, and highly narcotic.

M. Sertuerner, apothecary in Eimbeck in Hanover, published his first observations and discoveries regarding their nature in 1803, but they attracted little notice. He again published a fuller memoir in Gilbert's Annals, in January 1817, which was immediately translated into the French Annals, and confirmed by Gay-Lussac and Robiquet, and prosecuted still farther by Choulant at Dresden, and we think it not superfluous to give an extract of his experiments. He infused four ounces of powder of opium in repeated portions of cold distilled water, and filtrated the solution through cloth. It was evaporated in a glass vessel, with a gentle heat, to eight ounces; which, after standing eight days, deposited six grains of sulphate of potass. The remaining fluid was diluted with distilled water, and yielded a flocculent precipitate on the addition of caustic ammonia, which, after being washed successively with sulphuric ether, caustic, ammonia, and alcohol, yielded three drachms of a fine brownish white powder, to which M. Sertuerner has given the name of *Morphium*, and which may be further purified by solutions in boiling alcohol and crystallization. It seemed to be perfectly free from ammonia, yet it possessed

all the characteristic properties of an alkali, colouring rhubarb brown, and fernambuc violet, and forming neutral salts with acids. It has a peculiar bitter astringent taste, and its solutions leave a red stain on the skin. Its crystals are very obtuse, single or double pyramids, with a square or long rectangular base, or prisms with a trapezoid base. It dissolves in 82 parts of boiling water, from which it crystallizes on cooling; in 36 of boiling and 42 of cold alcohol, and in 8 of sulphuric ether. The fluid from which the morphium was precipitated, after being heated to 40 R. to expel the ammonia, was filtered, and a solution of muriate of barytes (or of acetate of lead) added as long as there was any precipitate. The white precipitate, when washed and dried, weighed 7 drachms, and consisted of the barytes mixed with a new acid, to which M. Sertuerner has given the name of *meconic*, and which he separated by sulphuric acid. This mode of obtaining it has not succeeded with others, and its existence was doubted; but M. Choulant, by mixing the meconite of barytes with an equal weight of vitreous boracic acid, and subliming the meconic acid, which appears in the form of shining scales, of a fine white salt. Its taste is at first sour and cooling, but afterwards unpleasantly bitter. It reddens vegetable blues, and combines with alkalies and earths, and gives a cherry red colour to solutions of iron: its crystals are quadrangular tables, and it is soluble in twice its weight of water, and also in alcohol and ether.

The crystallizable substance detected in opium by Neumann, Haller and Tralles was an impure supermeconate of morphium, and Derosnes' salt of opium was the same compound in a purer state. Pagenstecher, taking advantage of Derosnes' observations, that it was soluble only in alcohol and acids, digested the residuum of laudanum with vinegar, and precipitated with potass.

The experiments hitherto made with morphium upon the animal economy do not prove satisfactorily that the narcotic powers of the opium reside exclusively in it. M. Sertuerner thought he saw violent effects, pain of stomach and vomiting from half a grain, three times repeated at intervals; but M. Orfila gave 10 or 11 grains to a dog without any effect. Six grains dissolved in vinegar caused a slight palsy of the hind legs, and 12 grains dissolved in weak acetic acid, applied to the cellular membrane, produced all the symptoms of poisoning by opium.

Medical use.—The action of opium on the living system has been the subject of the keenest controversy. Some have asserted that it is a direct sedative, and that it produces no

stimulant effects whatever; while others have asserted as strongly, that it is a powerful, and highly diffusible stimulus, and that the sedative effects, which it undeniably produces, are merely the consequence of the previous excitement. The truth appears to be, that opium is capable of producing a certain degree of excitement, while the sedative effects which always succeed are incomparably greater than could be produced by the preceding excitement. The stimulant effects are most apparent from small doses. These increase the energy of the mind, the frequency of the pulse, and the heat of the body, excite thirst, render the mouth dry and parched, and diminish all the secretions and excretions, except the cuticular discharge, which they increase. These effects are succeeded by languor and lassitude. In larger doses, the stimulant effects are not so apparent; but the excitability is remarkably diminished, and confusion of head, vertigo, and sleep are produced. In excessive doses it proves a violent narcotic poison, exciting headach, vertigo, delirium, and convulsions, accompanied with a very slow pulse, stertorous breathing, and a remarkable degree of insensibility or stupor, terminated by apoplectic death. In one case, where I inspected the body after death, the inner membrane of the stomach was remarkably corrugated, and with some inflammation; but as large doses of sulphate of zinc and flour of mustard had been also taken, no inference can be drawn from these appearances. The bad effects of an over-dose of opium are often prevented by the occurrence of vomiting, and they are best counteracted by making the patient drink freely of acids and coffee, and chiefly by not permitting him to yield to his desire of sleeping. By habit, the effects of opium on the body are remarkably diminished. There have been instances of four grains proving fatal to adults, while others have been known to consume as many drachms daily. The habitual use of opium produces the same effects with habitual dram-drinking; tremors, paralysis, stupidity, and general emaciation: and like it can scarcely ever be relinquished.

In disease, opium is chiefly employed to mitigate pain, diminish morbid sensibility, procure sleep, allay inordinate actions, and to check diarrhœa, and other excessive discharges. It is contraindicated in gastric affections, plethora, a highly inflammatory state of the body, and determination of the blood to particular viscera.

In intermittents, it is said to have been used with good effect in every stage. Given even in the hot stage, it has been observed to allay the heat, thirst, headach, and delirium, to induce sweat and sleep, to cure the disease with less bark, and without leaving abdominal obstructions or dropsy.

In fevers of the typhoid type, accompanied with watchfulness or diarrhœa, it is extremely useful; but when not indicated by particular symptoms, it does harm, by augmenting thirst, and producing constipation.

Especially when combined with calomel, it has lately been much employed in inflammations from local causes, such as wounds, fractures, burns, absorption of morbid poisons, as in swelled testicle, &c. and even in active inflammations, accompanied with watchfulness, pain, and spasm, after blood-letting.

In small pox, when the convulsions before eruption are frequent and considerable, or when the accompanying fever is of the typhoid type, opium is liberally used. It is likewise given from the fifth day onwards; and is found to allay the pain of suppuration, to promote the ptyalism, and to be otherwise useful.

In dysentery, after the use of gentle laxatives, or along with them, opium, independently of any effect it may have on the fever, is of consequence in allaying the tormina and tenesmus, and in obviating that laxity of bowels which so frequently remains after that disease.

In diarrhœa, the disease itself generally carries off any offending acrimony, and then, or after purgatives, opium is used with great effect. Even in the worst symptomatic cases, it seldom fails to alleviate.

In cholera and pyrosis, it is almost the only thing trusted to.

In colic, it is employed with laxatives; and often prevents ileus and inflammation, by relieving the spasm. Even in ileus it is sometimes used to allay the vomiting, the spasms, and the pain.

It is given to allay the pain, and favour the descent of calculi, and to give relief in jaundice and dysuria proceeding from spasm.

It is of acknowledged use in the different species of tetanus; affords relief to the various spasmodic symptoms of dyspepsia, hysteria, hypochondriasis, asthma, rabies canina, &c. and has been found useful in some kinds of epilepsy.

In syphilis it is useful in combating symptoms, and in counteracting the effects resulting from the improper use of mercury.

It is found useful in certain cases of threatened abortion and lingering delivery, in convulsions during parturition, and in the after-pains and excessive flooding.

The administration of opium to the unaccustomed, is sometimes very difficult. The requisite quantity is wonder-

fully different in different persons, and in different states of the same person. A quarter of a grain will in one adult produce effects which ten times the quantity will not do in another; and a dose that might prove fatal in cholera or colic would not be preceptible in many cases of tetanus or mania. When given in too small a dose, it is apt to produce disturbed sleep, and other disagreeable consequences; but sometimes a small dose has the desired effect, while a larger one gives rise to vertigo and delirium, and with some constitutions it does not agree in any dose or form. Its stimulant effects are most certainly produced by the repetition of small doses, its anodyne by the giving of a full dose at once. In some it seems not to have its proper effect till after a considerable time. The operation of a moderate dose is supposed to last in general about eight hours from the time of taking it.

Externally, opium is used to diminish pain, and to remove spasmodic affections. It is found particularly serviceable in chronic ophthalmia, when accompanied with morbidly increased sensibility.

Opium may be exhibited,

1. In substance, made up in the form of a pill, lozenge, or electuary. Its most efficient form.
2. Dissolved in diluted alcohol, or white wine.
3. Dissolved in water, or watery fluids. Very perishable.
4. Dried and reduced to powder.

It is often given in combination with aromatics, astringents, emetics, bitters, camphor, soap, distilled waters, mucilage, syrups, acids, carbonate of ammonia, ether, acetate of lead, tartrate of antimony and potass, and unctuous substances. Some of these are certainly unchemical mixtures, for I find by experiment that the solutions of opium are copiously precipitated by astringents, the alkaline carbonates, and all the metallic salts.

PASTINACA OPOPONAX. *Lond.*

Willd. *g.* 558, *sp.* 3. *Pentandria Digynia.*—Nat. ord. *Umbellatæ.*

Opoponax.

Off.—A gum-resin.

GUMMI RESINA OPOPONACIS. *Lond.*

THIS plant is perennial, and grows wild in the south of Europe; but the gum-resin, which is said to be obtained by wounding the stalk or root, is brought from the Levant and

East Indies, sometimes in round drops or tears, but more commonly in irregular lumps, of a reddish yellow colour on the outside, with specks of white, inwardly of a paler colour, and frequently variegated with large white pieces. It has a peculiar strong smell, and a bitter, acrid, somewhat nauseous taste.

Neumann got from 480 parts, 166 alcoholic, and afterwards 180 watery extract; and inversely, 226 watery, and 60 alcoholic. Both the water and alcohol distilled from it were impregnated with its flavour. It forms a milky solution with water, and yields a little essential oil on distillation. It is supposed to be an emmenagogue, but is rarely used.

PIMPINELLA ANISUM. *Ed. Lond. Dub.*
Willd. *g.* 562, *sp.* 8. *Pentandria Digynia.*—Nat. ord. *Umbellatæ.*

Anise.

Off.—The seeds.
SEMINA PIMPINELLÆ ANISI. *Ed.*
SEMINA ANISI. *Dub. Lond.*

ANISE is an annual umbelliferous plant, growing wild in Crete, Syria, and other places of the East. It is cultivated in some parts of France, Germany, and Spain, and may be raised also in England; the seeds brought from Spain, which are smaller than the others, are preferred.

Aniseeds have an aromatic smell, and a pleasant warm taste, accompanied with a degree of sweetness. Water extracts very little of their flavour; rectified spirit the whole.

PINUS.
Willd. *g.* 1711, Smith, *g.* 408. *Monœcia Adelphia.*—Nat. ord. *Coniferæ.*

RESINA PINI. Ex variis pinis. *Ed.*
1. LIQUIDA, vulgo
a) TEREBINTHINA VENETA.
b) TEREBINTHINA VULGARIS.
2. SOLIDA.
a) SPONTE CONCRETA, vulgo PIX BURGUNDICA.
b) OLEO VOLATILE PRIVATA, vulgo RESINA ALBA.
3. EMPYREUMATICA, vulgo PIX LIQUIDA.
OLEUM VOLATILE PINI.

Sp. 1. Smith, Willd. PINUS SYLVESTRIS. *Ed. Lond. Dub.* Scotch fir.

Off.—Common Turpentine. Oil of Turpentine. Rosin. Tar. Black pitch.

a) TEREBINTHINA VULGARIS, resina liquida. *Lond.*
TEREBINTHINA VULGARIS, resina. *Dub.*
b) OLEUM TEREBINTHINÆ; oleum e Terebinthina distillatum. *Lond.*
c) RESINA FLAVA; residuum postquam Oleum Terebinthinæ distillatum est. *Lond.*
RESINA ALBA. *Dub.*
d) PIX LIQUIDA. *Dub.*
PIX LIQUIDA; resina præparata liquida. *Lond.*
e) RESINA NIGRA. *Lond.* resina præparata solida.

Sp. 7. Willd. PINUS LARIX. *Ed. Lond. Dub.*
The Larch.

Off.—Venice Turpentine; Oil of Turpentine.
TEREBINTHINA VENETA; resina. *Dub.*

Sp. 27. Willd. PINUS BALSAMEA. *Ed. Lond. Dub.*
The Hemlock fir.

Off.—Balsam of Canada; Canadian Turpentine.
RESINA PINI BALSAMEÆ; resina liquida. *Ed.*
TEREBINTHINA CANADENSIS; resina liquida. *Lond.*
BALSAMUM CANADENSE. *Dub.*

Sp. 32. Willd. PINUS ABIES. *Ed. Lond. Dub.*
The Spruce-fir.

Off.—Common Frankincense. Burgundy Pitch.
a) RESINA ABIETIS; resina concreta. *Lond.*
PIX ARIDA; resina præparata. *Lond.*
PIX BURGUNDICA. *Dub.*

THESE different species of fir are all natives of sandy situations. The first only grows wild in this country. They all abound in every part with resinous juice, which possesses the same general qualities, but presents some varieties, according to the nature of the species and mode of preparation.

We may arrange the products,

1. Into those which exude spontaneously;
2. Into those procured by wounding the tree;
3. Into those procured by decoction; and,
4. Into those which are procured by the action of fire.

By exudation.

The pinus larix exudes a species of manna, called Briançon Manna, but it is not used; as, besides the saccharine matter, it evidently contains turpentine.

From the pinus abies, and also from the pinus sylvestris, in warm seasons and climates, a resinous juice exudes spontaneously, which hardens into tears by exposure to the air. It is the common frankincense, or *Thus* of the former editions of the London Pharmacopœia, but no longer officinal. It is a solid brittle resin, brought to us in tears, or masses, of a brownish or yellowish colour on the outside; internally whitish, or variegated with whitish specks, of a bitterish, acrid, not agreeable taste, with little smell.

Real burgundy pitch is collected, according to Tingry, from the Pinus picea, or spruce fir-tree. The resinous juice which exudes from this species is less fluid and less transparent than the proper turpentines. It is collected by the peasants, strained through cloths, and put into barrels. If its consistence be too thick, it is mixed over the fire with a little turpentine and oil of turpentine.

By incision.

To obtain the products of the second kind, a series of wounds is made through the bark into the wood, beginning at the bottom, and rising gradually upwards, until a stripe of the bark, about nine feet high, be removed, which is commonly effected in about four years. The same operation is then repeated on the opposite side. The operation is then re-commenced close to the edge of the former wound, which by this time is nearly closed. A tree worked in this manner will survive, and furnish turpentine for near a century. The juice, or turpentine, which flows from these wounds, during summer, is collected in a small cavity formed in the earth, at the bottom of the incisions, from which it is occasionally removed into proper reservoirs previous to its purification.

As the trees exude very little juice during cold weather, no new incisions are made in winter; but the old ones get covered with a soft resinous crust (called *barras*, when it is impure, and mixed with bits of bark, dust, and sand; *gallipot*, when collected with more care; or *white incense*, when it is allowed to remain so long exposed that it becomes resinified,) which is scraped off, and also collected for subsequent purification. All these products are purified by liquefaction and filtration. They consist almost entirely of essential oil and a resin, and differ only in the proportions, the turpentine containing the largest proportion of oil, and the gallipot of resin. Although gallipot contains essential oil, the quantity is so small, that it is never subjected to distillation, but is purified by melting it with a very gentle fire, and filtrating it. By this process it

still contains essential oil, and is often sold by the name of Burgundy pitch. If boiling water be added to it after it is strained, but while it is still fluid, and they be agitated together till the mass cools, we have a yellow resin, which, from still containing some essential oil, is preferred to that prepared by a similar process from the residuum of the distillation of turpentine. A simple mixture of gallipot and barras, made without heat, is often sold under the name of Burgundy pitch; but the mass resulting from this combination soon becomes friable. It has neither the unctuosity, viscidity, tenacity, nor smell which distinguish the real kind.

Turpentines.

Turpentines, or fluid resinous juices obtained by incision, have different appellations, chiefly according to the country from which they are procured.

Balsam of Canada, from the *Pinus balsamea* and *Pinus Canadensis.*
RESINA PINI BALSAMEÆ. *Ed.*
TEREBINTHINA CANADENSIS. *Lond.*
BALSAMUM CANADENSE. *Dub.*
Cyprian turpentine, from the *Pistacia terebinthus.*
TEREBINTHINA CHIA. *Lond.*
Strasburgh turpentine, from the *Pinus picea.*
Venice turpentine, from the *Pinus larix.*
TEREBINTHINA VENETA. *Ed. Dub.*
Common turpentine, from the *Pinus sylvestris.*
TEREBINTHINA VULGARIS. *Lond. Dub. Ed.*
Hungarian balsam, from the *Pinus sylvestris, var. Mughos.*
Carpatian balsam, from the *Pinus cembra.*

None of these are properly balsams; which term is now confined by chemists to those resinous substances which contain benzoic acid. The London college have done well in retaining Turpentine as a proper generic name for these resinous juices.

