

of water have been already stated. In the present process, as the power of the solvent is greater, and the degree of heat necessary to evaporate it less considerable, it is probable that the opium will suffer less change. Still we cannot be certain of its real power in this state, and the process is expensive, and altogether superfluous.

CHAP. XV.

AQUE STILLATITIE.—DISTILLED WATERS.

SEVERAL of the principles of vegetable matter are so far volatile as to be elevated in vapour at the temperature of 212° ; hence when water is distilled from them, it is frequently impregnated with their taste and odour, and sometimes even with their more active powers. The odour, and frequently the pungency of plants reside in their essential oil; and this being always volatile at this temperature, the aromatic plants, in which essential oil is most abundant, communicate these qualities to water distilled from them, a portion of the oil being retained in solution by the water. The acrid principle of some vegetables appears likewise to be so far volatile as to rise in distillation with water; and the prussic acid, in which the narcotic power of the bitter almond, cherry laurel, and similar plants resides, is also obtained by the same process: But these vegetables are comparatively few, and there are no officinal distilled waters having a place in the Pharmacopœias possessed of any important power; they are design-

ed, from their flavour and agreeable pungency, to serve merely as vehicles for the exhibition of more active remedies, and all of them owe these qualities to the essential oil which they hold dissolved.

Recent vegetables are in general more proper for distillation than after being dried, the water they afford being more grateful. They are therefore ordered in this state when they can be procured in it by the Edinburgh and Dublin Colleges. The London College, on the contrary, order them to be used dried, as they cannot be procured fresh at all seasons of the year. When fresh, they in general impregnate sufficiently with their flavour and taste, three times their weight of water; when dry, double that quantity. As much must always be employed, as when drawn off by distillation a sufficient quantity of water shall remain in the still to prevent any part of the vegetable matter being scorched, and communicating empyreuma to the distilled water, the distillation being continued as long as the liquid that condenses has any taste or smell of the vegetable from which it is distilled. The flavour of the more delicate plants is injured by this operation; and these distilled waters are in general less grateful to the stomach than the infusions of the vegetable matter which yields them.

Distilled waters are liable to a species of decomposition, the nature of which has not been well determined. When long kept, they become mucilaginous, and at length quite viscid, and at the same time somewhat sour. According to Bucholz, this change occurs most readily in those distilled waters which contain little essential oil, and it is not dependent on the air, but takes place even more quickly when the water is kept in a closed than in an open vessel. It might be supposed to arise from the presence of a small portion of

vegetable matter, besides essential oil held in solution by the water; but according to experiments quoted by Bucholz, it is owing to changes in the oil itself; distilled water, in which essential oil of peppermint, fennel, and other plants was dissolved, becoming mucilaginous and losing their odour in a few weeks. The change of composition in the oil it is possible may be owing to the chemical action of the oxygen of the water. To counteract this change, and preserve distilled waters more effectually in a proper state, a small quantity of alcohol is ordered to be added to them. According to Bucholz, they ought also to be kept in vessels imperfectly closed.

AQUA DISTILLATA. Distilled Water. Ed. Lond. Dub.

Distil water in clean vessels until about two-thirds have distilled over.—The same directions nearly are given in the other Pharmacopœias.

Water does not occur in nature perfectly pure, but has generally a sensible impregnation of saline and earthy matter. Spring water, which is purest, contains a little carbonate of lime, and muriates of lime and soda; river water contains sulphate and carbonate of lime, and muriate of soda: and well water, sulphate and carbonate of lime in larger quantity. For some purposes in Pharmacy, it is necessary to use water free from these substances, particularly in the solution of some earthy and metallic salts, several of which are decomposed by them, and if they are given in small doses, may, by such decompositions, be rendered nearly inert. In preparations too, where much water is evaporated, as in the formation of extracts, it has been judged preferable to employ distilled water, as the residual matter of common water will remain mixed with the pro-

duct of the process, and uselessly add to its bulk, or even in some cases produce in it some chemical change. It is for these purposes that distilled water is ordered in the Pharmacopœias; but except where the use of it is rendered necessary from these circumstances, it ought not to be employed, as from losing in the distillation much of the air that it holds loosely dissolved, it is always vapid and unpleasant. And when directed in pharmaceutical processes, without discrimination, the direction is liable to be altogether neglected by the apothecary.

