CHAP. IV.

OF ANTISPASMODICS.

It is not easy to assign precisely the differences in kind of action between Narcotics and what are named Antispasmodics. The effects they produce are similar; they are capable of exciting the actions of the system, and they are often equally powerful in allaying pain and inordinate muscular action. But they do not in general produce that state of insensibility and diminished power which follows the application of narcotics, and this constitutes the difference between these classes. This might be supposed owing to a mere difference in strength; yet there seems also to be something farther than this, since antispasmodics produce no such effect in any dose, and since, although they are so much inferior to narcotics in these effects, they are equally powerful in repressing inordinate and irregular muscular action. This difference has been explained on the supposition, that as stimulants they have less diffusibility and greater durability of action; or else, that with their stimulant operation, they have no direct power of diminishing the powers of the system. Considered under either view, they form an intermediate class between Narcotics, which are so highly diffusible,

and Tonics, which are much more permanent in their stimulant operation; and experience shews, that they partake of the properties of both; several narcotics and tonics being frequently used as antispasmodics, and the powers of those which more particularly constitute the class, in obviating spasmodic affections, being apparently connected principally with their stimulant power.

From the name given to this class, their medicinal applications may be understood. Spasm is an irregular contraction of a muscle; sometimes the contraction is permanent; at other times it alternates with relaxation, but even then both are performed with more velocity, and the contractions are more powerful and more permanent than natural. Many diseases depend on spasmodic action, and others are accompanied with affections of this kind. The medicines which obviate and remove such a state are termed Antispasmodics.

Spasm may originate from various causes. One of the most frequent is a strong irritation, continually applied, such as dentition, worms, or the presence of any foreign substance in wounds. In such cases, narcotics must prove useful, by diminishing the irritability and sensibility of the system. Sometimes spasm appears to arise from mere debility, and the obvious means of removing this is by the use of tonics. Both narcotics and tonics, therefore, are occasionally useful as antispasmodics; such, for example, as opium and ether in the one class, and zinc, mercury and Peruvian bark in the other; and

these are accordingly in common practice regarded as antispasmodics. But there are farther several substances which cannot be with propriety referred to either of these divisions, as musk, castor, assafœtida, galbanum, valerian, &c.; they are in some measure intermediate; and it is to these that the name of Antispasmodic is more exclusively appropriated.

Few general observations can be made on this class of medicines. As their effect is not very permanent, they require to be given during the paroxysm of the spasmodic disorder, or a short time before its approach. For the same reason, the dose requires to be frequently repeated. Those, however, which belong to the class of tonics, require an opposite mode of administration; their beneficial effects being obtained only from their continued use. Some of those more strictly antispasmodics, stimulate the general system, and render the pulse more frequent; but in general they can scarcely be regarded as medicines of much power.

ANTISPASMODICS.

Moschus.
Castoreum.
Oleum animale empyreumaticum.
Succinum, oleum and acidum succini.
Bitumen petroleum.
Carbonas ammoniæ pyro-oleosus.
Ferula assafoetida.
Bubon galbanum.
Sagapenum.
Valeriana officinalis.
Crocus sativus.
Melaleuca cajuputi.

Narcotics used as Antispasmodics.

Ether.
Camphor.
Opium.

Tonics used as Antispasmodics.

Cuprum.
Zincum.
Hydrargyrus.
Cinchona.

MOSCHUS. Musk. Moschus moschiferus. *Cl. Mammalia. Ord. Pecora. Asia.*

THE animal which affords musk is a native of the elevated regions of the East of Asia. The musk appears to be a peculiar secretion, which is deposited in a small sac situated nigh the umbilicus of the male. It is brought from China, or from India, in small membranous bags, covered externally with coarse hair. The musk within is in grains, is slightly unctuous, of a black colour, having a strong durable smell, and a bitter taste. It yields part of its active matter to water, by infusion; by distillation the water is impregnated with its flavour; alkohol dissolves it, the impurities excepted.