All these species of turpentine possess the same general properties. They are more or less fluid, with different degrees of transparency: of a whitish or yellowish colour; a penetrating smell, and a warm, pungent, bitterish taste. They are entirely soluble in alcohol, combine with fixed oil, and impart their flavour to water, but are not soluble in it. They are decomposed by a moderate heat, being separated into an essential oil and a resin, and are exceedingly inflammable, burning with a large white flame, and much smoke.

Each species has some peculiarities. The Canadian is reckoned the best, and next to it the Chian. They are more transparent, and have a more agreeable flavour than the other kinds. The common turpentine, as being the most offensive, is rarely given internally; its principal use is in plasters and ointments among farriers, and for the distillation of the essential oil.

Medical use.—Taken internally, they are active stimulants, open the bowels, and increase the secretion of urine, to which they give the smell of violets, even though applied only externally. In all cases accompanied with inflammation, they ought to be abstained from, as this symptom is increased, and not unfrequently occasioned by them. They are principally recommended in gleets, fluor albus, and the like. Their dose is from a scruple to a drachm and a half. They are most commodiously taken in the form of a bolus, or blended with watery liquors, by the mediation of the yolk of an egg, or mucilage. They also may be given in the form of electuary, mixed with twice their weight of honey, and in the dose of a drachm of the compound twice or thrice a-day; or of clyster, half an ounce being well triturated with the yolk of an egg, and mixed with half a pound of gruel, or decoction of chamomile.

By distillation turpentines are analysed into two products, a solid resin and a volatile oil.

Oil of Turpentine is officinal in the Edinburgh and London Pharmacopœias; by the Dublin college directions are given for its preparation. At Queensferry, in this neighbourhood, there is a considerable turpentine work: the turpentine used comes from America, and therefore it is not a product of any of the officinal species of pine.

Oil of turpentine is lighter than water, transparent, limpid, and volatile. It has a hot pungent taste, and a penetrating smell; is highly inflammable, and possesses all the other properties of essential oils.

It is remarkably difficult of solution in alcohol, although turpentine itself dissolves easily. One part of the volatile oil is indeed apparently taken up by seven of alcohol; but on standing, the greatest part of the oil falls to the bottom, a much larger quantity of alcohol being necessary to retain it in solution.

Med. use.—As a medicine, it is highly stimulating and penetrating. Internally it acts as a diuretic or sudorific in very small doses. It has also been given in large doses, mixed with honey, principally in those modifications of chronic

rheumatism which are styled *sciatica*, and *lumbago*. But it has not been often successful, and sometimes has had the effect of inducing bloody urine.

Lately, however, its use in very large doses has been renewed, and with almost invariable success, in one of the most obstinate complaints to which the human body is subject, the tape worm. For this valuable discovery we are indebted to Dr Fenwick of Durham; although its use both in worms and epilepsy seems to have been previously known to Dr Latham, P. L. C. P.; and cases of its efficacy have been published by Drs Bateman and Laird. It has been given even to the extent of four ounces in one dose, without any perceptible bad effects, and scarcely more inconvenience than would follow from an equal quantity of gin. In large doses it is not apt to produce strangury, but only an approach to intoxication, and it generally acts as a speedy purgative, and discharges the worm, in all cases, *dead*.

Dr Perceval, late of Dublin, now of Bath, has also lately given it in epilepsy, and with some success. ʒ ii. ʒ iv. or ℥ i. were mixed by means of syrup, with ℔ j. of mint water; and of this emulsion, one or two table spoonfuls were given every four hours. In this form, and given to the extent of several drachms in the course of the day, it produced no distressing symptoms of the urinary organs, stomach, or bowels. It generally procured immediate and decided relief, but it was not always lasting. Dr Latham suggests, that a large dose should at first be given, and then small doses, so as to keep up the affection of head peculiar to its use.

Externally it often produces excellent effects as a discutient in indolent tumours; as a stimulus in paralysis of the extremities, and in bruises; as an antispasmodic; and as a styptic, when applied on compresses to the bleeding mouths of the vessels, as hot as the patient can bear it.

Resins.

The residuum of the distillation gets different names, according to some peculiarities in its treatment. When the distillation is performed without addition, and continued until the whole essential oil be driven off, and there appear some traces of empyreuma, the residuum is Fiddlers rosin, or Colophony; but if, while the mass is still fluid, a quantity of water be added, and thoroughly blended with the resin by long and constant agitation, it is then called Yellow rosin.

The under part of the cake of the residuum of the distillation resembles fiddlers rosin, the action of the fire having en-

tirely expelled the water and volatile oil, and rendered it slightly empyreumatic and transparent, while the upper part, from retaining some water, is opaque and yellow.

By decoction.

A fluid extract, prepared by decoction from the twigs of the pinus sylvestris, is the well-known essence of spruce, which, fermented with molasses and water, forms the fashionable and wholesome beverage of spruce beer.

By fire.

The last kind of products from the different species of fir is obtained by the action of fire. With this view, a conical cavity is dug out in the earth, communicating at the bottom with a reservoir. Billets or thin laths of wood are then placed, so as not only to fill the cavity, but to form a conical pile over it, which is covered with turf, and kindled at the top. The admission of air is so regulated, that it burns from above downwards, with a slow and smothered combustion. The wood itself is reduced to charcoal, and the smoke and vapours formed are obliged to descend into the excavation in the ground, where they are condensed, and pass along with the matters liquefied into the receiver. This mixture is denominated Tar, PIX LIQUIDA. *Ed. Lond. Dub.* By long boiling, tar is deprived of its volatile ingredients, and converted into Pitch, RESINA NIGRA. *Lond.*

Tar is a mixture of resin, empyreumatic oil, charcoal, and acetic acid. Its colour is derived from the charcoal; and the other properties in which it differs from a common resin depend on the presence of acetic acid and empyreumatic oil.—The acid itself is not only soluble in water, but also renders the empyreumatic oil more soluble.

Medical use.—Tar-water is a heating diuretic and sudorific remedy; but by no means so powerful, or so generally admissible, as it was represented by Bishop Berkeley. Fumigations of tar have been recommended in phthisis by Sir A. Crichton. In some cases they give relief, but never effect a cure. Tar is applied externally in tinea capitis and some other cutaneous diseases.

Dr Bateman has seen good effects in ichthyosis from pitch given internally. It occasioned the rough cuticle to crack and fall off, without the aid of external means, and left a sound skin underneath. This medicine, made into pills with flour, or any farinaceous powder, may be taken to a great extent, ʒiij or ℥fs daily, not only without injury, but with

advantage to the general health; and affords one of the most effectual means of controlling the languid circulation, and the inert and arid condition of the skin.

PIPER.
Willd. *g.* 74. *Diandria Trigynia.*—Nat. ord. *Piperitæ.*

Sp. 1. PIPER NIGRUM. *Lond. Ed. Dub.*
Black pepper.
Off.—The berry.
FRUCTUS PIPERIS NIGRI. *Ed.*
PIPER NIGRUM. Baccæ, Semen. *Dub.*
BACCÆ PIPERIS NIGRI. *Lond.*

THE black pepper is the fruit of a shrubby creeping plant, which grows wild in the East Indies, and is cultivated, with much advantage to the fruit, in Java and Malabar. The berries are gathered before they are ripe, and are dried in the sun. They become black and corrugated on the surface; their taste is hot and fiery, and their smell slightly aromatic.

Neumann got from 7680 parts 4800 watery, and afterwards 180 alcoholic extract; and inversely, 1080 alcoholic, and 3640 watery. The principle on which the pungency depends was soluble both in water and in alcohol, and was not volatile, for 7680 grains furnished about 150 of a very bland volatile oil. From this analysis Dr Thomson's differs remarkably. By macerating pepper in alcohol, and distilling the tincture, he got a green volatile oil, having the whole flavour and pungency of the pepper. Besides this essential principle, he found it to contain an extractive and starch.

White pepper is the fruit of the same plant, gathered after it is fully ripe, and freed of its external coats by maceration in water. It is smooth on the surface, and less pungent than the black pepper.

It is singular, that the Sumatrans, who eat such vast quantities of Cayenne pepper, never mix black pepper with their food. They esteem the latter heating, and ascribe a contrary effect to the former; and Mr Marsden, from experience, agrees with them.

Sp. 12. PIPER LONGUM. *Lond. Ed. Dub.*
Long pepper.
Off.—The fruit.
FRUCTUS PIPERIS LONGI. *Ed.* Fructus immaturus siccatus. *Lond.*
PIPER LONGUM. Fructus. *Dub.*

The plant which bears the long pepper is also a sarmentaceous climber. The berries are small round grains, disposed spirally in a long cylindrical head. They are gathered before they are ripe, and dried, and are the hottest of all the peppers.

The warmth and pungency of these spices are said to reside entirely in a resin; their aromatic odour in an essential oil. In medicine, they are sometimes employed as acrid stimulants; but their chief use is in cookery, as condiments.

Another species of pepper, the *Cubeb*, has a very striking power of checking and curing gonorrhœa, taken in powder to the extent of ʒiij five or six times a-day, and continued for a day or two, after the discharge stops. In a few cases it produces swelled testicle, and in one it produced urticaria. Its only sensible effects are purging, sometimes increase of urine, and imparting to it its peculiar smell. It is also of use in leucorrhœa.

Pistacia.

Willd. *g.* 1782, *Dioecia Pentandria*.—Nat. ord. *Amentacea*.

Sp. 4. Pistacia terebinthus. *Lond.*

Off.—The liquid resin called Chian turpentine.

Terebinthina chia. Resina liquida. *Lond.*

The shrub which yields this turpentine grows in India, the north of Africa, and south of Europe; but the turpentine is principally collected in the islands of Chios and Cyprus, by wounding the tree. It does not differ from the other turpentines in any thing material except in its price.—See Pinus.

Sp. 6. Pistacia lentiscus. *Ed. Lond.*

Off.—The resin.

Resina pistaciæ lentisci. *Ed.*

Mastiche. Resina. *Lond.*

This species is a native of the same countries with the former. The resin is obtained principally in the island of Chios, by making transverse incisions into the tree, and allowing the juice to harden. It is brought to us in small, yellowish, semitransparent, brittle grains; of a smooth and shining fracture, softening when chewed, fusible, burning with a pleasant smell, insoluble in water, and partially soluble in alcohol and fixed oils. Neumann found, that during digestion with alcohol, a portion separates, insoluble in alcohol, though in appearance resinous, amounting to one-tenth of the mastiche, and analogous to caoutchouc. La Grange and Vogel say it contains free acetic acid.

Its flavour is communicated to water. It is therefore a resin, combined with a little essential oil. It is principally used by the Turkish women as a masticatory, to preserve the teeth, and to give a pleasant smell to the breath.

PLUMBUM. *Ed. Lond.*
Lead.

THE general properties of lead have been already enumerated. It is obtained by various processes from its ores. In its metallic form it is scarcely an officinal article, as its different oxides are purchased from the manufacturers, and never prepared by the apothecary.

Medical use.—Its effects on the body are emaciation, violent colics, paralysis, tremors, and contractions of the limbs; and as they generally come on gradually, the cause is sometimes overlooked till it be too late. Poisoning from lead is never intentional, but only accidental, either from liquors becoming impregnated with lead, by being improperly kept in vessels lined or glazed with lead, or by having lead criminally added to them, to correct their acidity; or among manufacturers who work much with lead, as painters and plumbers, and who are not sufficiently attentive to avoid swallowing it.

The presence of lead in any suspected liquor is detected by the hydro-sulphuret of potass, which forms with it a brown precipitate, not soluble in diluted muriatic acid; and still more certainly, by evaporating a portion of the liquor to dryness, and exposing the extract to a heat sufficient to reduce the lead.

OXIDUM PLUMBI SEMIVITREUM. *Ed. Lond.*
LITHARGYRUM. *Dub.*
Semi-vitrified oxide of lead. Litharge.

IF oxidized lead be melted with a quick fire, it gets the appearance of oil, and on cooling concretes into litharge. Greatest part of the litharge met with in the shops is produced in the purification of silver from lead, and the refining of gold and silver by means of this metal. According to the degree of fire and other circumstances, it has a pale or deep colour; the first has been commonly called Litharge of silver, the other Litharge of gold. Litharge is a subcarbonate of lead. It contains 96 yellow oxide, and 4 carbonic acid. It also frequently contains a little oxide of antimony.

The oxides of lead dissolve in heat by expressed oils; these mixtures are the bases of several officinal plasters and ointments.

Lead and its oxides, when undissolved, have no considerable effects as medicines. Dissolved in oils, they are supposed to be (when externally applied) anti-inflammatory and desiccative. Combined with vegetable acids, they are remarkably so; and taken internally, prove powerful, though dangerous styptics.

PLUMBI SUBCARBONAS, s. s. Subcarbonas plumbi. *Lond.*
CARBONAS PLUMBI, *vulgo* Cerussa. *Ed.*
CERUSSA, s. s. Subacetas plumbi. *Dub.*
White oxide of lead. Ceruse. White lead. Subacetate of lead. Carbonate of lead. Subcarbonate of lead.

THIS substance is prepared by exposing lead to the vapour of vinegar. To accelerate the oxidizement, the lead is cast in thin plates, which are rolled up spirally. A number of these are placed perpendicularly on a support, over a flat vessel containing vinegar, which is converted into vapour by a gentle heat, such as that of dung. The plates become slowly covered with a white crust, which is in due time removed; and the remains of the plates are again exposed to the vapour of vinegar, until they be entirely corroded. Van Mons says, that if lead ashes be dissolved in nitric acid, and precipitated by chalk in impalpable powder, the precipitate, when washed and dried, will be ceruse in its purest state.

White oxide of lead has a scaly or foliated texture, is brittle, friable, heavy, of a snowy whiteness, and a sweet taste. It is often adulterated with earthy substances, which may be discovered by mixing it with oil, and reducing the lead in a crucible. Although very friable, the coarser particles cannot be separated by means of a sieve, because its interstices soon get filled up. It can only be obtained in the state of a fine powder, by rubbing a loaf of ceruse on a sieve placed over a sheet of paper. It consists of 84 yellow oxide of lead, and 14 carbonic acid.

In pharmacy the white oxide of lead is used in the composition of ointments and plasters.

OXIDUM PLUMBI RUBRUM. *Ed.*
Red oxide of lead. Red lead.

THE preparation of red lead is so troublesome and tedious, that the preparation of it forms a distinct branch of business. The manufacturers melt large quantities of lead at once, upon the bottom of a reverberatory furnace built for this purpose, and so contrived, that the flame acts upon a large surface of the metal, which is continually changed by means of iron rakes

drawn backwards and forwards, till the fluidity of the lead is destroyed; after which, the oxide is only now and then turned.

The red oxide of lead is obtained in the form of a very heavy powder, consisting of minute shining scales, of a bright scarlet, verging towards yellow, especially if triturated. It is sometimes adulterated with red oxide of iron, red bole, or powdered brick. These frauds are detected by the inferiority of colour, by mixing it with oil, and subjecting it to the test of reduction; and by its forming a black precipitate with tincture of galls, when dissolved in nitrous acid.

POLYGALA SENEGA. *Ed. Lond. Dub.*
Willd. *g.* 1313, *sp.* 67. *Diadelphia Octandria.*—Nat. ord. *Lomentaceæ.*
Seneka, or Rattlesnake root.

Off.—The root.
RADIX POLYGALÆ SENEGÆ. *Ed.*
RADIX SENEGÆ. *Lond.*
RADIX SENEKÆ. *Dub.*

SENEKA is a perennial plant which grows wild in North America, particularly Virginia and Pennsylvania. This root is usually about the thickness of the little finger, variously bent and contorted, and appears as if composed of joints, whence it is supposed to resemble the tail of the animal whose name it bears; a kind of membranous margin runs on each side the whole length of the root.

The bark is the active part of the root. Its taste is at first acrid, afterwards very hot and pungent. It has no smell.

Its acrimony resides in a resin; for it is entirely extracted by alcohol; is precipitated by water; does not rise in distillation; and is not destroyed by keeping.

Medical use.—It is an active stimulus, and increases the force of the circulation, especially of the pulmonary vessels. It has therefore been found useful in typhoid inflammations of the lungs; but it is apt to disorder the stomach, and to induce diarrhœa. Dr Brandreth of Liverpool has derived great benefit in some cases of lethargy from an extract of seneka combined with carbonate of ammonia.

Some have likewise employed this root in hydropic cases, and not without success. There are examples of its occasioning a plentiful evacuation by stool, urine, and perspiration; and by this means removing the disease, after the common diuretics and hydragogues had failed.

The Senegaro Indians are said to prevent the fatal effects of the bite of the rattle-nake, by giving it internally, and by applying it externally to the wound.

The usual dose of the powder is 30 grains or more.

