CHAP. X.

OF DIURETICS.

Diuretics are those medicines which increase the urinary discharge;—an effect which is probably produced by different modes of operation.

It is obvious, that any substance capable of stimulating the secreting vessels of the kidneys, by direct application to them, may increase their action, and thus produce a more copious discharge of urine. It is probably in this way, that many of the saline diuretics act: the principal office of these organs seems to be to separate from the blood the saline matter it contains, and which would otherwise accumulate in the system; when substances of this kind, therefore, do not operate as cathartics, but are received into the circulating mass, they are brought to the kidneys in the course of the circulation, are secreted by their vessels, and exciting in them increased action, a larger portion of watery fluid is also secreted. Several of these substances, as nitre, or the fixed alkalis, can be detected in the urine by chemical tests after they have been administered, and therefore there can be little doubt of this being the mode in which they o-

perate. There is evidence even of some vegetable diuretics passing off by the same emunctories. The flavour of asparagus, or of garlic, or turpentine, for example, may be observed in the urine discharged an hour or two after they have been received into the stomach.

It is also probable, however, that a diuretic effect is in other cases produced by substances acting only on the stomach, the action they excite being communicated by sympathy to the kidneys. Squill and tobacco appear to act in this manner, as there is no proof that they are received into the circulating mass; they act very peculiarly on the stomach, and when they occasion vomiting or purging, they generally fail in their diuretic effect. It may be concluded, therefore, that they exert a peculiar action on the stomach, which, propagated to the kidneys, by means of the general connection subsisting between all the parts of the system, causes an increase in the urinary discharge. The different kinds of ardent spirits diluted with water, seem to act in a similar manner, as their diuretic effect usually takes place very speedily.

There is still a third mode, in which it seems probable that some substances produce a diuretic effect, especially in a state of disease. It is known that persons who drink sparingly, discharge less urine than others; or that where the watery part of the blood is carried off by perspiration, the urinary discharge is diminished. It is farther known, that large draughts of water, or of any mild diluent, if not determined to the skin by external warmth, occasion an increased discharge of urine. It seems probable,

therefore, that a similar effect may be produced, by the action of substances which powerfully stimulate the absorbent system, and thus bring an increased quantity of serous fluid into the course of the circulation. Digitalis is probably a remedy of this kind. Its effect as a diuretic is more certain and powerful, when given to a person labouring under dropsy, than to one in health; it appears too to be one of those medicines which stimulate most powerfully the absorbent system; its diuretic power in dropsy, therefore, is probably principally owing to its enabling the absorbents to take up the serous fluid effused; this is of course brought into the circulation, and like any other watery fluid is discharged by the kidneys.

On the same principle is explained the utility of a practice, which has been employed to promote the action of diuretics, that of conjoining mercury with them. Thus, the action of squill as a diuretic, is rendered more certain and powerful by combination with calomel; each of them being given in separate doses, or both being united in one formula. The efficacy of this is probably derived from the mercury stimulating the absorbents, and, by introducing the effused fluid into the system, promoting the direct diuretic action of the squill.

The action of diuretics is promoted, by drinking moderately of watery liquors; hence the practice that was formerly adopted in dropsy, of diminishing the allowance of drink, is exploded; it was of little benefit in preventing the accumulation of effused fluid, and the abstinence from liquids that was enjoined, rather prevented the ac-

tion of the diuretic remedies that were employed for the cure of the disease. Many cases even have occurred, in which pure water, mineral waters, or mild diluents, have acted as diuretics, and effected a cure in dropsy.

The action of diuretics is also considerably dependent on the state of the vessels of the skin. If, when a medicine of this class has been given, these vessels are stimulated by external warmth, its action is rather determined to the surface, and sweat or diaphoresis takes place. But if the surface is kept cool, the diuretic effect is more certain; so much indeed does this state of the surface determine to the kidneys, that the usual diaphoretics may be brought to act as diuretics.

