

ACIDUM ACETOSUM ; vulgar synonyme, *Acetum*. *Ed.*

ACETUM ; scientific synonyme, *Acidum Aceticum impurum*.
Lond.

ACETUM VINI. *Dub.*

Vinegar. Impure acetous 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 lately examined 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 SULPHURICUM; v. s. *Acidum Vitriolicum.* Ed.

ACIDUM SULPHURICUM. Lond. Dub.

Sulphuric acid, Vitriolic acid.

The London and Edinburgh colleges direct, that in the shops its specific gravity should be to that of water as 1850 to 1000; the Dublin college 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.

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.

ACIPENSER. *Pisces Branchiostegi*, Cuvier.

Sp. *Acipenser Huso*. *Dub.*

The Beluga, or Isinglas fish.

Sp. *Acipenser Ruthenus*. *Dub.*

The Sterlet, or Caviar sturgeon.

Officinal—Isinglass.

ICHTHYOCOLLA. *Dub.*

BESIDES those mentioned by the Dublin college, isinglass is prepared from other species of *Acipenser*, especially *A. stellatus*, 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 varies 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.

ACONITUM.

Linnaei species plantarum, edit. Willdenow, genus 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, *pars in usu FOLIUM. 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, anchylosis, 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 flattened 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. This root 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.

Neumann obtained by distillation about two scruples of fragrant volatile oil from sixteen ounces of the dried root. 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.

ÆSCULUS HIPPOCASTANUM. *Ed. Dub.*

Willd. g. 717. sp. 1.—Heptandria Monogynia.—Nat. Ord. Trihilatæ.

Horse chesnut.

*Officinal—*a) The seed.

ÆSCULI HIPPOCASTANI SEMEN. *Ed.*

THIS is a very common and well-known tree. The fruit, which contains much amylaceous matter, has been used as food for domestic animals, and even for men, in times of scarcity. But its introduction into the Edinburgh Pharmacopœia was probably owing to its having been used and recommended as an errhine in some cases of ophthalmia and headach. With this view it was drawn up the nostrils, in the form of an infusion or decoction.

*Officinal—*b) The bark.

ÆSCULI HIPPOCASTANI CORTEX. *Ed. Dub.*

THE bark is bitter, and has been proposed as an indigenous substitute for the very expensive and often adulterated Peruvian bark. Many successful experiments of its effects, when given internally in intermittent and typhous 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.—Decandria Digynia.

Agrimony.

Officinal—The herb.

AGRIMONIE 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. *Ed.*

SPIRITUS VINOSUS RECTIFICATUS. *Dub.*

SPIRITUS RECTIFICATUS. *Lond.*

Alcohol, rectified spirit of wine.

THE spirit distilled from wine, or other fermented liquors, entirely free from any unpleasant smell, and of which the specific gravity is to that of water as 835 to 1000, being such as may be easily procured. (*Ed.*) The London college order a spirit of the same specific gravity. 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, so that 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 im-

parts to them. 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 externally, 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 received 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 are 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, tremors and paralysis.

ALCOHOL DILUTUM. *Ed.*

SPIRITUS VINOSUS TENUIOR. *Dub.*

SPIRITUS TENUIOR. *Lond.*

Diluted alcohol. Spirit of wine. Proof spirit.

ALCOHOL mixed with an equal quantity of water, being somewhat weaker than proof spirit, 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 measures 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, and their degrees according to Baumé's hydrometer, and 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 hæmorrhoidal 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 small-pox, 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.

Medical uses.—Onions are considered rather as an article of food than of medicine: they are supposed to yield little or no nourishment, and when eaten liberally produce flatulence, occasion thirst, headach, and turbulent dreams: in cold phlegmatic habits, where viscid mucus abounds, they doubtless have their use; as by their stimulating quality they tend to excite appetite, and promote the secretions: 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*. In its properties, it is analogous to garlic, but weaker even than the common onion. A decoction of the beards or filaments of the bulb is supposed by the vulgar to be lithontriptic. It is perhaps on the same belief that it is admitted by the London College.

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

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

Sp. 3. ALOE PERFOLIATA. *Ed.*

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 Official Barbadoes aloes by Sloane, in his history of Jamaica."

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.

Officinal—The gum-resin or extract, called Socotorine Aloes.

ALOES SPICATÆ EXTRACTUM. *Lond.*

ALOE SOCOTORINA; gummi-resina. *Dub.*

ALOES SOCOTORINA; Aloes perfoliatæ gummi-resina. *Var. b. Ed.*

THIS article is brought, wrapt in skins, from the island of Socotora in the Indian ocean. This sort is the purest of the three in use; 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 hæmorrhoidal 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.

Sp. 2. ALOE VULGARIS. *Lond.*

Sp. 5. ALOE SINUATA? *Dub.*

Sp. 3. ALOE PERFOLIATA. *Ed.*

Off.—The gum-resin or extract, called Hepatic Aloes.