Externally, it has been advantageously used as a stimulating gargle in croup.

POLYGONUM BISTORTA. *Ed. Lond. Dub.*
Willd. *g.* 785, *sp.* 3. Smith, *g.* 196, *sp.* 6. *Octandria Trigynia.*—Nat. ord. *Oleraceæ.*
Great bistort, or snakeweed.

Off.—The root.
RADIX POLYGONI BISTORTÆ. *Ed.*
RADIX BISTORTÆ. *Lond. Dub.*

BISTORT is perennial, and grows wild in moist meadows in several parts of Britain. It flowers in June. The root is about the thickness of the little finger, of a blackish-brown colour on the outside, and reddish within; it is writhed or bent vermicularly (whence the name of the plant,) with a joint at each bending, and full of bushy fibres; the root of the species here mentioned has, for the most part, only one or two bendings, others have three or more. All the parts of bistort have a rough austere taste, particularly the root, which is one of the strongest of the vegetable astringents.

Medical use.—It is employed in hæmorrhagies and other fluxes, both internally and externally, where astringency is the only indication. To the sudorific, antipestilential, and antiseptic virtues attributed to it, it has no other claim than what it derives from its astringency.

POTASSÆ NITRAS, s. s. Nitras potassæ purificata. *Lond.*
NITRAS POTASSÆ. *Ed.*
NITRUM, s. s. Nitras kali. *Dub.*
Nitrate of potass. Purified nitre.

NITRATE of potass is annually produced on the surface of the earth in many countries. For this production, the presence of a calcareous base, heat, and an open, but not too free communication with dry atmospheric air, are requisite. The putrefaction of organic, especially animal, substances, is not necessary to, but accelerates the formation of this salt, by affording the azote in a state in which it combines readily with the oxygen of the atmosphere, and forms the nitric acid. Accordingly, in Germany and France, nitrate of potass is prepared, by exposing mixtures of putrefying animal and ve-

getable substances, and calcareous earths, to the action of the atmosphere. The salt is afterwards extracted by lixiviation and crystallization. The nitre used in this country is chiefly imported from the East Indies. As it occurs in commerce, it often contains a little muriate of potass and muriate of soda, from which it is easily purified by dissolving it in boiling water, and filtering it; on cooling, the nitrate of potass crystallizes, and the other salts remain dissolved.

Nitrate of potass has a sharp, bitterish, cooling taste. It shoots in pretty large crystals, which are generally six-sided prisms, terminated by six-sided pyramids; very brittle; permanent in the atmosphere; soluble in seven times their weight of water at 60°, and in an equal weight at 212°; melting when exposed to a strong heat, giving out at first oxygen, and afterwards nitrogen gas, until the whole acid be decomposed, and the potass alone remain behind. It deflagrates more or less violently with all oxygenizable substances, oxidizing or acidifying them. When dried in a temperature of 70°, it consists, according to Kirwan, of 44 nitric acid, 51.8 potass, and 4.2 water. It is decomposed by the sulphuric acid and baryta, by the muriate and acetate of baryta, and the sulphates of soda, ammonia, magnesia, and alumina.

Medical use.—Taken to the extent of from a drachm to half an ounce in the course of a day, in repeated doses, it diminishes the heat of the body, and the frequency of the pulse, operates by stool, and acts upon the secretion of urine, but is apt to produce pains in the stomach. In large doses, such as an ounce, taken at one time, it produces the most dreadful symptoms, constant bloody vomiting, purging, convulsions, and death. Accidents of this kind have happened, from its being sold, by mistake, for sulphate of soda.

It is best given in small doses, as from five to ten grains, frequently repeated, and is only admissible in inflammatory diseases. Externally it is used in gargles for inflammatory sore throats.

Potassæ supertartras, s. s. Supertartras potassæ purificata. *Lond.*

Super-tartras potassæ. *Ed.* v. s. Tartarus purificatus; Crystalli tartari. *Ed.*

Crystalli tartari. *Dub.*

Super-tartrate of potass. Crystals of tartar, and cream of tartar.

Super-tartras potassæ impurus, v. s. Tartarus crudus. *Ed.*

TARTARUM, s. s. Potassæ super-tartras impurus. *Lond.*
TARTARUM. *Dub.*
Impure super-tartrate of potass. Tartar.

TARTAR exists in verjuice and in must, and is gradually deposited on the sides of the casks in which the wine is made, from which it is scraped before the next vintage, to prepare the casks to receive the new wine. The deepest coloured and roughest wines generally give most tartar; and it gets the name of white or red tartar, according to its colour.

It is purified by dissolving it in boiling water, and filtrating the boiling solution, which, on cooling, deposits irregular crystals, containing the oily and colouring matters. These are separated by boiling the crystals with a white clay. At Venice, they are purified by dissolving them in water, and clarifying them with whites of eggs and ashes. The tartar, thus purified, when crystallized, or in powder, is called Cream of Tartar.

Its crystals are small and irregular, and do not melt in the mouth, but feel gritty under the teeth. It has an acid harsh taste. It is soluble in sixty times its weight of water at 60°, and in thirty at 212°. It is decomposed, and its acid is destroyed by heat. It contains 23 parts of potass, according to Bergman, and 33 according to Thenard.

Medical use.—The virtues of tartar are those of a mild, cooling, aperient, laxative medicine. It is much used in dropsy; and some allege, that it has good effects as a deobstruent in dropsy from scirrhus. Taken from half an ounce to an ounce, it proves a gentle, though effectual purgative. Given in smaller doses, and in solution, it often acts as a powerful diuretic.

PRUNUS DOMESTICA. *Ed. Lond. Dub.*
Willd. *g.* 982, *sp.* 29. *Icosandria Monogynia.*—Nat. ord. *Pomaceæ.*

Plum-tree.

Off.—The dried fruit, called French prunes.
FRUCTUS PRUNI DOMESTICÆ. *Ed.*
PRUNA; Drupa siccata Pruni Domesticæ. *Dub.*
FRUCTUS PRUNI GALLICÆ. *Lond.*

THIS tree is found wild in hedges in England, but has probably originated from the stones of the cultivated kinds being dropt there by accident. It flowers in April. Great quantities of the dried fruit are imported from the continent, of which the French prunes are reckoned the best.

Medical use.—They contain much mucilaginous and saccharine matter, and their medical effects are, to abate heat and gently loosen the belly, which they perform by lubricating the passages, and softening the excrement. They are of considerable service in costiveness, accompanied with heat or irritation, which the more stimulating cathartics would tend to aggravate: where prunes are not of themselves sufficient, their action may be promoted by joining with them a little rhubarb, or the like, to which may be added some carminative ingredient, to prevent their occasioning flatulency.

PTEROCARPUS.

Willd. *g.* 1318. *Diadelphia Decandria.*—Nat. ord. *Papilionaceæ.*

Sp. 6. PTEROCARPUS SANTALINUS. *Ed. Lond. Dub.*

Off.—Red Saunders-wood.

LIGNUM PTEROCARPI SANTALINI. *Ed.*

LIGNUM PTEROCARPI. *Lond.*

LIGNUM SANTALI RUBRI. *Dub.*

THIS tree grows in the East Indies, and acquires a very large size. The wood is brought in large billets, of a compact texture, a dull red, almost blackish colour on the outside, and a deep brighter red within. It has no manifest smell, and little or no taste. It communicates a deep red to alcohol, but gives no tinge to aqueous liquors: a small quantity of the resin, extracted by means of spirit, tinges a large quantity of fresh spirit, of an elegant blood red. Neumann got from 960 grains, 210 alcoholic, and afterwards 20 of watery extract; and inversely, 126 tough watery extract, and 120 alcoholic; according to the same chemist, it gives out its colouring matter to volatile oil of lavender, but not to volatile oil of turpentine. Is this difference to be ascribed to the camphor contained in the former?

Sp. 1. PTEROCARPUS DRACO. *Ed.*

Off.—The resin called Dragon's blood.

RESINA PTEROCARPI DRACONIS.

THIS is also a very large tree. It is a native of South America, and the resin which exudes from incisions made in its bark used to be frequently sent from Carthagena to Spain. It is, however, doubtful if the dragon's blood of the shops be produced from this tree, as many others furnish a red juice concreting into a similar resin. For example, the Dracœna draco, Dalbergia monetaria, and especially the Calamus dra-

co, which probably furnishes all that is brought from the East Indies.

The best dragon's blood is not in cakes, but is brought in small masses, of the size of a nutmeg, wrapt up in the dried leaves of some kind of reed, breaks smooth, free from any visible impurities, of a dark red colour, which changes, upon being powdered, into an elegant bright crimson. This drug, in substance, has no sensible smell or taste; when dissolved, it discovers some degree of warmth and pungency. It is fusible and inflammable, and totally soluble in alcohol, tinging a large quantity of the menstruum of a deep red colour. It is likewise soluble in expressed oils, and gives them a red hue, less beautiful than that communicated by Anchusa. It is not acted upon by water, but precipitated by it from its alcoholic solution. I find that it is soluble in nitrous acid and alkalies, and that it neither precipitates gelatine, nor affects the colour of the salts of iron. It therefore appears to be a pure resin, without any astringency. I have been more particular in proving that this resin is not astringent, because Mr Proust's account of it has been generally adopted. But the substance examined by Mr Proust could not be the resin known in this country by the name of Dragon's blood, as it was as soluble in water as in alcohol. Dr Fothergill, who first described kino, received it as the finest dragon's blood. Mr Proust must have been misled by some similar misinformation, as the characters of his *sang dracon* correspond with those of kino.

PUNICA GRANATUM. *Ed. Lond. Dub.*

Willd. *g.* 980, *sp.* 1. *Icosandria Monogynia.*—Nat. ord. *Pomaceæ.*

Pomegranate tree.

Off.—Pomegranate bark. The double flowers, called Balaustine.

a) CORTEX GRANATI. Pomorum cortex. *Lond.*
CORTEX PERICARPII PUNICÆ GRANATI. *Dub.*

b) FLORES GRANATI. *Dub.*

THE pomegranate is a low tree, or rather shrub, growing wild in Italy and other countries in the south of Europe. It is sometimes met with in our gardens; but the fruit, for which it is chiefly valued, rarely comes to perfection. This fruit has the general qualities of the other sweet summer fruits, allaying heat, quenching thirst, and gently loosening the belly. The rind is a strong astringent, striking a permanent blue with sulphate of iron, and as such is occasionally made use of. It has been lately given by Dr Buchanan with

success in the East Indies for the cure of taenia. I also made some trials of it and of catechu in this country, on the supposition that it was the astringent principle which acted chemically on the gelatinous body of the worm, and the result was promising; but the introduction of the oil of turpentine prevented me from prosecuting the experiment. The flowers are of an elegant red colour, in appearance resembling a dried red rose. Their taste is bitterish and astringent. They are recommended in diarrhœas, dysenteries, and other cases where astringent medicines are proper.

PYRUS CYDONIA. *Lond.*
Willd. *g.* 992, *sp.* 17. *Icosandria Pentagynia.*—Nat. ord. *Pomaceæ.*

Off.—Quince seeds.
SEMINA CYDONIÆ. *Lond.*

THE quince is originally a native of Crete, but ripens its fruit perfectly in England.

Quinces have a very austere acid taste; taken in small quantity, they are supposed to restrain vomiting and alvine fluxes; and more liberally, to loosen the belly. The seeds abound with a mucilaginous substance, of no particular taste, which they readily impart to watery liquors; an ounce will render three pints of water thick and ropy, like the white of an egg. They will not, however, supply the place of gum arabic, because their mucilage spoils very quickly, and is precipitated by acids.

QUASSIA.
Willd. *g.* 849, *Decandria Monogynia.*—Nat. ord. *Gruinales.*

Sp. 2. QUASSIA SIMARUBA. *Ed. Lond. Dub.*
Mountain or bitter damson.

Officinal.—The bark and wood.
a) CORTEX QUASSIÆ SIMARUBÆ. *Ed.*
CORTEX SIMAROUBÆ. *Lond. Dub.*
b) LIGNUM SIMAROUBÆ. *Dub.*

THIS tree grows in Guiana and in Jamaica. The simarouba of the shops is the bark of the root. It is brought to us in pieces some feet long, and some inches broad, folded lengthwise. It is light, fibrous, very tough; of a pale yellow on the inside; darker coloured, rough, scaly, and warted on the outside; has little smell, and a bitter, not disagreeable taste. It gives out its bitterness both to alcohol and water.

Medical use.—It has been much celebrated in obstinate

diarrhœa, dysentery, anorexia, indigestion, lienteria, and intermittent fevers.

It is given in powder, in doses of half a drachm, or a whole drachm; but it is too bulky, and very difficultly pulverizable. It is best exhibited in decoction. Two drachms of the bark may be boiled in two pounds of water to one, and the decoction drunk in cupfuls in the course of the day.

Sp. 3. QUASSIA EXCELSA. *Ed. Lond. Dub.*
Quassia tree.

Officinal.—The wood.
LIGNUM QUASSIÆ EXCELSÆ. *Ed.*
LIGNUM QUASSIÆ. *Lond. Dub.*

THE quassia of the shops is the wood of the root of this tree, which grows in Jamaica, and in the Caribæan islands, and not, as formerly supposed, of the quassia amara, which is a very rare tree, surpassing all others in bitterness.

This root is about the thickness of a man's arm; its wood is whitish, becoming yellowish by exposure to the air. It has thin, grey, fissured, brittle bark, which is deemed, in Surinam, more powerful than the wood. Quassia has no sensible odour, but is one of the most intense, and durable, pure bitters known. Its infusion, decoction, and tincture, are almost equally bitter, are yellowish, and are not blackened by chalybeates. The properties of the extract of quassia have been detailed by Dr Thomson, under the title of the bitter principle.

Medical use.—It is a very pure and simple bitter, and may be given in all cases where bitters are proper. It has been exhibited in intermittent and bilious fevers, in stomachic complaints, in lienteria, in cachexy, dropsies, leucorrhœa, and gout. It is much used in this country to give the bitterness to malt liquors, though it subjects those brewers who employ it to a very heavy penalty.

It can scarcely be reduced to a sufficient fine powder to be given in substance, and is, therefore, generally given in the form of infusion, decoction, or extract.

QUERCUS.
Willd. *g.* 1692. Smith, *g.* 404. *Monoecia Polyandria.*—Nat. ord. *Amentaceæ.*

Sp. 65. Willd. QUERCUS PEDUNCULATA. *Lond.*
Sp. 1. Smith. QUERCUS ROBUR. *Dub. Ed.*
Common British oak.

Officinal.—Oak bark.

CORTEX QUERCUS ROBORIS. *Ed.*
CORTEX QUERCUS. *Lond. Dub.*

THE oak grows wild in Britain, and flowers in April. The superior excellence of its wood for ship-building has rendered its cultivation an object of national concern. Its saw dust is an useful dye stuff, and its bark is the principal article used in tanning. M. Vauquelin has discovered a remarkable chemical difference between the bark and nut-galls, the latter precipitating tartrate of antimony and infusion of cinchona, which are not acted on by the former.

Med. use.— Oak bark is a strong astringent, and is recommended in hæmorrhagies, alvine fluxes, and other preternatural or immoderate secretions. In these it is sometimes attended with good effects. But it is by no means capable of being employed as a substitute, in every instance, for Peruvian bark, as some have asserted; and, indeed, it is so difficultly reduced to a sufficiently fine powder, that it can scarcely be given internally, in substance.

RHAMNUS CATHARTICUS. *Ed. Dub. Lond.*
Willd. *g.* 405, *sp.* 1 Smith, *g.* 105, *sp.* 1. *Pentandria Monogynia.*—Nat. ord. *Dumosæ.*
Purging buckthorn.

Off.—The berry. The juice of the berries.
SUCCUS RHAMNI CATHARTICI. *Ed.*
BACCÆ RHAMNI. *Lond.*
BACCÆ RHAMNI CATHARTICI. *Dub.*

THIS tree, or bush, is common in hedges; it flowers in May and June, and ripens its fruit in September or the beginning of October. In our markets, the fruit of some other trees, as the blackberry bearing alder and the dogberry tree, have been frequently mixed with, or substituted for those of buckthorn. This abuse may be discovered by opening the berries; those of buckthorn have almost always four seeds, of the alder two, and of the dogberry only one. Buckthorn berries, bruised on white paper, stain it of a green colour, which the others do not. Those who sell the juice to the apothecaries, are said to mix it with a large proportion of water.

Medical use.—Buckthorn berries have a faint disagreeable smell, and a nauseous bitter taste. They have long been in considerable esteem as cathartics, and celebrated in dropsies, rheumatisms, and even in the gout; though in these cases they have no advantage over other purgatives, but are more offensive, and operate more severely, than many which the shops

are furnished with. They generally occasion gripes, sickness, dry the mouth and throat, and leave a thirst of long duration. The dose is about twenty of the fresh berries in substance, and twice or thrice this number in decoction; an ounce of the expressed juice, or a drachm of the dried berries.