Musk is an antispasmodic supposed to be of considerable power; it is administered occasionally in the greater number of spasmodic diseases, especially in hysteria and singultus, and also in diseases of debility. In typhus fever it is employed to relieve subsultus tendinum, and other symptoms of a spasmodic nature. In cholera, it is given with the view of checking vomiting. Combined with ammonia, it has been celebrated for its power of arresting the progress of gangrene. With regard to its efficacy in some of these affections, its virtues have been perhaps exaggerated, and from this, as well as from its high price, it is not very often employed. Its dose is from 6 to 20 grains, repeated, if necessary, every five or

six hours. It is best given in the form of bolus. To children, it has been given under the form of enema, as a remedy in the convulsions arising sometimes from the irritation of dentition.

Offic. Prep. — Mist. Mosch. *Lond.* — Tinct. Mosch. *Dub.*

CASTOREUM. Castor. Castor Fiber. *Mammalia. Glires.*

THE beaver, an amphibious quadruped, is a native of the North of Europe, Asia and America. Castor is a peculiar product collected in cells near the extremity of the rectum, in this animal. It is imported of superior quality from Russia, and an inferior kind from New England. The former is dry, slightly unctuous, of a reddish brown colour, intermixed with fibres, and covered with a tough membrane; it has a strong unpleasant smell, and a bitter acrid taste. The American castor is more shrivelled, and inferior in taste and smell. The active matter of castor is dissolved by alkohol, proof spirit, and partially by water; the tincture with alkohol is the least nauseous.

Castor is used as an antispasmodic, in hysteria principally, in a dose from 10 to 20 grains, or from 1 to 2 drachms of the tincture. From the experiments of Dr Alexander, it appears to be a remedy of no power, as, given in a quantity larger than its usual dose, it produced no sensible effect on the system.

Offic. Prep.—T. Castor. *Ph. Ed. Lond. Dub.* T. Castor. Comp. *Ed.*

OLEUM ANIMALE EMPYREUMATICUM. Empyreumatic Animal Oil. Ol. Cornu Cervi.

THE fresh bones or horns of animals, when exposed to heat in close vessels, afford an empyreumatic oil, derived from new combinations of the elements of the animal matter attached to the phosphate of lime, which is the base of bone. This oil is at first of a thick consistence, black colour, and extremely fœtid smell, but by repeated distillations becomes thinner, nearly colourless and transparent, though it remains still fœtid. In this state it has been used as an antispasmodic, in a dose of 10 or 15 drops. It retains its place in the Dublin Pharmacopœia, under the name of Oleum Cornu Corvini Rectificatum, being obtained in the distillation of hartshorn or bones, for the preparation of carbonate of ammonia; but it is entirely discarded from practice.

SUCCINUM. OLEUM et ACIDUM SUCCINI.

THE bituminous substance, amber, though it has a place in the list of the Materia Medica of the different Pharmacopœias, is perfectly inert, and is introduced only as affording, by distillation, an empyreumatic oil, which has been applied to some medicinal uses. This oil is at first thick and of a dark brown colour; but by repeated distillations with water it becomes limpid, still retaining however a very fœtid odour. It has been celebrated for its antispasmodic power, and has been employed in hysteria and amenorrhœa in a dose of from 10 to 15 drops.

It is now discarded from practice, or is used only occasionally as an external stimulating application in paralysis and chronic rheumatism.

Along with this oil, a peculiar concrete acid is produced in the distillation, which is at first impure, but is purified by sublimation, or by solution and crystallization. It has a place in the Edinburgh and Dublin Pharmacopœias, but appears destitute of any medicinal power, and is never applied to any use.

Bitumen Petroleum. Petroleum Barbadense. Mineral Tar.

Various kinds of liquid bitumens exist as natural productions, of different degrees of thickness, of a colour more or less deep, and also more or less volatile. That which has been usually kept in the shops, and applied to any medicinal use, under the name of Barbadoes Tar, is thick, of a dark brown colour, having a smell that is fœtid, and a warm bitter taste. It has an analogy to the preceding empyreumatic oils in its properties; it has been used as an antispasmodic and sudorific, and externally as a stimulating application in paralysis. Though it retains its place in the Pharmacopœias, it is scarcely ever used.