ALOES VULGARIS EXTRACTUM. *Lond.*

ALOE HEPATICA; gummi-resina. *Dub.*

ALOE HEPATICA; Aloes perfoliatæ gummi-resina. *Var. a. Ed.*

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 possessing 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 of it, 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 deposit 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.

FETID, CABALLINE, OF HORSE ALOES.

THIS sort 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.

From sixteen ounces of aloes, Neumann extracted near fifteen by means of alcohol. From the residuum water took up one drachm, about an ounce of impurities being left; on inverting the procedure, and applying water first, he obtained but thirteen ounces and a half of watery extract, and from the residuum alcohol dissolved an ounce and a half. According to this 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 86 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. Tromsdorff, on the contrary, gives 81.25 extractive, 6.25 resin, and 12.50 albumen, as the constituents of hepatic aloes. Boulduc also found in socotorine aloes $\frac{2}{3}$, and in hepatic aloes $\frac{1}{3}$ of resin. The resins of all the sorts, purified by alcohol, have little smell; that obtained from the socotorine has scarce any perceptible taste; that of the hepatic, a slightly bitterish relish; and the resin of the caballine, a little more of the aloetic 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.

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, hæmatemesis, 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 alcohol, 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 ex-

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tractive 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, rhabarb.
 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 mucilaginous. 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.

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 College, 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 described, 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.

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.

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.

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 frequently 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 foetida*, &c.

b. In pills, with bitter extracts, myrrh, *assa foetida*.

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

AMOMUM.

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

ZINGIBER OFFICINALE. *Lond.*

Ginger.

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

AMOMI ZINGIBERIS RADIX SICCATA. *Ed.*

ZINGIBERIS RADIX. *Lond.*

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

AMOMI ZINGIBERIS RADIX CONDITA. *Ed.*

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 free 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. γ and β Lond. Willd. g. 981. sp. 2. Icosandria Monogynia.*—Nat. ord. *Pomaceæ*.

The almond tree.

Off. a.)—The kernel; sweet almonds.

AMYGDALI COMMUNIS NUCLEI. *Ed.*

AMYGDALÆ DULCIS. *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 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 some other animals; and a water distilled from them, when made of a certain degree of strength, has had the same effects. Nevertheless, when eaten, they appear innocent to most men, and 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 verified his conjecture by analysis. Since that time it has been found, that this acid exists, but in a particular state, in all the bitter poisonous vegetables, and that in its pure state it is eminently poisonous.

Both sorts of almonds yield, on expression, a large quantity of 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.

AMYRIS.

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

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; though it is certainly preferable for internal purposes to some others which are held in greater esteem.

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 LIQUIDA, *vulgo* Balsamum Gileadense. *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. *Asperifolia.*

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 Germany or France, particularly about Montpellier, 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.

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 FENICULUM. Ed. Lond. Dub.

Sweet Fennel.

Off.—The root and seeds.

a) ANETHI FENICULI SEMINA. *Ed.*

FENICULI DULCIS SEMINA. *Dub.*

FENICULI SEMINA. *Lond.*

b) ANETHI FENICULI RADIX. *Ed.*

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 *feniculum 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, leaves, and seeds.

ANGELICÆ ARCHANGELICÆ; a) RADIX; b) FOLIUM; c) SEMEN. *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 moleculeæ, 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.

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.

ANGUSTURA. *Ed. Dub.*

CUSPARIA FEBRIFUGA. *Lond.*

Pentandria Monogynia. Ord. naturalis, *Quassia*, Jussieu.

Off.—The bark, called Angustura bark.

ANGUSTURÆ CORTEX. *Ed. Dub.*

CUSPARIÆ CORTEX. *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. It belongs to the first order of the fifth class of Linné's system; and its generic characters are, calyx 5 titus; coroll. 5 petal. recept. versus margin adhærent.; 5 nectaria germen obducent; caps. 5 locularis; monosperm.

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. Planche and Grindel say that several kinds of angustura are found in commerce.

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.

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.

ANTHEMIDIS NOBILIS FLORES. *Ed.*

ANTHEMIDIS FLORES. Flores simplices. *Lond.*

CHAMEMELI FLORES. *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 spas-

modic 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.

ANTHEMIDIS PYRETHRI RADIX. *Edin.*
PYRETHRI RADIX. *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 hot and acrid, 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.

Med. use.—The principal use of pellitory in the present practice is as a masticatory, for promoting the salival flux, and evacuating the viscid humours from the head and neighbouring parts; by this means it often relieves the toothach, some kinds of pains in the head, and lethargic complaints. 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 Al-lemont 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 official, and also that in which it is most commonly found.

SULPHURETUM ANTIMONII. *Ed. Dub.*

ANTIMONII SULPHURETUM. *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 esta-

blished, 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 vaporizable 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 potash 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 official 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.