RHEUM.

Willd. *g.* 803. *Enneandria Monogynia.*—Nat. ord. *Olera-ceæ.*

Sp. 3. RHEUM PALMATUM. *Lond. Dub.*

Palmated rhubarb.

Officinal.—The root.

RADIX RHEI. *Lond. Dub.*

Sp. 2. RHEUM UNDULATUM. *Dub.*

Officinal.—The root.

RADIX RHEI UNDULATI. *Dub.*

RADIX RHŒI. *Ed.*

a) RHEUM RUSSICUM *vel* TURCICUM. *Ed.*

b) RHEUM SINENSE *vel* INDICUM. *Ed.*

c) RHEUM BRITANNICUM. *Ed.*

Turkey, China, and British rhubarb, got from the palmated rhubarb and other species.

BOTH of these species grow spontaneously in China, and endure the cold of our climate.

But it is not ascertained that the Chinese or Russian rhubarb is the dried root of either the one or the other. Pallas thinks that it is obtained indiscriminately from the *rheum undulatum*, *palmatum*, and *compactum*, more especially from the first; while Mr Sievers, an apothecary who was sent by Catherine II. on purpose to obtain the true rhubarb plant, and travelled for several years in the countries contiguous to that whence the rhubarb is brought, is of opinion, that the botanical characters of the plant, which furnishes it, are still unknown, excepting that it is said not to grow to a great size, and to have round leaves, which are toothed on the edges with almost spinous points.

All the rhubarb of commerce is brought from the Chinese town Sini, or Selim, by the Bucharians. It grows on the neighbouring chain of lofty mountains which stretches to the lake Koko-Nor, near the source of the river Chorico, between 35° and 40° north latitude. It is dug up by the peasants, cleaned from the earth, cut in pieces, strung with the bark on strings, and exposed to dry under cover in the shade for a whole year, when it is again cleaned and prepared for exportation.

There is a distinction made in commerce between the Russian and Chinese rhubarb, although they both come from the same country.

The Russian is dearer, and always good, as very great attention is paid both in purchasing and transporting it, by order of the government. In Kiachta, on the Russian frontier, it is received from the Bucharians by the Russian apothecary, who examines it. The bad is immediately burnt, and the good is freed from its bark, woody parts, and every impurity, in the most careful manner. It is then sent to Moscow and to Petersburgh, where it is again examined.

It is commonly in round pieces, of a reddish or whitish-yellow colour, feels gritty between the teeth, and is often perforated with so large a hole, that many pieces have the appearance of a mere rind.

The Chinese or East Indian rhubarb is brought by sea from Canton. It is heavier, harder, and more compact than the other; seldom perforated with holes, and either, in long pieces, or with two flat sides, as if they had been compressed. Dr Lewis thinks that this is less aromatic, but stronger, than the Turkey; and that it has required less care in drying, from having been lifted when the root was less watery.

The general characters of good rhubarb are, its having a whitish or clear yellow colour, being dry, solid, and compact, moderately heavy, brittle; when recently broken, appearing marked with yellow or reddish veins, mixed with white; being easily pulverizable; forming a powder of a fine bright yellow, having the peculiar, nauseous, aromatic smell of rhubarb, and a sub-acrid, bitterish, somewhat astringent taste, and when chewed feeling gritty under the teeth, speedily colouring the saliva, and not appearing very mucilaginous. The size and form of the pieces are of little consequence; only we must break the large ones, to see that they are not decayed or rotten within; and we must also observe that they are not musty or worm-eaten. This is the more necessary, as damaged pieces are frequently so artfully dressed up, and coloured with powdered rhubarb, as to impose on the buyer.

The principal constituent of rhubarb is extractive matter, soluble both in alcohol and in water. By gentle decoction it loses about one-half its weight. Rhubarb also contains some volatile odorous matter, on which its peculiar nauseous smell, and its activity as a purge, depend; for when dissipated, either by age or any preparation to which the rhubarb has been subjected, the powers of the medicine are almost destroyed. It also contains about one-sixth of its weight of oxalate of lime, and some tannin, which resides entirely in the dark co-

loured veins, for on wetting the surface with a weak chalybeate solution, these alone are blackened, while the white veins do not change their colour. Neumann got from 480 grains 180 of alcoholic, and afterwards 170 watery extract. and inversely, 350 watery, and only 5 of alcoholic extract.

Various species of rhubarb, especially the palmatum, are cultivated in this country, and sometimes in very large quantities; so that there can be no doubt that the roots, the growth of this country, may be so prepared as to have the appearance, at least, of foreign rhubarb. The greatest difficulty seems to be the drying it properly. Its cultivation is easy. It is sown in spring, in a light soil, and transplanted next spring into a light soil, well trenched, and the plants set at a yard distance from each other each way. The third year some plants begin to flower, but the roots are not lifted till the autumn of the sixth year. They are first to be washed in a large quantity of water, and after the fibres and small roots are cut off, to be well brushed in fresh water, and cut into pieces of a proper size. The brown bark is then rasped off, and they are again thrown into fresh water for three or four hours, in which they give out a great quantity of gummy matter. They are then taken out, and laid upon twigs to drip till next morning, and it is chiefly in this time that they exude at every part a white transparent gummy matter, resembling jelly. They are lastly placed in a stove, heated to 120° or 140°, till they dry. Twenty-five pounds of the recent root gave only about eight pounds dry. It is not, however, yet fit for sale. All the wrinkles must be rasped and filed out, and the pieces thus dressed put in a barrel fixed on an axis, and rolled about in it for twenty minutes or half an hour, when they get covered by a fine powder, formed by their rubbing against each other. Prepared in this way, Beaumé assures us that it not only has the appearance of foreign rhubarb, but like it could also be immediately powdered. The chief peculiarity in his process is the steeping the roots, after they are cleaned, in water, by which means they are deprived of a great quantity of gummy matter; and without this precaution, even when apparently perfectly dry, the roots cannot be reduced into powder, but become pasty under the pestle, until it be two years old, and even then the powder is apt to concrete into lumps, and to get a dark-brown colour. Four ounces of French rhubarb yielded to Beaumé 1644 grains of extract, and the same quantity of foreign rhubarb 1500. British rhubarb, as it is called, is cultivated in considerable quantities in the neighbourhood of Edinburgh, and sold at nearly the price of foreign rhubarb. It is easily reduced to a very fine

powder, although it is merely washed and peeled before it be cut into proper pieces, and dried upon the top of a baker's oven. The leaf-stalks of rhubarb contain a pleasant acid juice, and are used for making tarts, which are very like those of quinces; and Olivier tells us that the Persians have long been in the habit of using the Rheum ribes in the same manner, preserved or raw.

Medical use.—Rhubarb is a mild cathartic, which operates without violence or irritation, and may be given with safety even to pregnant women and to children. In some people, however, it occasions severe griping. Besides its purgative quality, it is celebrated as an astringent, by which it increases the tone of the stomach and intestines, and proves useful in diarrhœa and disorders proceeding from laxity.

Rhubarb is exhibited,

1. In substance, in the form of powder. It operates more powerfully as a purgative in this form than in any other. The dose for an adult is about a scruple or upwards. On account of its great bulk, it is sometimes unpleasant to take a sufficient dose; its laxative effects are therefore often increased by the addition of neutral salts, or other more active purgatives. In smaller doses it often proves an excellent stomachic.

2. In infusion. Rhubarb yields more of its purgative property to water than to alcohol. The infusion is, however, considerably weaker than the powder, and requires double the dose to produce the same effect. It is well adapted for children, but must be always fresh prepared.

3. In tincture. On account of the stimulating nature o the menstruum, this preparation frequently cannot be exhibited in doses large enough to operate as a purgative. Its principal use is as a tonic and stomachic.

The virtues of rhubarb are destroyed by roasting, boiling, and in forming the extract.

RHODODENDRON CHRYSANTHUM. *Ed.*

Willd. *g.* 867, *sp.* 7. *Decandria Monogynia.*—Nat. ord. *Bicornes.*

Yellow-flowered rhododendron.

Off.—The leaves.

FOLIA RHODODENDRI CHRYSANTHI. *Ed.*

THIS small shrub grows in the coldest situations, and highest parts of the snow-covered mountains in east Siberia, and especially in Dauria. The leaves are oblong, rigid, reflected at the edges, rough on the upper surface, smooth, and paler on the lower. When dried, they have no smell, but a rough,

astringent, and bitterish taste. They also contain a stimulant narcotic principle; for they increase the heat of the body, excite thirst, and produce diaphoresis, or an increased discharge of the other secretions or excretions, and, in a large dose, inebriation and delirium.

Medical use.—In decoction, it is used in Siberia in rheumatism and gout. About two drachms of the dried shrub are infused in an earthen pot, with about ten ounces of boiling water, keeping it near a boiling heat for a night, and the infusion taken in the morning. Besides its other effects, it is said to produce a sensation of prickling or creeping in the pained parts; but in a few hours the pain and disagreeable symptoms are relieved, and two or three doses generally complete the cure. Liquids are not allowed during its operation, as they are apt to induce vomiting.

RHUS TOXICODENDRON. *Ed. Lond.*

Willd. *g.* 566, *sp.* 17. *Pentandria Trigynia.*—Nat. ord. *Dumosæ.*

Poison oak.

Off.—The leaves.

FOLIA RHOIS TOXICODENDRI. *Ed.*

FOLIA TOXICODENDRI. *Lond.*

THIS is a deciduous shrub of moderate growth, a native of North America. The leaves are alternate, and stand upon very long leaf-stalks. Each leaf consists of three leafits. It is said that its juice is so extremely acrid as to cause inflammation, and sometimes even sphacelation, in the parts touched with it.

Medical use.—It was first tried as a medicine by Dr Alderson of Hull, in imitation of the experiments of M. Fresnoi with the Rhus radicans. He gave it in four cases of paralysis, in doses of half a grain, or a grain three times a-day, and all his patients recovered, to a certain degree, the use of their limbs. The first symptom of amendment was always an unpleasant feeling of prickling or twitching in the paralytic limbs. We have given it in larger doses, without experiencing the same success. It was not, however, inactive. In one case the patient discontinued its use on account of the disagreeable prickling it occasioned; and in general it operated as a gentle laxative, notwithstanding the torpid state of the bowels of such patients.

RICINUS COMMUNIS. *Ed. Lond. Dub.*

Willd. *g.* 1720, *sp.* 2. *Monoecia Monadelphia.*—Nat. ord. *Tricoccæ.*

Palma Christi.

Off.—The seeds, and the fixed oil obtained from them. Castor oil.

a) SEMINA RICINI COMMUNIS. *Ed.*
SEMINA RICINI: *Lond.*

b) OLEUM FIXUM RICINI COMMUNIS. *Ed.*
OLEUM RICINI, e seminibus expressum. *Lond. Dub.*

THIS beautiful plant grows in both Indies, Africa, and the south of Europe. It is of speedy growth, and in one year arrives at its full height, which seldom exceeds twenty feet.—The capsules are prickly and triangular, and contain, under a thin, dry, grey, and black-marbled husk, a white oily kernel. The skin is extremely acrid; and one or two of the seeds swallowed entire operate as a drastic purgative or emetic.

The kernels yield almost a fourth part of their weight of a bland fixed oil, commonly called Castor oil. It is obtained from them either by expression, or by decoction with water. The former method is practised in Europe, the latter in Jamaica. To increase the product, it is common to parch the seeds over the fire, before the oil is extracted from them; but the oil thus obtained is inferior to that prepared by cold expression or simple decoction, and is apt to become rancid.

Genuine castor oil is thick and viscid, of a whitish colour, insipid or sweetish to the taste, and without smell.

Medical use.—As a medicine, it is a gentle and useful purgative: it in general produces its effects without griping, and may be given with safety where acrid purgatives are improper, as in cholic, calculus, gonorrhœa, &c.: some likewise use it as a purgative in worm cases. Half an ounce, or an ounce, commonly answers with an adult, and a drachm or two with an infant.

The aversion to swallowing oil is generally considerable. Different modes of overcoming this have been proposed.—Some prefer taking it swimming on a glass of water, or peppermint water, others mixed with coffee, in the form of an emulsion, with mucilage, or with the addition of a little rum.

ROSA.

Willd. *g.* 997. Smith, *g.* 232. *Icosandria Polygynia.*—Nat. ord. *Senticosæ.*

Sp. 16. Willd. ROSA GALLICA. *Ed. Lond. Dub.*
Red rose.

Off.—The petals.

PETALA ROSÆ GALLICÆ. *Ed. Lond.*
PETALA ROSÆ RUBRÆ. *Dub.*

This has not the fragrance of the succeeding species; but the beautiful colour of its petals, and their pleasant astringency, have rendered them officinal. It must, however, be remarked, that their odour is increased by drying, while that of the damask rose is almost destroyed.

Sp. 15. Willd. Rosa centifolia. *Ed. Lond. Dub.*
Damask rose.

Off.—The petals.
Petala rosæ centifoliæ. *Ed. Lond.*
Petala rosæ damascenæ. *Dub.*

The native country of this shrub is unknown, but the delightful fragrance of its flowers has rendered it the favourite ornament of every garden. In the former editions of Linnæus, the damask rose was considered as a variety only of the Rosa centifolia; but Aiton, Du Roy and Willdenow have arranged it as a distinct species. This used to be the officinal rose for the distillation of rose water, but now the more common variety is ordered, as it is highly probable that the petals of all the varieties of the Rosa centifolia, or Dutch hundred-leaved rose, are employed indiscriminately for this purpose.

Sp. 31. Willd.; *sp.* 6. Smith. Rosa canina. *Ed. Lond.*
Common dog-rose, wild briar or hep-tree.

Off.—The fruit called Heps.
Fructus rosæ caninæ. *Ed.*
Pulpa rosæ caninæ; baccarum pulpa expressa. *Lond.*

This shrub is found in hedges throughout Britain, and flowers in June. The pulp of the fruit, besides saccharine matter, contains citric acid, which gives it an acrid taste. The seeds, and stiff hair with which they are surrounded, must be carefully removed from the pulp before it can be used.

Rosmarinus officinalis. *Ed. Lond. Dub.*
Willd. *g.* 62, *sp.* 1. *Diandria Monogynia.*—Nat. ord. *Verticillatæ.*
Rosemary.

Off.—The herb and flowers.
Cacumina rorismarini officinalis. *Ed.*
Cacumina rorismarini. *Lond.*
Herba rorismarini. *Dub.*

Rosemary is a perennial shrub, which grows wild in the south of Europe, and is cultivated in our gardens. It has a

fragrant smell, and a warm pungent bitterish taste, approaching to lavender: the leaves and tender tops are strongest; next to these the cup of the flower: the flowers themselves are considerably the weakest, but most pleasant.

Medical use.—Its virtues depend entirely on its essential oil, which seems to be combined with camphor, not only from its peculiar taste, but from its possessing chemical properties, which depend on the presence of camphor; and from its depositing crystals of camphor when long kept.

RUBIA TINCTORUM. *Ed. Lond. Dub.*

Willd. *g.* 187, *sp.* 1. *Tetandria Monogynia.*—Nat. ord. *Stellatæ.*

Madder.

Off.—The root.

RADIX RUBIÆ TINCTORUM. *Ed.*

RADIX RUBIÆ. *Lond. Dub.*

MADDER is perennial, and is cultivated in large quantities in England, from whence the dyers are principally supplied with it. It has been said to grow wild in the south of England, but the Rubia peregrina was mistaken for it.

The roots consist of articulated fibres, about the thickness of a quill, which are red throughout, have a weak smell, and a bitterish astringent taste. For the use of the dyers, they are first peeled and dried, then bruised and packed in barrels. Madder possesses the remarkable property of tinging the urine, milk, and bones of animals which are fed with it, of a red colour.

Medical use.—It is said to be useful in the atrophy of children, and some believe in its reputed powers as an emmenagogue.

It is given in substance in doses of half a drachm, several times a-day, or in decoction.

RUMEX.

Willd. *g.* 699.; Smith, *g.* 184. *Hexandria Trigynia.*—Nat. ord. *Oleraceæ.*

Sp. 18. Willd.; *sp.* 8. Smith. RUMEX AQUATICUS. *Dub.*

Great water-dock.

Off.—The root.

RADIX RUMICIS AQUATICI. *Dub.*

THIS is a perennial weed, growing in ditches and by the sides of rivers. It grows to the height of five feet, and flowers in July and August. The root is large, and is manifestly

astringent. It evidently is the *Herba Britannica* of the ancients, so much celebrated for the cure of scurvy and cutaneous diseases. Even syphilis has been said to yield to an infusion of water-dock in wine and vinegar.

Sp. 31. Willd.; *sp.* 10. Smith. RUMEX ACETOSA. *Ed. Lond.*
Common sorrel.