The general effects of diuretics are sufficiently evident. They discharge the watery part of the blood, and by that discharge they indirectly promote absorption. Dropsy is the disease in which they are principally employed, and they are adapted to every form of it. The disease can also be removed with less injury to the patient, by exciting the urinary discharge, than by any other method. The success of diuretics in dropsy is however very precarious; sometimes none of them succeed; sometimes one acts more powerfully than another, though in this there is no uniformity; nor are the causes of this variety of operation well understood. In general, it is obvious, that where a strong predisposition to the disease exists, or where it originates from organic affections of the liver, or other chylopoëtic viscera, no great advantage can be expected from the mere evacuation of the water by the action of diuretics:

it is only in those cases where an accumulation of fluid has taken place from diminished absorption, or some similar cause, that they can be expected to effect a cure. It accordingly often happens in practice, that an increased discharge of urine is effected by the exhibition of diuretics, and still the dropsical swellings are not removed, or, if they are, they speedily return.

Diuretics have been likewise used in calculous affections, with the view of preventing at least the increase of the calculus, by rendering the urine more watery : and they have occasionally, though rarely, been employed to lessen plethora, or check profuse perspiration. The use of diluents, so as to increase the quantity of urine, is of use in gonorrhœa, and other affections of the urinary passages, by lessening the acrimony of the urine, which excites pain from its action on these parts, when they are in an inflamed state.

The cautions with regard to the administration of diuretics, are obvious from what has been said of their operation. The surface of the boyd must be kept cool, and therefore the doses of the medicine ought to be given in the course of the day, and the patient should if possible be kept out of bed. The use of diluents ought to be permitted, at least this is more necessary with respect to those diuretics belonging to the class of salts, and which operate directly on the secreting vessels of the kidneys.

The individual diuretics may be considered under the subdivisions of Salts, Vegetable Diuretics, and one or two derived from the animal kingdom.

DIURETICS.

Saline Diuretics.

Potassa.

Acetas potassæ.

Super-tartras potassæ.

Nitras potassæ.

Spiritus etheris nitrosi.

From the Vegetable Kingdom.

Scilla maritima.

Digitalis purpurea.

Nicotiana tabacum.

Solanum dulcamara.

Lactuca virosa.

Colchicum autumnale.

Gratiola officinalis.

Spartium scoparium.

Juniperus communis.

Copaifera officinalis.

Pinus balsamea.

Pinus larix.

From the Animal Kingdom.

Meloe vesicatorius.

Saline Diuretics.

Potassa. Potash, either pure, or in the state of sub-carbonate, is a diuretic; and, as has been already remarked, is secreted by the kidneys, so that when continued for a sufficient time, it renders the urine alkaline. The saline matter from the ashes of broom, wormwood and other plants, which is sub-carbonate of potash, more or less pure, used formerly to be frequently prescribed in dropsy. It is difficult to continue the administration of the alkali, however, to the requisite extent, without occasioning irritation; and being inferior in diuretic power to the super-tartrate of potash, it has fallen into disuse. When employed, the dose of the sub-carbonate is 20 or 30 grains dissolved in a large quantity of water, and repeated three or four times in the course of the day.

Acetas potassæ. Acetate of Potash. Sal Diureticus.

This salt, prepared by saturating potash with acetic acid, and evaporating the solution to dryness, is obtained in the state of a white foliated mass, deliquescent and very soluble in water. It has been considered as a powerful diuretic, and has been used in dropsy, half a drachm of it dissolved in water being given every hour or two until it operate. It is uncertain in its operation, however, and has therefore fallen into disuse.

SUPER-TARTRAS POTASSÆ. Super-tartrate of Potash. Cream of Tartar. (Page 363.)

THIS salt, of which the chemical history has been already given, and its applications as a cathartic noticed, is extensively employed as a remedy in dropsy, and is inferior to few of the substances belonging to this class. There are two modes under which it is exhibited, either so as to obtain principally its diuretic effect, or along with this its action as a hydragogue cathartic. When given with the first intention, the form of exhibition is solution in water, from half an ounce to an ounce being dissolved in the due proportion of water, and this being taken in the course of the day, its operation on the kidneys being promoted by dilution. The more usual practice, however, is to give it in substance, either diffused in a little water, or made into an electuary with syrup, and in such doses as to occasion purging to a certain extent. The dose is various, its operation being apparently much dependent on the action of the absorbents being excited, and this, in different states of disease, being effected with more or less difficulty. Half an ounce is given at first, and this is increased to an ounce, or even two ounces in twenty-four hours, the increase of dose being continued until its effects on the kidneys or bowels is obtained, and care being taken not to push it so far as to produce greater evacuation than the strength of the patient can support. It generally causes a considerable discharge of serous fluid into the intestinal canal, so as to produce watery evacuations, and at the same time augments the