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. Oxidum antimonii cum sulphure vitrificatum. *E.*

Melted with wax,

Oxidum antimonii vitrificatum cum cera. *E.*

2. Oxidum antimonii cum sulphure per nitratem potassæ. *E.*

3. Sulphuretum antimonii præcipitatum. *E.*

4. Sulphur antimoniatum fuscum. *D.*
 c. Protoxide combined with muriatic acid,
 1. Murias antimonii. *E.*
 2. Oxidum antimonii nitro-muriaticum. *D.*
 d. Protoxide combined with tartaric acid and potass,
 Tartris antimonii. *E.*
 Antimonium tartarisatum. *L.*
 Tartarum antimoniatum, sive emeticum. *D.*
Dissolved in wine,
 Vinum tartritis 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, and 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.

APIUM PETROSELINUM. *Ed.*

Willd. g. 63. sp. 1. Pentandria Digynia.—*Nat. ord. Umbellatæ.*

Parsley.

Off.—The root.

APII PETROSELINI RADIX. *Ed.*

PARSLEY is a biennial plant, and a native of the south of Europe. It is very generally cultivated in this country for culinary purposes. The seeds have an aromatic flavour, and are occasionally made use of as carminatives. The taste of the root is somewhat sweetish, with a light degree of warmth and aromatic flavour, and it possesses gentle diuretic properties.

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 water in general; the hard, which contain earthy salts and decompose soap, and are unfit for many purposes, both in po-

mestic 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 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.—Pymont, 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. Purgings.—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, Pymont, Spa, Tunbridge, Bath, Scarborough, Vichy, Carlsbad, Lemington Priors.

Medical use.—Water is an essential constituent in the or-

ganization 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 60° 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 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 impetiginous. 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 respiration 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 paradoxical 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 febrile 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 yellow 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.

Official—The leaves.

ARBUTUS UVÆ URSI FOLIUM. *Ed.*

UVÆ URSI FOLIA. *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 phthysical 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.

ARCTII LAPPE RADIX. *Ed.*

BARDANÆ RADIX. *Dub.*

THIS is a perennial plant, which grows wild in uncultivated places. The seeds have a bitterish subacid 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,

1. In its metallic state ;
 1. Pure.
 2. Alloyed with gold. Auriferous silver ore.
 3. ———— antimony.
 4. ———— 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.

ARISTOLOCHIE SERPENTARIE RADIX. *Ed.*

SERPENTARIE RADIX. *Lond.*

SERPENTARIE VIRGINIANÆ RADIX. *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 aguish 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) ARNICÆ MONTANÆ FLORES. *Ed.*

ARNICÆ FLORES. *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. They evidently contain a great deal of resin, and some essential oil, and Bouillon Lagrange says, uncombined gallic acid.

Medical use.—In their effects they are stimulating, and supposed to be discutient. In small doses, and properly adminis-

tered, 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 hæmorrhagies, 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) ARNICÆ RADIX. *Dub.*

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 extracted 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, v. s. *Arsenicum*. *Ed.*

ARSENICI OXIDUM, 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 shin-

ing 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 283° 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 ammoniacs 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 tube 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 convulsions. Sometimes there is no pain, only debility and fainting, with vomiting and purging.

On dissection, the stomach and bowels are 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 hectic 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 dissolved, 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.

ABROTANI FOLIA. *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.

ABSINTHII MARITIMI CACUMINA. *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.

ARTEMISII SANTONICI CACUMINA. *Ed.*

SANTONICI CACUMINA. *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 can-

- died 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.

ARTEMISII ABSINTHII, a) FOLIUM, b) SUMMITAS FLORENS.
Ed.

ABSINTHII VULGARIS, a) FOLIA, b) CACUMINA. *Dub.*
ABSINTHIUM. *Lond.*

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.

ARI RADIX RECENS. *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 EUROPEUM. *Ed. Dub. Lond.*

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

Asarabacca.

Officinal—The leaves.

ASARI EUROPEI FOLIA. *Ed.*

ASARI FOLIA. *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 uniform 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.

ASTRAGALUS TRAGACANTHA. *Ed. Dub.*

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

ASTRAGALUS VERUS. *Lond.*

Tragacanth.

Off.—Gum Tragacanth.

ASTRAGALI TRAGACANTHÆ GUMMI. *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, foliis 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 colocyath, 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.

ATROPÆ BELLADONNÆ FOLIA. *Ed.*

BELLADONNÆ FOLIA. *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 permanently dilating the pupil, 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.

AVENA SATIVA. *Ed.*

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

Oats.

Off.—The husked seed; groats.

AVENÆ SATIVÆ SEMEN. *Ed.*

AVENÆ SEMINA. *Lond.*

THIS is a well-known annual plant, which is very generally cultivated in northern countries, and in many places furnishes their principal subsistence. 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 a 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, diarrhoea, 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 phlegmenous swellings, to promote their suppuration.

BITUMEN PETROLEUM, v. s. *Petroleum Barbadosense. 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 potash by deflagration, and on inflammation leave little or no residuum. Bitumen—its