Off.—The leaves.
FOLIA RUMICIS ACETOSÆ. *Ed.*
FOLIA ACETOSÆ. *Lond.*

SORREL is a perennial plant which grows wild in fields and meadows throughout Britain, and flowers in June. The leaves have a pleasant acid taste, without any smell or particular flavour; their medical effects are, to cool, quench thirst, and promote the urinary discharge: a decoction of them in whey affords an useful and agreeable drink in febrile or inflammatory disorders. All these effects are to be ascribed entirely to the super-oxalate of potass which they contain.

RUTA GRAVEOLENS. *Ed. Lond. Dub.*
Willd. *g.* 927, *sp.* 1. *Decandria Monogynia.*—Nat. ord. *Multisiliquæ.*
Rue.

Off.—The herb.
HERBA RUTÆ GRAVEOLENTIS. *Ed.*
FOLIA RUTÆ. *Lond. Dub.*

THIS is a small shrubby plant, a native of the south of Europe, and cultivated in our gardens.

Rue has a strong ungrateful smell, and a bitterish penetrating taste: the leaves, when in full vigour, are extremely acrid, insomuch as to inflame and blister the skin, if much handled. Neumann got from 960 grains of the dried leaves 330 alcoholic extract, and afterwards 290 watery; and inversely, 540 watery and 40 alcoholic. Both primary extracts are bitter and acrid. Rue also contains a volatile oil, which congeals readily, and is obtained in the greatest quantity by distilling the plant with the seeds half-ripe.

Medical use.—With regard to its medical virtues, like other remedies of which the active constituent is an essential oil, it is heating and stimulating, and hence it is sometimes serviceable in spasmodic affections, and cases of obstructed secretions.

SACCHARUM OFFICINARUM. *Ed. Lond. Dub.*
Willd. *g.* 122, *sp.* 4. *Triandria Digynia.*—Nat. ord. *Gramina.*
Sugar-cane.

Off.—*a)* Raw or brown sugar.
SACCHARUM. Præparatum e succo expresso. *Lond.*
SACCHARUM NON PURIFICATUM. *Ed.*
SACCHARUM RUBRUM. *Dub.*
b) Double refined sugar.
SACCHARUM PURIFICATUM. *Lond. Dub.*
SACCHARUM PURISSIMUM. *Ed.*
c) Molasses.
SACCHARI RUBRI SYRUPUS. (Molasses.) *Dub.*
SYRUPUS EMPYREUMATICUS. *Ed.*

THE sugar-cane grows wild in both Indies, and forms the chief object of cultivation in the West Indies.

Sugar, of which we have already noticed the general properties, is principally obtained from this plant, by boiling down its expressed juice, with the addition of a certain proportion of lime or potass, until the greater part is disposed to concrete into brownish or yellowish crystalline grains. The lime or potass is added to saturate some malic acid, whose presence impedes the crystallization. The *molasses* is that portion of the inspissated juice which does not crystallize. 1. The crystallized portion, or *raw sugar*, is sent to Europe to be refined. This is performed by dissolving it in water, boiling the solution with lime water, clarifying it with blood, or white of eggs, and straining it through woollen bags. The solution, after due evaporation, is permitted to cool to a certain degree, and then poured into conical forms of unglazed earthen ware, where it concretes into a mass of irregular crystals. The syrup which has not crystallized runs off through a hole in the apex of the cone. The upper or broad end of the cone is then covered with moist clay, the water of which gradually penetrates into the sugar, and displaces a quantity of syrup, which would otherwise be retained in it, and discolour it. It is then carefully dried, and gets the name of *loaf* or *lump sugar*. When the solution and other steps of the process are repeated, the sugar is said to be *double refined*. Sugar is sometimes made to assume a more regular form of crystallization, by carrying the evaporation only a certain length, and then permitting the syrup to cool slowly. In this form it is called *Brown* or *White sugar-candy*, according to the degree of its purity.

Raw sugar varies very much in quality. It should be dry, crystallized in large sparkling hard grains, of a whitish or clear yellow colour, without smell, and of a sweet taste, without any peculiar flavour.

Refined sugar should have a brilliant white colour, and a close compact texture. It should be very hard but brittle, and break with sharp, semi-transparent, splintery fragments.

Medical use.—Sugar, from being a luxury, has now become one of the necessaries of life. In Europe, sugar is almost solely used as a condiment. But it is also a very wholesome and powerful article of nourishment; for during crop time, the negroes in the West Indies, notwithstanding their increased labour, always grow fat. It is in this way also that its internal employment is useful in some diseases, as in sea scurvy; for sugar produces no particular effect as a medicine, except that the coarse and impure kinds are slightly purgative. Applied externally it acts as an escharotic in spongy and unhealthy granulations; and to abraded or inflamed surfaces it proves gently stimulant. In pharmacy it is principally employed to cover bad tastes, to give form to, and to preserve more active substances. In using it for the last purpose, we must always remember, that if the proportion of sugar employed be too small, it will promote, instead of retarding the fermentation of the articles it is intended to preserve.

Molasses or treacle is a very impure syrup. It is thick, viscid, of a dark-brown, almost black colour, and has a peculiar smell, and a sweet, somewhat empyreumatic taste.—Treacle is applied to many domestic and economical purposes. It is admirably adapted for covering the taste of nauseous drugs; and in hospital practice may supersede the use of sugar in many instances.

SAGAPENUM. *Dub.* Plantæ nondum descriptæ *Gummi-resina. Ed. Lond.*

Sagapenum. A gum-resin.

THE plant which furnishes the substance is not ascertained, but is conjectured by Willdenow to be the Ferula Persica.

Sagapenum is a concrete juice, brought from Alexandria, either in distinct tears, or agglutinated in large masses. It is outwardly of a yellowish colour; internally somewhat paler, and clear like horn; it grows soft upon being handled, and sticks to the fingers; its taste is hot, nauseous, and bitterish, and its smell disagreeable and alliaceous.

Neumann got from 480 grains, 306 alcoholic and 108 watery extract; and inversely, 170 watery, and 241 alcoholic extract. The alcohol distilled from it was sensibly impregnated with its flavour, and along with the water a considerable portion of volatile oil arose. It is not fusible.

Medical use.—In medical virtues it holds a kind of middle place between assafœtida and galbanum, and may be employed in the same manner, and under similar circumstances.

SALIX.

Willd. *g.* 1756.; Smith, *g.* 409. *Diœcia Diandria.*—Nat. ord. *Amentaceæ.*

Sp. 10. Willd.; *sp.* 17. Smith. SALIX FRAGILIS. *Dub.*
Crack willow.
CORTEX SALICIS FRAGILIS. *Dub.*

Sp. 33. Willd.; *sp.* 45. Smith. SALIX ALBA. *Dub.*
Common white willow.
CORTEX SALICIS. *Dub.*

Sp. 101. Willd.; *sp.* 40. Smith. SALIX CAPREA. *Lond.*
Great roundleaved sallow.

Off.—The bark.
CORTEX SALICIS. *Lond.*
CORTEX SALICIS CAPREÆ. *Ed.*

THE bark of these as well as of other indigenous species of willow, have been recommended as substitutes for cinchona. The white willow was first introduced into practice by Mr Stone; and strong evidence in favour of the use of the broad-leaved, in debility, intermittents and foul ulcers, has been published by Messrs James, White and Wilkinson. They possess very considerable astringency and bitterness, but differ chemically from cinchona in containing no tannin. An ounce and a half of the dried bark should be first macerated six hours in two pounds of water, and then made to boil in it for ten or fifteen minutes. An ounce or two of this decoction may be given three or four times a-day, or oftener.

SALVIA OFFICINALIS. *Ed. Dub.*

Willd. *g.* 63, *sp.* 7. *Diandria Monogynia.*—Nat. ord. *Verticillatæ.*

Sage.

Off.—The leaves.

FOLIA SALVIÆ OFFICINALIS. *Ed.*
SALVIA. *Dub.*

SAGE is a perennial plant, a native of the south of Europe, and cultivated in our gardens. There are several varieties of it differing in size, or in the colour of the flower, but their properties are the same. They have a peculiar aromatic smell, and a warm aromatic taste, with some degree of bitterness and astringency.

Medical use.—In its effects, sage agrees with other aromatics. It is stimulant, carminative, and tonic. In cold phlegmatic habits it excites appetite, and proves serviceable in debility of the nervous system. The best preparation for these purposes is an infusion of the dried leaves, drunk as tea, or a tincture, or extract, made with rectified spirit, taken in proper doses; these contain the whole virtues of the sage, the distilled water and essential oil only its warmth and aromatic quality, without any of its roughness or bitterness. Aqueous infusions of the leaves, with the addition of a little lemon-juice, prove an useful diluting drink in febrile disorders, being sufficiently agreeable to the palate.

SAMBUCUS NIGRA. *Ed.*
Willd. *g.* 569, *sp.* 3.; Smith, *g.* 157, *sp.* 2. *Pentandria Trigynia.*—Nat. ord. *Dumosæ.*
Common elder.

Off.—*a)* The flowers.
FLORES SAMBUCI NIGRI. *Ed.*
FLORES SAMBUCI. *Lond. Dub.*

b) The berries.
BACCÆ SAMBUCI NIGRI. *Ed.*
BACCÆ SAMBUCI. *Dub.*

c) The inner bark.
CORTEX SAMBUCI NIGRI. *Ed.*
CORTEX INTERIOR SAMBUCI. *Dub.*

THIS tree is frequent in hedges; it flowers in June, and ripens its fruit in September. The berries contain malic acid, and have a sweetish, not unpleasant taste; nevertheless, eaten in substance, they offend the stomach. For the market, they are gathered indiscriminately from the Sambucus nigra and Ebulus, a very venial fraud, as their effects are exactly the same. They are, however, easily distinguished, by the latter, when bruised, staining the fingers of a red colour, and the former of the colour of a withered leaf.

Medical use.—An infusion of the inner green bark of the

trunk in wine, or the expressed juice of the berries in the dose of half an ounce or an ounce, is said to purge moderately, and in small doses to prove an efficacious deobstruent, capable of promoting all the fluid secretions. The expressed juice, inspissated to the consistence of a rob, proves an useful aperient medicine, promotes the natural evacuations, and if continued for a sufficient length of time, is of considerable service in various chronical disorders. The young leaf buds are strongly purgative, and act with so much violence as to be accounted unsafe. The flowers are very different in quality; these have an agreeable aromatic flavour, which they yield in distillation to water, and impart, by infusion, to vinous and spiritous liquors.

SAPO.

a) Hard soap, composed of soda and olive oil.

SAPO: Sapo albus Hispanus, ex oleo Oleæ Europææ et soda confectus. *Ed.*

SAPO DURUS: Sapo ex Olivæ oleo et soda confectus (Hispanïcus). *Lond.*

SAPO: Durus Hispanicus. *Dub.*

b) Soft soap made of oil and potass.

SAPO MOLLIS: Sapo ex oleo et potassa confectus. *Lond. Ed.*

THE general chemical properties of soap have been already noticed. Soap is of two kinds, hard and soft,—hard when it is made with soda, and soft when made with potass. The latter is a strong, but coarse soap, and in medicine is only used externally as a detergent and cataplasm. The officinal species of the former is composed of olive oil and soda. It is only prepared in the countries which produce the oil. For medicinal use we prefer the Spanish.

It should be white and hard, dissolve entirely in water and in alcohol, forming with the former a milky, and with the latter a transparent solution: and the solutions should froth freely on agitation. It should not be variegated in its colour, feel greasy or moist, or be covered with a saline efflorescence; and the solution should not have a rancid smell or taste. Some of the foreign Dispensatories are so very particular about the nature of the soap used in medicine, as to direct it to be prepared by the apothecary, by simply triturating, without the assistance of heat, Provence oil, with half its weight of a solution of soda, of the specific gravity of 1.375 until they unite.

Soap is decomposed by all the acids, earths, and earthy

and metalline salts. The acids combine with the alkali, and separate the oil. The earths form an insoluble earthy soap with the oil, and separate the alkali; while with the salts there is a mutual decomposition, their acid combines with the alkali, and earthy or metalline soaps are formed.

Medical use.—The detergent property of soap, or the power it possesses of rendering oily and resinous substances miscible with water, has given rise to very erroneous notions of its medical virtues. It was supposed to render such substances more readily soluble in the juices of the stomach, and in the fluids of the body, and to be well fitted for dissolving such oily or unctuous matters as it may meet with in the body, attenuating viscid juices, opening obstructions of the viscera, and deterging all the vessels it passes through. It has likewise been supposed a powerful menstruum for the urinary calculus; and a solution of soap in lime water has been considered as one of the strongest solvents that can be taken with ssfety into the stomach; for the virtue of this composition has been thought considerably greater than the aggregate of the dissolving powers of the soap and lime-water when unmixed.

How erroneous these ideas are, appears evidently, when we recollect the very easy decomposition of soap, which renders it perfectly impossible that it should enter the circulating system, or indeed come into contact with the fluids even of the mouth, without being decomposed. As to the solution of soap in lime-water, we may observe, that it is only a clumsy way of exhibiting a solution of soda; for the soap is decomposed, an insoluble soap of lime is formed, and the soda remains in solution. The internal use of soap should therefore be confined, in our opinion, to the giving form to other substances which are not decomposed by it, and to the decomposing metallic poisons when they have been taken into the stomach. For this last purpose, a teacup-ful of a solution of soap in four times its weight of water may be drunk every three or four minutes, until a sufficient quantity be taken.

Applied externally, soap is a very powerful detergent, and combines the stimulating properties of the alkali with the lubricity of the oil. In this way it often proves a powerful discutient, and a useful application to sprains and bruises.

Scilla maritima. *Ed. Lond. Dub.*

Willd. g. 640, *sp.* 1. *Hexandria Monogynia.*—Nat. ord. *Liliaceæ.*

Squill.

Off.—The root.

RADIX SCILLÆ MARITIMÆ. *Ed.*
RADIX SCILLÆ. *Lond. Dub.*

THE squill is a perennial bulbous-rooted plant, which grows wild on the sandy shores of Spain, Portugal, north of Africa, and the Levant.

The root is about the size of the fist, pear shaped, with the apex upwards, and consists of fleshy scales, attenuated at both edges, surrounded by other scales, which are arid, shining, and so thin, that the root, at first sight, seems to be tunicated. The recent root is full of a white viscid juice, has scarcely any smell, but a very bitter, nauseous, and extremely acrid taste. Rubbed on the skin, it inflames and blisters.

It is more commonly met with in the shops in the form of the dried scales, which should be brittle, semi-pellucid, smooth, but marked with lines, and when chewed should feel tenacious, and taste very bitter, without manifest acrimony.

The active constituent of the squill is the acrid principle; and therefore it becomes almost inert by too much drying, or by being kept too long in the form of powder. It also contains bitter extractive, much mucilage, albumen and starch.

Medical use.—Given internally in large doses, it produces purging and vomiting, sometimes even strangury, bloody urine, inflammation and erosion of the stomach. In smaller doses, it proves a useful expectorant and diuretic, and it is said to lessen the frequency of the pulse.

Squill is sometimes given as a general stimulant in typhus, especially to cattle. But it is much more frequently exhibited as an expectorant, where the lungs are loaded with viscid matter, and as a diuretic in dropsical cases, for which purpose it is commonly conjoined with calomel.

The dose of squill is one or two grains three or four times a-day; and the most commodious form of its exhibition, unless when designed as an emetic, is that of a bolus or pill: in a liquid form it is to most people too offensive, though rendered less disagreeable both to the palate and stomach by the addition of aromatic distilled waters.

SCROPHULARIA NODOSA. *Dub.*

Willd. *g.* 1152, *sp.* 2.; Smith, *g.* 285, *sp.* 1. *Didynamia Angiospermia.*—Nat. ord. *Personatæ.*

Knotty-rooted figwort.

Off.—The herb.

HERBA SCROPHULARIÆ. *Dub.*

THIS is a perennial plant, growing in woods and under hedges. It flowers in July. The roots are grey and knotty,

and have a nauseous smell, and a sweet but somewhat acrid taste, both of which they partly lose by drying.

SINAPIS.

Willd. *g.* 1246. Smith, *g.* 312, *Tetradynamia Siliquosa*—Nat. ord. *Siliquosæ.*

Sp. 4. Willd.; *sp.* 2. Smith. SINAPIS ALBA. *Ed. Dub.*
White mustard.

Off.—The seeds.
SEMINA SINAPIS ALBÆ. *Ed.*
SEMINA SINAPI. *Dub.*

Sp. 5. Willd.; *sp.* 3. Smith. SINAPIS NIGRA. *Lond.*
Common mustard.

Off.—The seeds.
SEMINA SINAPIS. *Lond.*

THESE plants are both annual, both grow wild in England, and possess similar virtues.

They flower in June and produce small round compressed seeds, which have an acrid bitterish taste, and a pungent smell when reduced to powder. The common mustard has blackish seeds, and is more pungent than the white.