quantity of urine; the size of the dropsical swelling soon begins to be reduced; and the effused water, according to those practitioners who have represented its efficacy in the most favourable light, is not only removed, but any renewal of the effusion is prevented with more certainty than by the action of other diuretics: hence it has been regarded as in general superior to the other medicines of this class in the treatment of dropsy.

There can be no doubt that super-tartrate of potash proves often a powerful remedy; yet the general remark applies to this as well as to the other diuretics, that it sometimes fails, where others succeed. It is frequently necessary too to give it in such large doses to obtain its diuretic or hydragogue effect, that it excites nausea and flatulence, weakens the appetite, and injures the tone of the stomach: and as a greater degree of debility is induced by the operation of purging than by merely exciting the urinary discharge, there is some risk of the powers of the system being exhausted under its protracted use. These effects, therefore, require to be guarded against, and sometimes render it necessary to substitute other diuretics where it has received a fair trial.

NITRAS POTASSÆ. Nitrate of Potash. Nitrum. Nitre.

THIS salt, consisting of nitric acid and potash, is frequently formed on the surface of the soil, in warm climates. In the South of Europe, its production is accelerated by artificial arrangements. Animal and vegetable substances, in a state of decomposition, are mixed with a

quantity of carbonate of lime, the mass is exposed to the air, but protected from the rain, and is occasionally stirred up. After a number of months, the materials are found to contain nitrate of lime and nitrate of potash. These salts are extracted by lixiviation with water: impure sub-carbonate of potash is added, by which the nitrate of lime is decomposed, and the quantity of nitrate of potash increased; and this salt is purified by repeated solutions and crystallizations. During the process by which the nitrate of potash is formed, it appears that the oxygen of the atmospheric air, and partly with the nitrogen of the animal matter combines partly with the oxygen of the vegetable matter, so as to form nitric acid; this is attracted in part by the lime present, and in part by a quantity of potash, either contained in the materials, or, as some have supposed, actually formed during the process.

Nitrate of potash is crystallized in hexaedral prisms. Its crystals are soluble in six parts of cold, and in an equal weight of boiling water. It is decomposed by heat, affording a large quantity of oxygen gas; and from the facility of this decomposition, is an important pharmaceutic agent in oxidating bodies.

This salt has a cool and sharp taste, and occasions a sense of coldness in the stomach when swallowed. When given in moderate doses, continued for some time, its presence can at length be detected in the urine by chemical tests. Its virtues are those of a refrigerant and diuretic; and, as possessing both, it has been used principally to relieve ardor urinæ in gonorrhœa. The prac-

tice, however, is now relinquished, either as inefficacious, or as rather hurtful, if the nitre is secreted with the urine, as it must render it more stimulating. Its dose is from 5 to 20 grains repeated twice or thrice a-day, with the free use of diluents or demulcents. Its diuretic power is too inconsiderable to admit of its being employed as a remedy in dropsy.

Offic. Prep.—Troch. Nitrat. Pot. *Ed.*

SPIRITUS ETHERIS NITROSI. Spirit of Nitrous Ether.

NITRIC acid, added in due proportion to alkohol, converts it into a species of ether; but as the process is difficult, from the violent chemical action that takes place, it has long been the practice to use less acid than is required to change the whole alkohol into this product; a portion of nitric ether is formed, and this is obtained by distillation, combined with the unchanged alkohol, and generally also from the mutual action not having been complete with a portion of free acid. This forms what used to be named Spiritus Nitri Dulcis, what is now named Spiritus Etheris Nitrosi. Its odour is fragrant; its taste sharp and acidulous. In medicine it is employed as a refrigerant and diuretic, in a dose of 20 or 30 drops. Being grateful to the stomach, and relieving flatulence, it is often used to correct or promote the action of more powerful diuretics in dropsy.

Diuretics from the Vegetable Kingdom.