Carbonas Ammoniæ Pyro-Oleosus. Empyreumatic Carbonate of Ammonia. Sal Cornu Cervi.

The bones of animals, when exposed to a sufficient degree of heat, afford a large quantity of carbonate of

ammonia, formed by new combinations of the elements of the animal matter contained in the bone. There is a similar production of empyreumatic oil, and with this oil the ammoniacal carbonate is always impregnated, whence it derives a peculiar fœtid odour. It has also been supposed to derive from it certain medicinal powers, and has been used in preference to the pure carbonate of ammonia as an antispasmodic. Having been first procured from the bones of the deer, it has retained the name of Sal Cornu Cervi, and it still retains its place in the Dublin Pharmacopœia; being procured dissolved in the water which distils over, and this being rectified by repeated distillations. When thus rectified, it differs in little from pure carbonate of ammonia; and even combined with the empyreumatic oil, it has probably no additional medicinal efficacy, while from its fœtor it is unpleasant. Pure ammonia, dissolved in alkohol, is used as a solvent of the active matter of castor, assafœtida, and other antispasmodics, on the supposition that it coincides with them in their action on the system.

FERULA ASSAFOETIDA. Assafœtida. *Pentand. Digyn. Umbellatæ. Gummi-Resina. Persia.*

ASSAFOETIDA is a concrete gum-resin, obtained by exudation from incisions in the roots of the plant; the juice, after it exudes, being hardened by exposure to the sun. It is in small masses, adhering to each other, of a variegated texture, yellow on the external surface, white within, having an extremely fœtid smell, and a taste bit-

ter and subacrid. It consists of about two-thirds of gum, and one-third of resin, its taste and smell residing in the resinous part. It yields all its virtues to alkohol. Triturated with water, it forms a milky-like mixture, the resin being diffused by the medium of the gum. Distilled with water, it affords a small quantity of essential oil, extremely fœtid.

Assafœtida is used as an antispasmodic in different nervous diseases, especially in hysteria, dyspnœa, dyspepsia attended with flatulence, and tympanitis, and is superior in efficacy to any of the fœtid gums. Its usual dose is from 5 to 20 grains, in the form of pill, or diffused in water. It is likewise given under the form of enema, in tympanitis, flatulent colic, in the violent hysteric paroxysm, and as a remedy against worms, 2 drachms being diffused in 8 ounces of warm milk or water; it is sometimes applied externally as a plaster.

Offic. Prep.—Alkohol Ammon. Fœtid. Emp. Assafœt. Pil. Assafœt. Comp. Tinct. Assafœt. *Ed.*—Mist. Assafœt. *Lond. Dub.* Enem. Fœtid. *Dub.*

BUBON GALBANUM. Galbanum. *Petand. Digyn. Umbellatæ. Gummi-Resina. Africa.*

GALBANUM is obtained in the form of a milky juice, by exudation from incisions in the stem of the plant; when hardened it is in the form of a mass somewhat variegated in its texture, tenacious, of a yellowish brown colour, having a fœtid smell, and a bitter acrid taste.

Alkohol dissolves its resin, in which its powers have

been supposed to reside; proof-spirit dissolves it entirely, the impurities excepted. Triturated with water, it is diffused, and forms a milky-like fluid; by distillation it affords about one-twentieth of its weight of essential oil.

Galbanum has the virtues of the fœtid gums, and is used for the same purposes; but being inferior in strength to assafœtida, it is less employed. Its dose is 10 grains. Externally, it is more frequently used as a discutient to indolent tumors, and as a stimulant to promote suppuration.