They impart their taste and smell in perfection to aqueous liquors, whilst rectified spirit extracts extremely little of either; the whole of the pungency arises with water in distillation. Committed to the press, they yield a considerable quantity of a bland insipid oil, perfectly void of acrimony: the cake left after the expression is more pungent than the mustard itself.

Medical use.—Mustard seed is swallowed entire, to the quantity of a table spoonful or more, to stimulate the stomach in some cases of dyspepsia, and to excite the peristaltic motion of the intestines, especially when they are torpid, as in paralysis. The powder made into a paste with water is commonly used as a condiment with animal food; infused in water, it proves emetic when taken in considerable doses, and in smaller ones acts as a diuretic and aperient; but it is more frequently applied externally as a topical stimulus, made into a paste, or sinapism, with vinegar and bread-crumb.

SISYMBRIUM NASTURTIUM. *Ed.*

Willd. *g.* 1238, *sp.* 1.; Smith, *g.* 306, *sp.* 1. *Tetradynamia Siliquosa.*—Nat. ord. *Siliquosæ.*

Common water-cress.

Off.—The recent herb.
HERBA.

This plant is perennial, and grows wild in clear springs, and rivulets throughout Britain. Its leaves remain green all the year, but are in greatest perfection in the spring. They have a pungent smell (when rubbed betwixt the fingers,) and an acrid taste, similar to that of scurvy grass, but weaker. By drying or boiling, they lose their sensible qualities entirely.

Medical use.—It acts as a gentle stimulant and diuretic; for these purposes, the expressed juice, which contains the peculiar taste and pungency of the herb, may be taken in doses of an ounce or two, and continued for a considerable time.

SIUM NODIFLORUM. *Dub.*

Willd. *g.* 544, *sp.* 4.; Smith, *g.* 139, *sp.* 3. *Pentandria Digynia.*—Nat. ord. *Umbellatæ.*

Procumbent water parsnip.

Officinal.—The herb.

HERBA SII. *Dub.*

THIS plant is perennial, and grows wild in rivers and ditches in England. It flowers in July and August, and was formerly alleged to be not only diuretic, but also emmenagogue and lithontriptic. It is now scarcely employed.

SMILAX SARSAPARILLA. *Ed. Dub. Lond.*

Willd. g. 1800, *sp.* 9. *Dioecia Hexandria.*—Nat. ord. *Sarmentaceæ.*

Sarsaparilla.

Off.—The root.

RADIX SMILACIS SARSAPARILLÆ. *Ed.*

RADIX SARSAPARILLÆ. *Lond. Dub.*

THIS root is brought from the Spanish West Indies. It consists of a great number of long fibres, hanging from one head: the long roots, the only part made use of, are of a blackish colour on the outside, and white within, about the thickness of a goose quill, or thicker, flexible, composed of a very small woody heart, surrounded with fibres running their whole length, which renders them extremely apt to split. They have a glutinous, bitterish, not ungrateful taste, and no smell. Inferior kinds of this root are also sold. They are in general thicker, of a paler colour on the outside, and less white within, with a much thicker woody heart. Neumann got from 960 grains, 360 watery, and 10 alcoholic extract, and inversely 240 alcoholic, and 120 watery.

Medical use.—It was first brought into Europe by the Spaniards, about the year 1563, with the character of being a specific for the cure of the lues venerea, a disease which made

its appearance a little before that time, and likewise of several obstinate chronic disorders. It then lost its reputation, and was considered by many as a very inert mucilaginous substance; and the diaphoresis, which it is sometimes supposed to produce, was entirely ascribed to the warm and diluent regimen employed at the same time. More recently, however, it has come into favour for the cure of many cutaneous affections, and especially of what are called syphiloid diseases; and if upon just grounds, it will explain why it should have been so strongly recommended in syphilis, and why it should have failed.

SODA IMPURA. Subcarbonas sodæ impura. *Lond.*
CARBONAS SODÆ IMPURUS, v. s. Barilla. *Ed.*
BARILLA, s. s. Soda impura. *Dub.*
Impure carbonate of soda. Barilla. Fixed mineral alkali.

SODA is a very common mineral production. It is the basis of sea-salt; and combined with carbonic acid, it is found on the surface of the earth in Egypt, Syria, Barbary, Hungary, &c. and is obtained by the incineration of marine vegetables, especially the salsola soda and kali, the salicornia herbacea, &c. The Spaniards even cultivate these in salt marshes for the sake of the soda. After being cut down, they are dried like hay. A deep pit is then prepared, and a bundle or two of the dried vegetables set on fire are thrown into it. After being well kindled, other bundles are thrown in until the pit is filled. When the incineration is completed, the barilla is found in the bottom, caked into a solid mass, which is worked like a stony substance. Good barilla is firm, hard, heavy, dry, sonorous, spongy, and internally of a blue colour mixed with white spots, does not deliquesce, emits no unpleasant smell on solution, and does not leave a large proportion of insoluble matter. Incinerated soda is mixed with potash, muriate of soda, and other saline matters; mineral soda with clay and other earthy substances. The Egyptian soda was reckoned the best, then the Spanish (barilla,) afterwards the Carthaginian, and that prepared from different species of fuci (kelp) is the worst.

But all these carbonated sodas are inferior in purity to those now manufactured in Britain, by decomposing the sulphate of soda.

That commonly used is obtained by the bleachers as a residuum in their method of preparing oxygenized muriatic acid, by decomposing muriate of soda with sulphuric acid and the black oxide of manganese.

The sulphate of soda is decomposed,

1. By carbonate of potash. Mr Accum has described the manipulations of this mode. A boiling concentrated solution of about 560 pounds of American potashes is ladled into a boiling solution of 500 pounds of sulphate of soda, agitated together, and the whole quickly heated to ebullition. It is then drawn off into leaden cisterns, lined with thick sheet-lead, and allowed to cool in a temperature which should not exceed 55°.

The fluid is then drawn off, and the mass of salt washed with cold water, to free it from impurities, and again put into the boiler with clean water. This second solution is also evaporated at a low heat, as long as any pellicles of sulphate of potass form on its surface, and fall to the bottom of the fluid. The fire is then withdrawn, and the fluid ladled out into the cistern to crystallize. Unless the fluid be allowed to cool pretty low before it is removed to crystallize, the salt obtained will contain sulphate of potass.

2. By acetate of lime. The acetic acid for this purpose is obtained by distillation from wood, during its conversion into charcoal.

3. By litharge or subcarbonate of lead. Very pure carbonate of soda is prepared by this process in the vicinity of Edinburgh.

4. By decomposing the sulphuric acid by charcoal. About 500 cwt. of sulphate of soda and 100 cwt. of charcoal are ground together, and the mixture exposed in a reverberatory furnace until it becomes pasty. It is then transferred into large casks, and lixiviated. The ley is afterwards evaporated and crystallized. By this, or a similar process, very pure carbonate of soda is manufactured in the west of Scotland.

On the continent, muriate of soda is sometimes decomposed by potass, and sometimes by lime

Carbonate of soda is an article of the greatest importance in many manufactures.

Medical use.—Carbonate of soda is now much used in medicine. Its primary effect is to correct acidity in the *primæ viæ*. It also acts as a tonic, and in many instances gives great relief in calculous complaints, although there can be little reliance placed upon it as a lithontriptic. Being an efflorescent salt, it is conveniently given in the form of powder, or made up into pills.

MURIAS SODÆ. *Ed.*
SODÆ MURIAS, s. s. Murias sodæ. *Lond.*
SAL COMMUNE, s. s. Murias sodæ. *Dub.*
Muriate of soda. Common sea-salt.

This is the most common of all the neutral salts. It is not only found in immense masses on and under the surface of the earth, and contained in great quantities in many salt springs, but it is the cause of the saltness of the sea.

There are two varieties of native muriate of soda, the lamellar and fibrous. It is found in Poland, Hungary, Spain, England, &c. When necessary, it is purified by solution and crystallization.

Salt springs occur in many parts of the world. The quantity of muriate of soda contained in these varies from an inconsiderable quantity even up to one-third.

Sea-water also varies much in strength. It is said to contain most salt in warm climates, and at great depths.

Muriate of soda, as obtained from its natural solutions by evaporation and crystallization, is commonly mixed with earthy muriates, which, being deliquescent salts, dispose it to attract moisture from the atmosphere. It may, however, be purified by precipitating the earths by means of carbonate of soda, or by washing the crystallized salt with a saturated solution of muriate of soda, heated to ebullition. In this state it is not capable of dissolving any more muriate of soda, but will dissolve a considerable quantity of the earthy muriates.

Muriate of soda has a pure salt taste, is soluble in 2.8 times its weight of water at 60°, and in 2.76 at 212°. It is not soluble in alcohol. By the action of heat it first decrepitates, then melts, and lastly sublimes without decomposition. The primitive form of its crystals is cubic, and they are permanent in the atmosphere. According to Kirwan, they consist of 38.88 muriatic acid, 53 soda, and 8.12 water. It is decomposed by the sulphuric and nitric acids, by potass and baryta, by secondary salts containing these, and by metalline salts whose base forms an insoluble compound with muriatic acid; it is also gradually decomposed by lime, iron, and litharge.

Medical use.—Muriate of soda is one of the most important articles in the arts, and in domestic economy. As a medicine, it is useful in some cases of dyspepsia; and in large doses it is said to check vomiting of blood. It is a common ingredient in stimulating clysters, and is sometimes applied externally, as a fomentation to bruises, or in the form of bath, as a gentle stimulus to the whole surface of the body.

Sodæ boras; s. s. Sub-boras sodæ. *Lond.*
Boras sodæ; v. s. Borax. *Ed.*
Borax; s. s. Sub-boras sodæ. *Dub.*
Borate of soda. Sub-borate of soda. Borax.

Borax is found only in Thibet and Persia. It is extracted

from the waters of some wells and lakes by evaporation. In its impure state it is called tincal, and is brought from the East Indies in great masses, composed of a few large crystals, but chiefly of smaller ones, partly white and partly green, joined together as it were by a greasy yellow substance, intermixed with sand, small stones, and other impurities. By repeated solutions, filtrations and crystallizations, it shoots into hexangular prisms, of which two sides are broader than the others, terminated by triangular pyramids, of a white colour, a styptic and alkaline taste, colouring vegetable blues green, soluble in eighteen parts of water at 60°, and in six at 212°, slightly efflorescing in the air, and when heated, swelling, and with the loss of nearly half its weight, forming a porous friable mass, which in a greater heat melts into a transparent glass soluble in water. Besides the acids and alkalies, which have a greater affinity for its acid or basis than these have for each other, it is decomposed by the sulphates, muriates, nitrates, phosphates, and fluates, of all the earths, and of ammonia. It consists of 39 boracic acid, 17 soda, and 44 water.

Medical use.—The medical virtues of borax have not been sufficiently ascertained by experience; it is supposed to be, in doses of half a drachm or two scruples, diuretic and emmenagogue. Mr Bisset recommends a solution of the salt in water, as the most powerful dissolvent yet known, of aphthous crusts in the mouth and fauces of children. And for the same purpose, it is often applied, in the form of powder, mixed up with sugar.

SOLANUM DULCAMARA. *Lond. Dub.*

Willd. *g.* 383, *sp.* 15.; Smith, *g.* 100, *sp.* 1. *Pentandria Monadelphia.*—Nat. ord. *Solanaceæ.*

Bitter-sweet. Woody nightshade.

Off.—The twigs.

CAULIS SOLANI DULCAMARÆ. *Ed.*

CAULIS DULCAMARÆ. *Lond.*

STIPITES DULCAMARÆ, autumno collecti. *Dub.*

THIS climbing shrub grows wild in moist hedges, has woody brittle stalks, and flowers in June and July. The twigs should be gathered early in spring. The taste, as the name of the plant expresses, is both bitter and sweet; the bitterness being first perceived, and the sweetness afterwards; and when fresh they have a nauseous smell.

Medical use.—The dulcamara was formerly much esteemed as a powerful medicine. It is in general said to increase all the secretions and excretions, to excite the heart and arteries, and, in large doses, to produce nausea, vomiting, and convul-

sions; but its effects seem to differ according to the nature of the soil on which it grows, being most efficacious in warm climates, and on dry soils. It has been recommended in cutaneous affections, especially lepra and in syphiloid diseases, in rheumatic and cachectic swellings, in ill-conditioned ulcers, scrofula, indurations from milk, leucorrhœa, jaundice, and obstructed menstruation. It has principally been used in decoction: two or three ounces of that of the London Pharmacopœia may be given thrice a-day, and gradually augmented, till a pint be consumed daily. A stronger decoction may be used externally as a lotion. In the form of extract, from 5 to 10 grains may be given for a dose.

SOLIDAGO VIRGA AUREA. *Dub.*

Willd. *g.* 1483, *sp.* 35.; Smith, *g.* 368, *sp.* 1. *Syngenesia superflua.*—Nat. ord. *Compositæ radiatæ.*

Common golden-rod.

Officinal.—The flowers and leaves.

a) FLORES VIRGÆ AUREÆ. *Dub.*

b) FOLIA VIRGÆ AUREÆ. *Dub.*

THIS plant is perennial, and is found wild on heaths and in woods, producing spikes of yellow flowers from July to September. The leaves have a moderately astringent bitter taste; and thence prove serviceable in debility and laxity of the viscera, and disorders proceeding from that cause.

SPARTIUM SCOPARIUM. *Ed. Dub. Lond.*

Willd. *g.* 1332, *sp.* 19.; Smith, *g.* 321, *sp.* 1. *Diadelphia Decandria.*—Nat. ord. *Papilionaceæ.*

Common broom.

Off.—The tops and seeds.

a) SUMMITATES SPARTII SCOPARII. *Ed.*
CACUMINA SPARTII. *Lond.*
CACUMINA GENISTÆ. *Dub.*

b) SEMINA GENISTÆ. *Dub.*

THIS is a very common shrub on dry pastures, flowering in June and July.

The leaves have a very bitter taste, and when given in decoction prove considerably diuretic. The seeds have similar properties.

SPERMACETI; ex Physetere macrocephalo. *Ed.*
CETACEUM; concretum sui generis. *Lond.*
SPERMA CETI; sevum. *Dub.*

Spermaceti.

The spermaceti whale is characterized by his enormous head, great part of which is occupied by a triangular cavity of bone, covered only by the common integuments. In the living animal, this cavity is filled with a white, fluid, oily substance, amounting sometimes to many tons in weight. On the death of the whale, it congeals into a white unctuous mass, from which a considerable quantity of very pure whale oil is obtained by expression. The residuum, afterwards freed from impurities, by washing with water, melting, straining, expressing through linen bags, and, lastly, washing in a weak ley of potass, is the peculiar substance well known by the name of *Spermaceti*, for which, probably on account of its conveying an incorrect idea of the nature of the substance, the London college has substituted *Cetaceum*. It is also contained in solution in the common whale and other fish-oils; for it is often found deposited, by crystallization, in the reservoirs containing them.

The chemical properties of spermaceti have been already noticed. As a medicine, for internal use, it agrees with the fixed vegetable oils; and in the composition of ointments, &c. its place may be very well supplied by a mixture of oil and wax.

SPIGELIA MARILANDICA. *Ed.*

Willd. *g.* 308, *sp.* 2. *Pentandria Monogynia.*—Nat. ord. *Stellatæ.*

Carolina pink.

Off.—The root.

RADIX SPIGELIÆ MARILANDICÆ. *Ed.*

RADIX SPIGELIÆ. *Lond. Dub.*

THIS plant is perennial, and grows wild in the southern parts of North America. It is the *Unsteetla* of the Cherokees. The root is celebrated as anthelmintic, particularly for the expulsion of lumbrici from the alimentary canal, and it often affords relief where no worms are discharged. Some order it in doses of ten or fifteen grains, while others give it in drachm doses, alleging that the nervous affections it sometimes produces more readily happen from small doses, as the large ones often purge or puke. Some prefer the form of infusion. An emetic is generally premised; and its purgative effect is assisted by some suitable additions. Infused in wine, it has been found useful in intermittents. Dr Barton recommends it in the insidious remitting fever of children, which often lays the foundation for hydrocephalus.

SPONGIA OFFICINALIS. *Ed. Dub.*
Cl. *Zoophyta.* Ord. *Spongia.*
Sponge.
Off.—Sponge.
SPONGIA OFFICINALIS. *Ed.*
SPONGIA. *Lond. Dub.*

SPONGE is principally found in the Mediterranean and Red Seas. It was long supposed to be a vegetable production, but it is now universally allowed to belong to that remarkable class of animals called Zoophytes, which are negatively characterized by Cuvier, as having no vertebræ, no sanguiferous vessels, no spinal marrow, and no articulated limbs. The sponges belong to that division of the zoophytes, which are attached to a solid trunk, and are particularized by their base being spongy, friable, or fibrous.

Sponge is a soft, light, very porous and compressible substance, absorbing by capillary attraction a large proportion of any fluid in which it is immersed.