Scilla maritima. Squill. (Page 331.)

The medicinal applications of squill as an emetic have been already stated. Under this article are to be considered its powers as a diuretic.

Squill, foxglove, and super-tartrate of potash, are the diuretics principally employed in modern practice in the treatment of dropsy; and it is not easy to assign precisely their comparative powers, one frequently proving successful when either of the others has previously failed. Squill operates more directly as a diuretic than the super-tartrate of potash does, and is not liable, even if its administration has been carried rather far, to produce those injurious effects which arise from the action of foxglove in an over dose.

As a diuretic, squill is always given in substance, under the form of the dried root. Its dose is from one to three grains. A grain may be given at first, morning and evening, in the form of pill, and this increased slowly until its diuretic effect is obtained. If the dose is too large, it is liable to excite nausea, and the rule has even been delivered, to give it always to the extent necessary to induce some degree of nausea. The production of this effect can be regarded, however, only as a test of the squill being in an active state; it is not necessary to its

diuretic operation; it proves distressing to the patient; and it has been observed, that when it has once been given to such an extent as to induce this state of the stomach, the same state is more liable to recur even when after an interval it is given in smaller doses. Its nauseating operation, therefore, ought rather to be avoided by the due regulation of the dose.

The diuretic power of squill is much promoted by combination with mercury, and it is more frequently perhaps employed in this combination than alone. Of the mercurial preparations, either the common pill, or calomel, may be used; the usual medium dose from which we obtain the general action of either on the system, being added to the dose of the squill, or being given in the evening, while the squill is given in the morning. The superiority of their combined action probably depends on the mercury stimulating the absorbent system, while the squill excites the action of the vessels of the kidneys. This combination is farther well adapted to the treatment of dropsy, connected as it frequently is with obstruction or chronic inflammation of the liver or neighbouring organs. Where the mercurial preparation occasions purging, as this impedes the diuretic action of the squill, mercurial friction may be substituted.

DIGITALIS PURPUREA. Foxglove. (Page 177.)

FOXGLOVE has already been considered as a narcotic; it is a still more important article of the Materia Medica as a diuretic. It had frequently been used as an empi-

rical remedy in dropsy; but the occasional violence of its narcotic operation, when not administered with due precaution, prevented it from being employed in practice, until Dr Withering pointed out, with more precision, the rules to be attended to in its exhibition.

It is difficult, as has been already remarked, to compare the powers of the principal diuretics; yet, on the whole, perhaps foxglove is superior to all of them in evacuating the water in dropsy: and the conclusions of Withering are still nearly just, that "so far as the removal of the water will contribute to cure the patient, "so far may be expected from this medicine;" and that "although digitalis does not act universally as a diuretic, "it does so more generally than any other."—In hydrothorax, its superiority to other diuretics is more clearly established than in ascites or anasarca; and in the first of these states of dropsy, it is unquestionably superior to any other remedy. Withering remarked, that it was most successful in those cases of dropsy in which debility was completely marked, where the countenance is pale, the pulse weak, and the muscular energy reduced; while, in an opposite state of the system, it was more liable to fail. In the latter case, therefore, he recommended a previous exhibition of squill, or of super-tartrate of potash, by which some reduction of strength might be induced. The observation, however, has not altogether been confirmed by subsequent experience. If it were, it would afford a strong presumptive proof, that the efficacy of foxglove in dropsy depends on its stimulant action.

There is a peculiarity in its operation, that it may be continued for some time without sensibly increasing the flow of urine; the increase then suddenly commences, and continues of itself without requiring the continued administration of the remedy for several days, and to a very great extent, so that the dropsical effusion is more speedily reduced by the action of it than by any other diuretic. Its diuretic power too appears only when it is administered in dropsy, and hence there can be little doubt that it operates principally, if not entirely, by exciting the action of the absorbents. The absorbed fluid is then discharged by the kidneys. The diuretic effect is not connected with its nauseating operation, or with the reduction in the force of the circulation; it can, on the contrary, be obtained without either of these accompanying it; and Withering remarked even, that he had found the increased discharge of urine to be checked, when the doses had been imprudently urged so as to occasion sickness. He observed also, that if it purges, it is almost certain to fail.