The process should be conducted with rather a gentle heat, and ought not to be continued longer than until two-thirds of the water have distilled, as otherwise a minute portion of the saline matter might be brought over in the distillation. The first portion too that comes over is directed by the London and Dublin Colleges to be rejected.

The directions for the preparation of the Distilled Water of Plants are given in the Edinburgh Pharmacopœia under the first of them—that of Orange-Peel.

Take of the rind of the Orange, fresh, two pounds. Add as much water, that when ten pounds have been drawn off by distillation, a sufficient quantity shall remain to prevent empyreuma. After due maceration, distil ten pounds.

In the London and Dublin Pharmacopœias, the water, after maceration on the vegetable matter, if it is dry, is directed to be distilled, allowing so much to remain in the still as will prevent empyreuma. And in all the Pharmacopœias, half an ounce of rectified spirit is ordered to be added to each pound of water after distillation.

AQUA CITRI AURANTII. Water of Orange-peel. Ed.

This distilled water has none of the bitterness of the orange-peel, but merely its flavour, and is so little used, that it is not kept in the shops.

AQUA CITRI MEDICÆ. Water of Lemon-peel. Ed.—Ten pounds of water are drawn from two pounds of the fresh rind of the lemon.

This water has merely a slightly agreeable flavour, and is scarcely ever used.

AQUA CORTICIS LAURI CASSIÆ. Water of Cassia Bark. Ed.

AQUA CORTICIS CINNAMOMI. Ed. Lond. Dub.—Ten pounds or a gallon of water are distilled from a pound of each of these barks.

The cinnamon water only has a place in the London and Dublin Pharmacopœias.

The cassia water, when not prepared too pungent, can scarcely, however, be distinguished from that of the cinnamon, the essential oil of both these barks having a flavour nearly the same. The cassia water, therefore, being less expensive than the cinnamon, is substituted for it in the shops. It has the pungency and aromatic flavour of the cassia, and is hence in common use to cover the ungrateful taste and flavour of other medicines; and not unfrequently is used in too large quantities. It is sometimes given alone as an aromatic and stimulant.

AQUA MENTHÆ PIPERITÆ FLORENTIS. Peppermint Water. Ed. (Aq. Menth. Piperit. Lond. Dub.)—Ten pounds of water are drawn by distillation from three pounds of green peppermint.

This water is strongly impregnated with the flavour of the herb, and is very frequently used in mixtures to cover the flavour of other medicines. It is also frequently taken alone as a carminative.

AQUA MENTHÆ PULEGIÆ FLORENTIS. Pennyroyal Water. (Aq. Pulegiæ, Lond. Dub.)—Ten pounds of water are distilled from three pounds of the green herb.

Pennyroyal water has a flavour and taste similar to that of peppermint, and is used for the same purposes.

AQUA FRUCTUS MYRTI PIMENTÆ. Pimento Water. (Aq. Piment. Lond. Dub.)—Ten pounds of water are distilled from half a pound of the Jamaica pepper.

This water has the flavour of the Jamaica pepper, and its aromatic quality; but as this is not very grateful, it is not often used.

AQUA PETALORUM ROSÆ CENTIFOLIÆ. Rose Water. (Aq. Rosæ, Lond. Dub.)—Ten pounds of water are drawn from six pounds of the fresh pale rose flowers.

This water has all the flavour of the rose, and as it has no pungency or acrimony, it is often used for external applications, as in solutions of acetate of lead, or sulphate of zinc for collyria.

There are a few Distilled Waters peculiar to the London or the Dublin Pharmacopœias, of so little importance, however, as to require scarcely more than enumeration.

AQUA ANETHI. Distilled Water. Lond.—A gallon of water is distilled from a pound of the seeds.

Its flavour is rather unpleasant, and it has little pungency.

AQUA CARUI. Caraway Water. Lond.—A gallon of water is distilled from a pound of the seeds.

This has a considerable share of aromatic flavour and pungency, and may be employed as a carminative.

AQUA FENICULI. Fennel Water. Lond. Dub.—A gallon of water is distilled from a pound of the seeds.

This has merely the weak flavour of the seeds, with little warmth.

AQUA MENTHÆ VIRIDIS. Spearmint Water. Lond. (Aq. Ment. Sativ. Dub.)—A gallon of water is distilled from a pound and a half of the herb.

Its flavour and taste are so similar to those of peppermint or pennyroyal, that it may be regarded as superfluous.