Medical use.—From these properties, it is an useful substance in the practice of surgery. When applied to ulcers which are accompanied with a copious discharge, it absorbs the thinner and more acrid fluid, and leaves the ulcers covered with the thicker and blander matter. It is also useful in suppressing hæmorrhagies, when properly applied by compression, by favouring the coagulation of the blood at the mouths of the vessels. It also forms a convenient tent for dilating wounds and fistulous ulcers, especially when prepared by immersing it in melted wax, and keeping it compressed until it cools. On the melting of the wax by the heat of the part to which it is applied, it gradually expands, and affords an uniform and gently dilating pressure.

Burnt sponge is nothing else than charcoal mixed with a little muriate of soda and phosphate of lime.

STANNUM. *Lond. Ed. Dub.*
Off.—*a)* Tin-filings.
LIMATURA STANNI. *Lond. Dub. Ed.*
b) Powder of tin.
PULVIS STANNI. *Dub. Ed.*

THE general properties of tin have been already mentioned.

It is found,

1. Sulphuretted, and combined with copper. Tin-pyrites.
2. Oxydized.

a. Combined with oxide of iron and silica. Common tinstone.

b. Combined with oxide of iron, and a little arsenic. Fibrous tinstone.

THE best tin is found in Cornwall, or is brought from the East Indies. Its purity is estimated by its small specific gravity, and by the crackling noise it makes when bent.

It is now only used as an anthelmintic, especially in cases of tænia, and probably acts mechanically.

STYRAX.

Willd. *g.* 874. *Decandria Monogynia.*—Nat. ord. *Bicornes.*

Sp. 1. STYRAX OFFICINALE. *Ed. Lond. Dub.*

Off.—The balsam, called storax.

BALSAMUM STYRACIS OFFICINALIS. *Ed.*

BALSAMUM STYRACIS. *Lond.*

STYRAX CALAMITA; resina. *Dub.*

THIS tree grows in the Levant, Italy, and France. The storax flows from wounds made in the bark, in countries where the heat is sufficient; for neither in France nor in Italy does it furnish any. It occurs either in small distinct tears, of a whitish or reddish colour, or in large masses composed of tears, or in masses of an uniform texture, and yellowish-red or brownish colour; though sometimes likewise interspersed with a few whitish grains.

The *common storax* of the shops is in large masses, considerably lighter and less compact than the foregoing; it appears on examination to be composed of a resinous juice, mixed with saw-dust.

Storax has an agreeable smell and an aromatic taste. Neumann got from 480 grains, 360 alcoholic, and 30 of watery extract; and inversely, 120 watery, and 240 alcoholic. In distillation it yielded benzoic acid. It is therefore a balsam, or natural combination of resin with benzoic acid.

Sp. 3. STYRAX BENZOIN. *Ed. Lond. Dub.*

Off.—The balsam, called benzoin.

BALSAMUM STYRACIS BENZOINI, *vulgo* Benzoinum. *Ed.*

BENZOINUM; balsamum. *Lond.*

BENZOE; resina. *Dub.*

THIS species grows in Sumatra, and like the former also furnishes a balsam on being wounded, which is brought from the East Indies in large masses, composed of white and light brown pieces, with yellowish specks, breaking very easily be-

twixt the hands: that which is whitest, and freest from impurities, is most esteemed.

In its properties it differs from storax only in containing a larger proportion of benzoic acid. Neumann found that it was totally soluble in alcohol, forming a blood-red tincture, and that water extracted no gummy matter, but a notable proportion of benzoic acid. By sublimation he got two ounces of impure acid from sixteen of benzoin. Lime and the alkaline carbonates dissolve the acid without attacking the resin, and are accordingly employed in the process of Scheele, Gottling, and Gren, for obtaining the benzoic acid. I find that the solution of potass dissolves benzoin very rapidly, forming a dark coloured solution, mixed with fine crystals of benzoat of potass. This alkaline solution is not decomposed by water, but forms with acids a rose-coloured coagulum, easily soluble in excess of acid. Boiling nitrous acid also attacks benzoin with great violence, and dissolves it entirely; the solution becomes turbid, and lets fall a copious precipitate on cooling, which, according to Mr Brande, is benzoic acid. It is decomposed by water, and by alkaline solutions.

SUCCINUM. *Ed. Lond. Dub.*
Amber.

THIS is a solid, brittle, bituminous substance, dug out of the earth, or found upon the sea-shores, especially along the coasts of Polish Prussia and Pomerania. It is of a white, yellow, or brown colour, sometimes opaque, and sometimes very clear and transparent.

It emits an agreeable smell when heated or rubbed. By friction it becomes electric; and when heated it softens, swells, and then melts, and burns with a greenish or bluish flame, leaving a coaly residuum. By distillation it affords a little acetic acid, an essential oil, and a peculiar acid, named from it the Succinic. It is not acted upon by water or diluted acids. It is imperfectly dissolved in alcohol and ether. Hoffmann dissolved it in oil of almonds in Papin's digester, and in a boiling solution of potass. Dr Thomson has discovered that it is soluble in the cold, even in a very weak solution of the subcarbonate of potass. Heyer ascertained that it was soluble, with decomposition, in nitrous acid. In attempting to form succinic acid by the action of nitrous acid on amber, I made the same observation. The acid, when heated to ebullition, acts violently; copious red fumes are emitted, and the amber is first as if melted, and then dissolved. On cooling, part of the amber separates. The acid solution is decomposed by water, and by alkaline solutions. Amber is rendered

soluble in the fixed and volatile oils, by melting or roasting it, or by the addition of a little camphor.

It is only used in pharmacy for the empyreumatic oil and acid obtained from it.

SULPHAS.

SULPHATE is a generic term for the combination of sulphuric acid with the alkalis, earths, and metallic oxides. Their generic characters have been already noticed. Like the other genera, they may be divided into three families.

Family 1. Alkaline sulphates.—These form no precipitate with alkaline carbonates.

Family 2. Earthy sulphates.—These are either insoluble in water, or, if soluble, form a white precipitate with alkaline carbonates.

Family 3. Metalline sulphates.—These form precipitates, which are often coloured, with alkaline carbonates in general, with prussiate of potass and iron, and with gallic acid.

The sulphate of alumina, sulphate of baryta, and sulphate of magnesia are officinal.

a) SULPHUR. *Lond.*
Roll Sulphur

b) SULPHUR SUBLIMATUM. *Lond. Ed.*
SULPHUR SUBLIMATUM. Flores sulphuris. *Dub.*
Sublimed sulphur.

THE physical and chemical properties of sulphur have been already mentioned.

In the neighbourhood of volcanoes it is sometimes found perfectly pure and crystallized; but all the sulphur of commerce is extracted from pyrites by sublimation. It is usually brought to us in large irregular masses, which are afterwards melted and cast into cylindrical rolls, with the addition of some coarse resin, flour, or the like; whence the paler colour of the rolls. Sulphur should be chosen of a bright yellow colour, should be very inflammable, and should burn with a bright pure blue flame.

Sublimed sulphur is never prepared by the apothecary. It has the form of a very fine powder, having a beautiful yellow colour. It is often contaminated with a little sulphuric acid, formed during the process, from which it is easily freed by washing.

Medical use.—Sulphur stimulates the system, loosens the belly, and promotes the insensible perspiration: it seems to pervade the whole habit, and manifestly transpires through the pores of the skin, as appears from the sulphureous smell

of persons who have taken it, and from silver being stained in their pockets of a blackish colour. In the stomach it is probably combined with hydrogen. It is a celebrated remedy against cutaneous diseases, particularly psora, both given internally, and applied externally. It has likewise been recommended in rheumatic pains, flying gout, rickets, atropha, coughs, asthmas, and other disorders of the breast and lungs, and particularly in catarrhs of the chronic kind. In hæmorrhoidal affections it is almost specific; but in most of these cases it is advantageously combined with some cooling purgative, especially supertartrate of potass.

SWIETENIA.
Willd. *g.* 843, *Decandria Monogynia.*—Nat. ord. *Trihilatæ.*

Sp. 1. SWIETENIA MAHAGONI. *Ed.*
Mahogany tree.
Off.—The bark.
CORTEX SWIETENIÆ MAHAGONI. *Ed.*

THIS majestic tree grows principally in Jamaica and in Spanish America. Its useful wood is universally known. Its bark is brown, rough and scaly, on the branches grey and smoother. Its taste is very astringent, and more bitter than that of Peruvian bark. Its smell weak and aromatic. In its action on the living body, it is said to coincide nearly with Peruvian bark, and may be substituted for it in many situations.

Sp. 2. SWIETENIA FEBRIFUGA. *Dub.*
Febrifuge Swietenia.
Off.—The bark.
CORTEX SWIETENIÆ FEBRIFUGÆ. *Dub.*

THIS species, which in many respects resembles the former, is a native of the East Indies. Its bark is red, brittle and compact, and covered with a rough grey cuticle. In its properties it agrees with the mahogany bark, and forms a very valuable substitute for Peruvian bark in the East Indies, where this last is so dear and scarce, and the diseases in which it is indicated so common. It is, however, merely an astringent bitter, and contains no cinchonin. Dr Roxburgh sent from India a quantity of the extract of this bark, which could not be distinguished from the common kino of the shops.

TAMARINDUS INDICA. *Ed. Dub. Lond.*
Willd. *g.* 1250, *sp.* 1, *Monadelphia Triandria.*—Nat. ord. *Lomentaceæ.*

Tamarind tree.

Off.—The preserved fruit.

PULPA TAMARINDI; leguminis pulpa. *Lond.*

FRUCTUS TAMARINDI. *Dub.*

FRUCTUS TAMARINDI INDICÆ. Fructus conditus. *Ed.*

THIS tree grows both in the East and West Indies. The fruit is a broad ash-coloured pod. The external covering is thin and brittle, and contains several hard seeds, enveloped in a soft brown pulp. Tamarinds are preserved in two ways: commonly by throwing hot sugar from the boilers on the ripe pulp: but a better method is to put alternate layers of tamarinds and powdered sugar in a stone jar. By this means the tamarinds preserve their colour, and taste more agreeably.

East India tamarinds are longer than those from the West Indies; the former containing six or seven seeds each, the latter rarely above three or four.

Preserved tamarinds should be fresh and juicy, and should have an agreeable acid taste. They should not have a musty smell; the seeds should not be soft and swollen; and the blade of a knife should not get a coating of copper by being immersed among them.

Tamarinds contain sugar, mucilage, citric acid, supertartrate of potass, tartaric acid, and malic acid.

Medical use.—The pulp of these fruits, taken in the quantity of from two or three drachms to an ounce or more, proves gently laxative and purgative, and, at the same time, by its acidity quenches thirst, and allays immoderate heat. It increases the action of the sweet purgatives, cassia and manna, and weakens that of the resinous cathartics.

Salts, whose base is potass, form an improper addition to tamarinds, for they are decomposed, and the tartaric acid of the fruit is precipitated in the form of supertartrate of potass.

TANACETUM VULGARE. *Dub.*

Willd. *g.* 1472, *sp.* 18; Smith, *g.* 360, *sp.* 1. *Syngenesia Polygamia superflua.*—Nat. ord. *Compositæ discoideæ.*

Common tansy.

Off.—The leaves.

FOLIA TANACETI. *Dub.*

TANSY is perennial, and grows wild by road-sides and the borders of fields, and is also frequently cultivated in gardens, both for culinary and medicinal uses: it flowers in June and August.

Medical use.—Considered as a medicine, it is a moderately warm bitter, accompanied with a strong not very disagreeable flavour. Some physicians have had a great opinion of it in hysteric disorders, particularly those proceeding from a deficiency or suppression of the uterine purgations. The leaves and seeds have been in considerable esteem as anthelmintics. An infusion of tansy drunk as tea, has been strongly recommended as a preventive of the return of gout.

TEUCRIUM.
Willd. *g.* 1093.; Smith, *g.* 259. *Didynamia Gymnospermia.*—Nat. ord. *Verticillatæ.*

Sp. 12. TEUCRIUM MARUM. *Dub.*
Syrian herb mastich.

Off.—The herb.
HERBA MARI SYRIACI. *Dub.*

This is a small shrubby plant, growing spontaneously in Syria, Candy, and other warm climates, and cultivated with us in gardens. The leaves have an aromatic bitterish taste, and when rubbed betwixt the fingers, a quick pungent smell, like volatile alkali, which soon affects the head, and occasions sneezing: distilled with water, they yield a very acrid, penetrating essential oil, resembling that of scurvy-grass. These qualities sufficiently point out the uses to which this plant might be applied.

Sp. 36. Willd.; *sp.* 3. Smith. TEUCRIUM CHAMÆDRYS. *Dub.*
Wall germander.

Off.—The herb.
HERBA CHAMÆDRYOS. *Dub.*

THIS perennial herb is found plentifully in the isle of Ely and near Cambridge. It flowers in July and August. It is an aromatic bitter, and is considered to be tonic and stimulant. An infusion of it is given in ague, chlorosis, and arthritis.

TOLUIFERA BALSAMUM. *Ed. Lond. Dub.*
Willd. *g.* 828, *sp.* 1. *Decandria Monogynia.*—Nat. ord. *Lomentaceae.*

Off.—The balsam called Balsam of Tolu.
BALSAMUM TOLUIFERÆ BALSAMI. *Ed.*
BALSAMUM TOLUTANUM. *Lond. Dub.*

This tree grows in Spanish America; the balsam flows from incisions made in its bark, during the hot season, and is brought to us in little gourd shells. It is of a yellowish-brown colour, inclining to red; in consistence thick and tenacious: by age it grows hard and brittle. The smell of this balsam is extremely fragrant, somewhat resembling that of lemons: its taste warm and sweetish. Lewis says, that he has sometimes procured benzoic acid from it. It yields very little volatile oil, although it impregnates the distilled water strongly with its flavour. By dissolving a proper quantity of sugar in this water, a more elegant syrup is obtained than that prepared in the common way, with a decoction of the balsam. In its medical virtues it agrees with the other balsams.

Tormentilla erecta. *Ed. Dub.* Willd.
Tormentilla officinalis. *Lond.* Smith.
Willd. *g.* 1001. *sp.* 1.; Smith, *g.* 236, *sp.* 1. *Icosandria Polygynia.*—Nat. ord. *Senticosae.*
Septfoil. Common tormentil.

Off.—The root.
Radix tormentillæ erectæ. *Ed.*
Radix tormentillæ. *Lond. Dub.*

Tormentil is perennial, and found wild in woods and on commons: it has long slender stalks, with usually seven long narrow leaves at a joint; the root is for the most part crooked and knotty, of a blackish colour on the outside, and reddish within. It has an austere styptic taste, accompanied with a slight kind of aromatic flavour: it is one of the most agreeable and efficacious of the vegetable astringents, and may be employed with good effect in all cases where medicines of this class are proper. Neumann got from 960 grains, 365 alcoholic, and 170 watery extract; and inversely, 570 watery, and 8 alcoholic.

Triticum hybernum. *Ed. Lond. Dub.*
Willd. *g.* 152. *sp.* 2. *Triandria Monogynia.* Nat. ord. *Gramina.*
Wheat.

Off.—Flour, starch.
a) Farina; e seminibus. *Lond. Dub.*
b) Amylum; ex tritico hyberno. *Ed.*
Amylum. *Lond. Dub.*

By some, spring and winter wheat are considered only as varieties, not as distinct species. The latter is the most pro-

ductive, and is most commonly cultivated on that account; for there is no material difference in the grains they produce, which are indiscriminately employed for every purpose.

Wheat flour consists principally of gluten, starch, albumen, and a sweet mucilage. These may be separated by forming the flour into a paste with a little water, and washing this paste with fresh quantities of water until it runs from it colourless. What remains is the gluten, which, if not the same with, is very analogous to, the fibrine of animal substances. From the water with which the paste was washed, a white powder, *Amylum*, separates on standing. The albumen and sweet mucilage remain dissolved in the water. By evaporating it, the albumen first separates in white flakes, and the sweet mucilage may be got by total evaporation.

It is the presence of gluten which characterizes wheat flour; and on the due admixture of it with the other constituents depends the superiority of wheat flour for baking bread.

Bread is made by working the flour into paste with water, a quantity of some ferment, such as yeast, and a little muriate of soda to render it sapid, allowing the paste to stand until a certain degree of fermentation take place, and then baking it in an oven, heated to about 488°. During the fermentation, a quantity of gas is formed; and as it is prevented from escaping by the toughness of the paste, and dilated by the heat of the oven, the bread is rendered light and spongy. In this process the nature of the constituents of the flour is altered, for we are not able to obtain either gluten or starch from bread.

Medical use.—Bread is not only one of the most important articles of nourishment, but is also employed in pharmacy for making cataplasms, and giving form to more active articles. An infusion of toasted bread has a deep colour and pleasant taste, and is an excellent drink in febrile diseases, and debility of the stomach.

Amylum.