Foxglove is given under the form of the dried leaves in substance, or in infusion or tincture. The tincture has been supposed to be better adapted to its exhibition as a narcotic. The infusion is a preparation sufficiently uniform and active, and its dose is rather more easily regulated with precision, so as to admit of a gradual increase, than that of the powder. Its action too is at once exerted on the stomach, and there is therefore less risk of its effect being delayed until it is accumulated. The

medium dose of the powder is at first from half a grain to a grain twice a-day: from half an ounce to an ounce of the infusion, prepared according to the formula of Withering, now received into the Pharmacopœias, is a similar medium dose.

The great desideratum with regard to this remedy, is to conduct its administration so as to obtain its full diuretic effect, without those consequences which arise from it when its action is accumulated in the system. The rules given by Withering for its administration, are to give it in a dose from 1 to 3 grains of the powder twice a-day; or one ounce of the infusion, which, if the symptoms be urgent, or the patient stronger than usual, may be given once in eight hours: and the dose is to be continued until the medicine either acts on the kidneys, the stomach, the pulse, or the bowels; and is to be stopped on the first appearance of any one of these effects.

Though Withering enjoined strictly the caution necessary in the use of this remedy, the doses prescribed in his directions are perhaps rather large; and the method which has sometimes too been recommended of progressively increasing the dose until the effects are obtained, is improper. If the dose be at first small, or at least if having been raised to one grain of the powder, or one ounce of the infusion, twice in twenty four hours, it be continued at this quantity, the diuretic operation will be obtained in no long time without any unpleasant symptom, and when it commences, will continue of itself, even though the dose be suspended. Or if, from

peculiarity of habit, or state of disease, the dose requires to be increased, it ought to be done slowly, and without that regularly progressive augmentation which has been recommended. And if the effect begin to cease before the reduction of the dropsical swelling be completed, it may be easily renewed by a repetition of this moderate dose. This mode of administering foxglove is that suggested by the nature of its action. The peculiarity which has always been pointed out as characteristic of this medicine, is its tendency to accumulate in the system, its effects not appearing for a time, but at length being suddenly induced. There is no necessity, therefore, to increase its dose, or to give one that is large, with the view of speedily inducing its action, since, merely from its continued administration, this will in no long time be established, and without that hazard which is otherwise incurred from this peculiarity in its operation. The alarming symptoms which foxglove is liable to produce, it has already been remarked, are best obviated by small doses of spiritous cordials warm; sulphuric ether, aromatic spirit of ammonia, bitter infusions, and aromatics. Vinegar, which is an antidote to other narcotics, might be tried.

There are other diseases in which foxglove has been supposed to prove useful by its diuretic power; as in insania, or in epilepsy connected with serous effusion in the brain; and more especially in dyspnœa arising from serous effusion in the bronchiæ,—anasarca pulmonum, as this affection is named.

It may, in the treatment of dropsy, be advantageously combined with other diuretics; and its action, like that of squill, is said to be promoted by the operation of mercury.

NICOTIANA TABACUM. Tobacco. (See p. 183.)

TOBACCO, in its general action, has some resemblance to foxglove, being narcotic, emetic, and diuretic. As a diuretic, it has been employed in dropsy, under the form of infusion, one ounce of the dried leaves being infused in a pint of water, and six or ten drops being given, and gradually increased to 60 or even 100. It possesses, however, no peculiar advantage to recommend it, and its diuretic effect is generally accompanied with sickness and vertigo.

SOLANUM DULCAMARA. Woody Nightshade. Bitter-Sweet. *Pentand. Monogyn. Solanaceæ. Stipites. Indigenous.*

THE young shoots or branches are the part of this plant used in medicine; when first chewed, they have a bitter taste, which is soon followed by a degree of sweetishness, a peculiarity whence its name is derived; their smell is strong and disagreeable. By drying, their activity is much impaired. An infusion or decoction of the dried stalks in water has been recommended as a diuretic in dropsy, but it is a remedy of uncertain operation, and is scarcely ever prescribed.

Offic. Prep.—Decoct. Dulcamar. *Ph. Lond.*

LACTUCA VIROSA. Strong-scented Lettuce. (P. 185.)