Offic. Prep.—Pil. Galb. Comp. *Lond.*—Tinct. Galban. *Dub.* Emp. Galb. Comp. *Lond. Dub.*

SAGAPENUM. *Gummi-Resina.*

THIS gum-resin, usually imported from Alexandria, is the produce of an unknown tree said to be a native of Persia. It is in small masses, of a yellow colour, having a smell slightly fœtid, and a pungent nauseous taste; it is soluble in proof spirit; by distillation it affords a small quantity of essential oil.

Its virtues and uses are the same as those of assafœtida, to which, however, it is much inferior in power, and is therefore seldom employed. Its dose is from 10 to 20 grains. It is sometimes applied externally as a discutient.

VALERIANA OFFICINALIS. Wild Valerian. *Triand. Monogyn. Aggregatæ. Radix. Indigenous.*

THE root of this plant, which is the part used in me-

dicine, consists of a number of slender fibres twisted, and attached to one head, of a light brown colour, having a smell strong and unpleasant, and a warm bitter taste. Its active matter is dissolved equally by water and alkohol, and appears therefore to consist of extractive matter, with perhaps a small portion of tannin, as its infusion changes colour on the addition of sulphate of iron. By distillation, water is impregnated with its flavour, but not with its taste, and no sensible quantity of essential oil is obtained.

Valerian is one of the principal modern antispasmodics, and is employed in hysteria, chorea, and epilepsy, where these depend not on organic derangement, or on any permanent irritation, but on increased susceptibility of the nervous system. Sometimes, also, it is used with advantage in hemicrania. Its dose is from one scruple to one drachm, three or four times a-day, which is increased gradually as far as the stomach can bear it. Sometimes it is taken under the form of infusion.

Offic. Prep.—Tinct. Valer. Tinct. Valer. Ammon. *Ph. Lond.* et *Dub.* Extr. Valer. Infus. Valer. *Dub.*

Crocus Sativus. Saffron. *Triand. Monogyn. Liliaceæ. Floris Stigmata. Indigenous.*

This substance is composed of the stigmata which crown the pistil of the flower. These are pressed together, and form a soft mass of intermixed fibres, named Cake Saffron; when dried separately, they form Flower Saffron. The former is what is usually kept in the

shops. It is somewhat moist, of a deep reddish yellow colour, its flavour is aromatic and diffusive, the taste warm and bitterish. The active matter is equally extracted by alkohol, water, proof spirit, and vinegar; the residuum, which is not more than six parts out of 16, being inert ligneous fibre. By distillation with water, a small quantity of essential oil is obtained.

Saffron was formerly regarded as a very active medicine, possessed of high stimulant and antispasmodic power, and requiring, it was imagined, to be given with much caution. Experience has proved it to be nearly inert, and it is now banished from medical practice. It is used as a popular remedy in the exanthemata, particularly in small-pox.

Offic. Prep.—Tinct. Croci. *Ed. Dub.*—Syr. Croci. *Lond.*

MELALEUCA CAJUPUTI. *Polyadelph. Polyand. Hesperideæ. Oleum Volatile. Ol. Cajeputæ. Cajeput Oil. India.*

THE essential oil, known by the name of Cajuput Oil, was supposed to be obtained from the Melaleuca Leucadendron; but, from later investigation, it appears to be procured from another species, to which the name of Melaleuca Cajuputi has been given. It is obtained by distillation from the leaves and fruit, has a green or yellowish colour, a strong fragrant odour, somewhat similar to that of camphor, and an extremely pungent taste. It is highly volatile and inflammable.

This oil has been used as a highly diffusible stimulant and antispasmodic, in tympanitis, flatulent cholic, hysteria, palsy, chronic rheumatism, and various other diseases of debility. Its dose is 3 or 4 drops. It is also applied externally to relieve rheumatic and gouty pains, and it often succeeds in relieving the pain of toothach, when applied to the affected tooth.

Several substances are employed as antispasmodics, and which I have therefore placed in the table, which more strictly belong, however, to some of the other classes. Under these, therefore, their history is given, including the notice of those few applications of them as remedies, connected with their antispasmodic power.