Starch.—The general properties of starch have been already enumerated. It is found in many vegetables combined with different substances. Fourcroy, accordingly, makes various species of it; as combined,

1. With gluten or fibrine; as in wheat, rye, and other similar seeds.
2. With extractive; as in beans, peas, lupins, &c.
3. With mucilaginous matter; as in the potatoe, and many other roots, in unripe corn.
4. With saccharine matter in most roots, and in corn after it has begun to germinate.

5. With oil; in the emulsive seeds, almonds, &c.
6. With an acrid principle; as in the root of the burdock, jatropha manihot, arum asarum, and other tuberous roots.

Medical use.—As a constituent of many vegetable substances, it forms a most important alimentary substance. In a medical point of view, it is to be considered as a demulcent; and accordingly, it forms the principal ingredient of an officinal lozenge, and a mucilage prepared from it often produces excellent effects, both taken by the mouth, and in the form of a clyster in dysentery and diarrhœa, from irritation of the intestines. Externally flour or starch is the usual application in erysipelatous affections of the skin, but upon what principle is not very apparent, unless it be an empirical practice remaining from the pathology which dreaded the repulsion of all external inflammations.

TUSSILAGO FARFARA. *Ed. Lond. Dub.*

Willd. *g.* 1483, *sp.* 12.; Smith, *g.* 360, *sp.* 1. *Syngenesia superflua.*—Nat. ord. *Compositæ radiatæ.*

Colts-foot.

Off.—The herb and flowers.

a) FOLIA TUSSILAGINIS FARFARÆ. *Ed.*
TUSSILAGO. *Lond.* Folia. *Dub.*

b) FLORES TUSSILAGINIS FARFARÆ. *Ed.*

THIS herb grows wild in moist situations, producing yellow flowers in March and April, which soon are succeeded by large roundish leaves, hairy underneath; their taste is herbaceous, somewhat glutinous and subacrid.

Medical use.—Colts-foot is recommended in coughs, phthisis, and other disorders of the breast and lungs, and some use it in scrofula. Its effects probably depend more on the milk in which it is commonly directed to be taken, than on the tussilago itself.

ULMUS CAMPESTRIS. *Ed. Lond. Dub.*

Willd. *g.* 505, *sp.* 1.; Smith, *g.* 117, *sp.* 1. *Pentandria Digynia.*—Nat. ord. *Scabridæ.*

Common elm.

Off.—The inner bark.

CORTEX ULMI CAMPESTRIS. Cortex interior. *Ed.*
CORTEX ULMI. Liber. *Lond.*
CORTEX INTERIOR ULMI. *Dub.*

THIS tree grows wild in Britain. It flowers in April. The inner bark has a yellowish colour, and a mucilaginous, bitter, astringent taste, without smell.

In decoction it has been highly recommended in the lepra ichthyosis, and has been said to cure dropsies, but it requires a patient trial.

VALERIANA OFFICINALIS. *Ed. Dub.* (Sylvestris). *Lond.* Willd. *g.* 75, *sp.* 6.; Smith, *g.* 15, *sp.* 3. *Triandria Monogynia.*—Nat. ord. *Aggregatæ.*

Wild valerian.

Off.—The root.

RADIX VALERIANÆ OFFICINALIS. *Ed.*

RADIX VALERIANÆ. *Lond. Dub.*

THIS plant is perennial, and varies in its appearance and sensible qualities, according to the situation in which it grows. In marshes and shadowy places its leaves are broader, on dry heaths and high pastures they are narrower. The roots produced in low watery-grounds have a remarkably faint smell in comparison with the others, and sometimes scarcely any. The roots taken up in autumn or winter have also much stronger sensible qualities than those collected in spring and summer.

The root consists of a number of strings or fibres matted together, issuing from one common head, of a whitish or pale brownish colour. Its smell is strong, like a mixture of aromatics with fetids; the taste unpleasantly warm, bitterish, and subacrid. Neumann got from 480 grains of the dry root 186 alcoholic, and 74 watery extract; and inversely, 261 watery and 5 alcoholic. The distilled alcohol was slightly, the water strongly, impregnated with the smell of the valerian, but no separable oil was obtained.

Medical use.—Wild valerian is a medicine of great use in nervous disorders, proceeding from a debility of the nervous system. Some recommend it as procuring sleep, particularly in fever, even when opium fails; but it is principally useful in affections of the hysterical kind.

The common dose is from a scruple to a drachm in powder; and in infusion, from one to two drachms. Its unpleasant flavour is most effectually concealed by a suitable addition of mace.

As its virtues reside entirely in an essential oil, it should not be exhibited in decoction or watery extract.

VERATRUM ALBUM. *Ed. Lond. Dub.*

Willd. *g.* 1859, *sp.* 1. *Polygamia Monoecia.*—Nat. ord. *Liliaceae.*

White hellebore.

Off. The root.

RADIX VERATRI ALBI. *Ed.*

RADIX VERATRI. *Lond.*

RADIX HELLEBORI ALBI. *Dub.*

THIS plant grows spontaneously in Switzerland and the mountainous parts of Germany. The root has a nauseous, bitterish, acrid taste, burning the mouth and fauces. On being wounded, it emits an extremely acrimonious juice, which, when inserted into a wound, produces very violent effects. Neumann got from 960 grains 560 watery and 10 alcoholic extract; and inversely, 420 alcoholic and 180 watery. Nothing rose in distillation.

Medical use.—The powder of the dried root, applied to an issue, occasions violent purging; snuffed up the nose, it proves a strong, and not always a safe sternutatory. Taken internally, it acts with extreme violence as an emetic, and has been observed, even in a small dose, to occasion convulsions, and even death. The ancients sometimes employed it in various obstinate cases, and always made this their last resource. According to the very ingenious analysis of Mr Moore, a vinous infusion of white hellebore, with the addition of one-fourth part of laudanum, forms the *Eau Medicinale d' Husson*, so much celebrated as a specific in gout. Mr Moore put his mixture to the test of experiment. He administered it in *four* cases of gout. "In these four cases, the effects of the mixed infusions were precisely the same with equal doses of the eau medicinale. In two of the cases, where two drams were given, vomiting and purging were produced; and in one case, the medicine occasioned constipation, which happens also with the eau medicinale; and the gout in all was relieved."

VERONICA BECCABUNGA. *Dub.*

Willd. *g.* 44. *sp.* 30.; Smith, *g.* 9. *sp.* 8. *Diandria Monogynia.*—Nat. ord. *Personatae.*

Brooklime.

Off.—The herb.

HERBA BECCABUNGÆ. *Dub.*

THIS is a low perennial plant, common in little rivulets and ditches of standing water, and flowering in July. The leaves remain all the winter, but are in great perfection in the spring. Their taste is herbaceous, with a very light bitterness. They contain, along with the volatile acrid principle, vegetable albumen and much sulphate of lime.

If any good effects be expected from brooklime, it should be used as food.

VIOLA ODORATA. *Ed. Dub.*
Willd. *g.* 446, *sp.* 12.; Smith, *g.* 96, *sp.* 2. *Pentandria Monogynia.*—Nat. ord. *Campanaceæ.*
Sweet violet.
Off.—The recent flower.
FLORES VIOLÆ ODORATÆ. *Ed.*
FLORES VIOLÆ. *Dub.*

THIS plant is perennial, and is found wild under hedges and in shady places; but the shops are generally supplied from gardens. It flowers in March and April. Its flowers are so remarkable for their odour and colour, that they have given a name to both. In our markets we meet with the flowers of other species: these may be distinguished from the foregoing by their being larger, of a pale colour, and having no smell.

Medical use.—They impart their colour and flavour to aqueous liquors: a syrup made from the infusion has long had a place in the shops, and is said to be an agreeable and useful laxative for children, but is chiefly valued as a delicate test of the presence of uncombined acids or alkalies, the former changing its blue to a red, and the latter to a green.

VITIS VINIFERA. *Ed. Dub. Lond.*
Willd. *g.* 453, *sp.* 1. *Pentandria Monogynia.*—Nat. ord. *Hederaceæ.*
The vine.

THE vine grows in temperate situations in many parts of the world, and is cultivated very generally for the sake of its agreeable subacid fruit. Before they are ripe, grapes are extremely harsh and acid, and by expression furnish a liquor which is called Verjuice. It contains malic acid, super-tartrate of potass, and extractive, and may be made to furnish wine by the addition of sugar. As the grape advances to maturity, the quantity of sugar in it increases, while that of malic acid diminishes: it, however, never disappears entirely. When thoroughly ripe, the grape is one of the most agreeable fruits. It is cooling, antiseptic and nutritious, and when eaten in considerable quantity, diuretic, and gently laxative. In inflammatory diseases, and all others where acids are indicated, grapes form an excellent article of diet.

Off.—Sun-raisins.

Fructus vitis viniferæ. Fructus siccatus. *Ed.*

Uvæ passæ sole siccatæ. *Dub.*

Uvæ passæ; baccae præparatæ. *Lond.*

Raisins are grapes which have been carefully dried. By this means not only the water they contained is dissipated, but the quantity of acid seems to be diminished. They become more saccharine, mucilaginous, and laxative, than the recent grape, but are less cooling.

Off.—Sherry.

Vinum album hispanum; Anglice *Sherry*. *Ed.*

Vinum; Vinum album Hispanicum, Anglice *Sherry*. *Lond.*

Wine is the juice of the grape altered by fermentation. The numerous varieties of wine depend principally on the proportion of sugar contained in the must, and the manner of its fermentation. When the proportion of sugar is sufficient, and the fermentation complete, the wine is perfect and generous: if the quantity of sugar be too large, part of it remains undecomposed, as the fermentation is languid, and the wine is sweet and luscious: if, on the contrary, it be too small, the wine is thin and weak; and if it be bottled before the fermentation be completed, it will proceed slowly in the bottle, and, on drawing the cork, the wine will sparkle in the glass, as, for example, Champaigne. When the must is separated from the husk of the grape before it is fermented, the wine has little or no colour: these are called White wines. If, on the contrary, the husks are allowed to remain in the must while the fermentation is going on, the alcohol dissolves the colouring matter of the husks, and the wine is coloured: such are called Red wines. Besides, in these principal circumstances, wines vary much in flavour.

The following Tables exhibit a comparative view of the contents of different Wines and Spiritous Liquors. The first is taken from Mr Brande's paper in Phil. Trans. vol. 101. The second is from Neumann.

	Strongest.	*Medium.*	*Weakest.*
Rum,		53.68	
Brandy,		53.39	
Hollands,		51.60	
Raisin wine,		25.77	
Port,	25.85	23.49	21.40
Madeira,	24.42	22.27	19.34
Marsala,	25.87	21.56	17.26
Currant wine,		20.55	
Constantia,		19.75	
Sherry,	19.85	19.17	18.25
Lisbon,		18.94	
Bucellas,		18.49	
Red Madeira,		18.40	
Cape muscat,		18.25	
—— Madeira,		18.11	
Grape wine,		18.11	
Calcavalla,		18.10	
White hermitage,		17.43	
Rousillon,		17.26	
Malaga,		17.26	

	Strongest.	*Medium.*	*Weakest.*
Malmsey Madeira,		16.40	
Sheruaz,		15.52	
Syracuse,		15.28	
Nice,		14.63	
Claret,	16.32	14.44	12.91
Tent,		13.30	
Burgundy,	14.53	13.24	11.95
White champagne,		12.80	
Vin de Grave,		12.80	
Frontignac,		12.79	
Cote roti,		12.32	
Red hermitage,		12.32	
Gooseberry wine,		11.84	
Hock,	14.37	11.62	8.88
Tokay,		9.88	
Elder wine,		9.87	
Cyder,		9.87	
Perry,		9.87	
Ale,		8.88	
Brown stout,		6.80	

The first column in this Table shews the quantity of rectified spirit; the second that of thick, oily, unctuous, resinous matter; the third of gummy and tartareous matter; and the fourth of water in 17280 parts.

	I.	II.	III.	IV.
Malmsey,	1920	2100	1140	12120
Alicant,	1800	2900	100	12840?
Neufchatel,	1560	1920	900	12900
French,	1440	400	60	15380
Frontignac,	1440	1680	320	13830
Muscadine,	1440	1200	480	14160
Salamanca,	1440	1680	960	13200
Sherry,	1440	2880	1080	11880
Tinto,	1440	3120	840	11880
Hermitage,	1380	600	100	15200
Monte Pulciano,	1320	180	160	15620
Carcassone,	1320	250	80	15630
Champagne,	1280	400	60	15540
Canary,	1140	1200	2160	12780

	I.	II.	III.	IV.
Madeira,	1140	1560	960	13620
Moselle,	1080	260	90	15850
Rhenish,	1080	200	94	15906
Tokay,	1080	2100	2400	11700
Burgundy,	1080	240	100	15860
Old Rhenish,	960	480	140	15700
Pontac,	960	320	120	15880
White Brandenburgh,	960	420	180	14880?
Vin de grave,	960	360	120	15840
Red Brandenburgh,	840	280	120	16040
Aland,	840	1560	780	14100
Red Tyrol,	720	600	240	15120
Spanish,	600	1200	4560	10920

Medical use.—Wine, taken in moderate quantities, acts as a beneficial stimulus to the whole system. It promotes digestion, increases the action of the heart and arteries, raises the heat of the body, and exhilarates the spirits. Taken to excess, it produces inebriety, which is often succeeded by headach, stupor, nausea, and diarrhœa, which last for several days. Habitual excess in wine debilitates the stomach, produces in-

flammation of the liver, weakens the nervous system, and gives rise to dropsy, gout, apoplexy, tremors, and cutaneous affections.

To convalescents, and in all diseases of general debility, and deficiency of the vital powers, wine is the remedy on which we must place our chief dependence. It is contra-indicated in all inflammatory complaints, and when it sours upon the stomach.

WINTERA AROMATICA. *Ed.*
Willd. *g.* 1063. *Polyandria Tetragynia.*—Nat. Ord. *Oleraceæ.*

Off.—Winter's bark.
CORTEX WINTERÆ AROMATICÆ. *Ed.*

THIS is the produce of a tree first discovered on the coast of Magellan by Captain Winter, in the year 1567. The sailors then employed the bark as a spice, and afterwards found it serviceable in the scurvy, for which purpose it is at present also sometimes made use of in diet drink. The true Winter's bark is not often met with in the shops, Canella alba being generally substituted for it; and by some they are reckoned to be the same: there is, however, a considerable difference betwixt them in appearance, and a greater in quality. The Winter's bark is in large pieces, of a more cinnamon colour than the canella, and much warmer and more pungent. Its smell resembles that of cascarilla. Its virtues reside in a very hot, stimulant, volatile oil.

ZINCUM. *Ed. Dub. Lond.*
Zinc.

THE general properties of zinc have been already noticed. It is always found oxidized,

1. Combined with a greater or less proportion of carbonic acid. Calamine.
2. Combined with sulphur. Blende.
3. Combined with sulphuric acid, generally in solution.

The ores of zinc are rarely worked by themselves, or with the sole intention of extracting zinc, but are generally melted with the lead ores, particularly galena, which they commonly accompany. By this process the zinc is obtained in two forms; part of it is sublimed in the state of an oxide, and attaches itself to the chimney of the furnace, in the form of a grey, granular, earthy like incrustation, which is known by the name of Tutty or Cadmia; and part of it is sublimed in its metallic form, and is condensed in the throat of the chim-

ney, in small grains, which are afterwards melted in a crucible, and cast in ingots.

Oxidum zinci impurum. *Ed.*
Tutia. *Dub.*
Impure oxide of zinc. Tutty.

It is moderately hard and ponderous; of a brownish colour, and full of small protuberances on the outside, smooth and yellowish within; some pieces have a bluish cast, from minute globules of zinc in its metallic form. Tutty is celebrated as an ophthalmic, and frequently employed as such in unguents and collyria.

Carbonas zinci impurus, v. s. Lapis calaminaris. *Ed.*
Calaminaris, Oxydum zinci in usum eorum, qui Orichalcum conficiunt. *Dub.*
Calamina, s. s. Carbonas zinci impura. *Lond.*
Impure carbonate of zinc. Calamine.

This mineral is found plentifully in England, Germany, and other countries, either in distinct mines, or intermingled with the ores of different metals. It is usually of a greyish, brownish, yellowish, or pale reddish colour, without lustre or transparency; fracture commonly uneven or earthy; considerably hard. Before the blowpipe it decrepitates, but does not melt, and becomes yellower, and is sublimed. It is partly soluble in acids, and often effervesces with them.

Mr Smithson has analysed several varieties of calamine. England and Carinthia furnish the best. Its specific gravity is 4.33, and it contains 65 *per cent.* of oxide of zinc, while the calamine from Hungary and Fribourg has a specific gravity of 3.5, and contains from 25 to 50 *per cent.* of quartz.

Calamine is generally roasted before it comes into the shops, to render it more easily reducible into a fine powder. In this state it is employed in collyria, against defluxions of thin acrid humours upon the eyes, for drying up moist running ulcers, and healing excoriations.