THIS plant, though it possesses a narcotic quality, is also a diuretic, and has been recommended under the form of the inspissated juice as a remedy in dropsy, the dose being gradually increased from 5 or 10 grains to 2 or 3 drachms. Though celebrated by the German practitioners, it is never used in this country.

COLCHICUM AUTUMNALE. Meadow Saffron. Colchicum. *Hexand. Trigyn. Liliaceæ. Radix. Indigenous.*

THE root of this plant is bulbous; when recent, it is extremely acrid, a small quantity occasioning a sense of burning heat in the stomach, strangury and tenesmus; at other times, it is entirely void of acrimony; differences owing to climate, age or season. It was recommended by Störck as a remedy in dropsy, under the form of oxymel or syrup; these have been received into the Pharmacopœias, the dose of either being 2 or 3 drachms. From the uncertainty, however, of its operation, colchicum has not been established in practice.

Offic. Prep.—Syr. Colch. A. *Ed.*—Oxymel. Colch. *Dub.*—Acet. Colch. *Lond.*

GRATIOLA OFFICINALIS. Hedge-Hyssop. *Diand. Monogyn. Personatæ. Herba. South of Europe.*

THE leaves of this plant have a strong bitter taste, with little smell. They prove emetic and cathartic, but in a smaller dose produce a diuretic effect, and have been

recommended under the form of infusion in the treatment of dropsy. Their operation, however, is always uncertain, and liable to be violent.

SPARTIUM SCOPARIUM. Broom. *Diadelph. Decand. Papilionaceæ. Summitates. Indigenous.*

THE tops of the young branches of the broom have a bitter taste, which is communicated both to water and alkohol. The watery decoction is used as a popular remedy in dropsy, and sometimes with success. It acts in general both as a cathartic and diuretic.

Offic. Prep.—Extr. Genist. *Ph. Dub.*

JUNIPERUS COMMUNIS. Juniper. *Diœcia. Monadelph. Coniferæ. Baccæ. Indigenous.*

THE berries of this shrub have an aromatic smell, and a warm sweetish taste, with a degree of bitterness, the former qualities residing in the pulp, the last in the seeds. Distilled with water they afford a considerable quantity of essential oil.

Juniper berries given in infusion prove diuretic. The essential oil retains this property; and the spirit of juniper, or diluted alkohol impregnated with it, has been prescribed as a cordial and diuretic in dropsy.

Offic. Prep. — Ol. Juniper. Spir. Junip. C. Comp. *Ed. Lond. Dub.*

COPAIFERA OFFICINALIS. Balsamum Copaibæ. Balsam of Copaiba or Copaiva. *Decand. Monogyn. Dumosæ. Balsamum. South America.*

THIS resinous juice, for it is improperly named a balsam, is the produce by exudation from incisions made in the trunk of the tree. It is thick and tenacious, transparent, with a yellow tinge; has a peculiar smell not disagreeable, and a pungent bitter taste. It is soluble in alkohol, and in expressed and essential oils. Distilled with water, it affords nearly half its weight of an essential oil, an insipid resin being the residuum.

Balsam of Copaiba increases the urinary discharge, and communicates to the urine a violet odour. In too large a dose it is liable to excite inflammation of the urinary passages. From its power of stimulating these parts, it frequently proves successful in the cure of gleet, where the inflammation has entirely subsided, and the discharge continues from weakness of the exhalants or absorbents. It has also been given in leucorrhœa, and in hæmorrhoidal affections. Its dose is 20 or 30 drops twice or thrice a-day, given in the form of bolus, or, what is preferable, as remaining more easily on the stomach, and less irritating, diffused in water by the medium of mucilage.

PINUS BALSAMEA. Balsamum Canadense. Canadian Balsam. *Monœcia. Monadelph. Coniferæ. Balsamum. North America.*

THIS resinous juice, for it, like the preceding, is improperly named a balsam, as it affords no benzoic acid,

exudes spontaneously from the trunk of the tree. It is of a light yellow colour, transparent, tenacious, and inflammable. By age it becomes thicker; its smell is agreeable; its taste pungent. It is soluble in alkohol and oils, and affords an essential oil by distillation, similar to the oil obtained from the other turpentines or resinous juices of the different species of pinus.

The medicinal virtues of this resinous juice seem to be the same as those of copaiba, and it is used for the same purposes. Its dose is from 30 to 50 drops. Of any of the turpentines it is the purest.

PINUS LARIX. Terebinthina Veneta. Venice Turpentine. *Monoecia. Monadelph. Coniferæ.*

THIS juice exudes spontaneously, and in still greater abundance from incisions in the trunk of the tree. It is thick and tenacious, semi-pellucid, of a yellowish colour, has a peculiar smell, and a bitter pungent taste. By distillation, with the addition of a small quantity of water, to prevent the temperature from rising too high, it affords a large quantity of an essential oil, which is light, volatile, and inflammable, but more sparingly soluble in alkohol than any other essential oil. The residuum is a resin nearly insipid.

Venice turpentine derives all its virtues from its essential oil, and it is this oil, Oleum Terebinthinæ, Oil of Turpentine, that is used in medicine, more frequently than the juice itself. It is a powerful stimulant, directed more particularly in its action to the urinary passages,

as is evident from the violet odour it communicates to the urine, and from the inflammation it excites when given in too large a dose. From this specific action it has been employed in gleet in a dose from 5 to 10 drops, but its operation is always liable to be violent. It was highly recommended by Cheyne as a remedy in chronic rheumatism, especially lumbago, given to the extent of 2 or 3 drachms mixed with honey. It is scarcely possible, however, to give it in such a dose without being rejected from the stomach, or acting violently on the urinary organs. Externally it is applied by friction as a stimulant to parts affected with cramp and rheumatism; sometimes too it is used as an application to burns, or as a styptic to bleeding wounds.

Resina Alba vel Flava. White or yellow resin is the residuum of the distillation of turpentine; its various shades of colour arising from the purity of the juice, or from the degree of heat applied. It has little smell or taste, but appears from the practice of the farriers, who give it to horses, to have some degree of diuretic power. It is only employed in the composition of ointments and plasters, which it renders more adhesive, and perhaps more stimulating. Various compositions of this kind have a place in the Pharmacopœias, as the Ceratum Resinæ, or Unguentum Resinosum, long known by the name of Basilicon, the Emplastrum Resinosum and others.

PISTACIA TEREBINTHINUS. Chio or Cyprus Turpentine.—PINUS PICEA. Strasburgh Turpentine.—PINUS SYLVESTRIS. Common Turpentine. *Diœc. Pentand.*

THE Chio turpentine is more fragrant and grateful than the preceding; its powers are the same, and not being easily procured, it is never used. The same observation may be made with respect to the Strasburgh Turpentine, the produce of the Pinus Picea. The Common Turpentine (Terebinthinus Communis), the produce of the Pinus Sylvestris, contains less essential oil, and is more offensive to the stomach than any of the other turpentines.

DIURETICS FROM THE ANIMAL KINGDOM.

MELOE VESICATORIUS. Cantharis. Spanish Fly. Lytta Vesicatoria. Blistering Fly. *Coleoptera.*

THIS insect is collected from the leaves of certain plants in Spain and Italy, to which it adheres; they are first exposed to the vapours of vinegar, and are then dried in the sun. They are of a rich, lively green and yellow colour; have a faint unpleasant smell, and a taste slightly acrid. The active matter of cantharides inflames and excoriates the skin, and is used as the basis of the common vesicatories. It appears to have a peculiar determination to the urinary organs, as even from the external application strangury is sometimes induced; and a small

dose of the cantharides internally administered acts with much violence on the kidneys and bladder, producing inflammation and a discharge of bloody urine. In dropsy, it has been given as a diuretic in a dose of one grain once or twice a-day, continued for some time: it has been prescribed in a similar dose in obstinate gleet and leucorrhœa, and in retention of urine arising from debility of the body of the bladder, or in the opposite affection of incontinence of urine. It is principally in the latter of these affections that the internal administration of cantharides is attempted,—where the inability to retain the urine arises from weakness of the sphincter vesicæ, a state which the cantharides by its local stimulant action is adapted to remove. Its action requires to be moderated by the free use of diluents. It has also been employed as a stimulant in amenorrhœa; and it is still more extensively used externally as an epispastic.

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