

the atmosphere they should be kept in a well-stopped bottle, or in a very dry locality. Any other essential oil may be used in place of the mint: balsam of Tolu is well adapted for this purpose.

Medicinal Use of Alkaline Lozenges.

Each lozenge weighing a gramme, contains about a grain and a half of the bi-carbonate. M. Darcet, speaking from his own experience, says that three of them are sufficient to amend a peccant digestion, and that for that purpose they are more efficacious than the waters of Vichy. He regards the action of the soda as purely chemical, the latter saturating the excess of acid in the primæ viæ. The lozenges should be taken immediately on finding the stomach disordered; if taken before a meal the digestion will be considerably facilitated. For this last reason they should be given to gouty and calculous subjects before their meals. But in cases of gravel and even of gout with chalk-stones, together with the lozenges, alkaline, gaseous waters, as of Vichy and others, should be recommended. Such waters may be replaced by half a gros to two gros of bi-carbonate of soda; at the same time a vegetable diet containing no azotized food should be enjoined.

DIGITALINE.

M. Auguste Leroyer, of Geneva, has communicated some observations on the active principle of the *digitalis purpurea*, which he succeeded in isolating, and with which he made several experiments on animals. I shall announce the results of M. Leroyer's researches, in order that other experiments may be made to ascertain whether it is possible to extract from the fox-glove an active principle that shall be unvaried in character—a consummation of some importance in medicine.

Mode of Preparation.

M. Leroyer takes one livre of common fox-glove, and first treats it with cold ether, and then with the same fluid heated in a close stove, in order that the temperature may be raised to a considerable degree. The tinctures obtained in this manner were, after being filtered, of a greenish yellow colour and bitter taste; the residue from their evaporation has a resinous appearance, is intolerably bitter and causes a sensation of numbness of the tongue like that produced by chewing aconite. This residue being taken up by water divided into two parts, one in solution, the other a precipitate having the characters of chlorophylle; the solution in question reddened turnsol paper. Hydrate of the protoxide of lead was then added to neutralize the free acid thus indicated. The salt of lead thus formed was soluble and could not therefore be separated from the bitter principle; nor were several earths that were tried more efficient for the purpose; another plan was therefore had recourse to. After evaporating to dryness the portion treated with lead, it was again dissolved in highly rectified ether, by which process the bitter principle of digitalis disengaged from those matters with which it was united, is obtained. By evaporation the solution yields a brown heavy substance, that restores, though slowly, the blue of reddened turnsol paper. This character as well as its bitterness approaches it to the alkalis, though on the other hand its extreme deliquescence separates it from them. This deliquescence prevents its distinct and permanent crystallization; M. Leroyer, however, thinks that it does crystallize regularly when in favourable circumstances. Dr. Prevost placed a drop of the alcoholic solution of digitaline on a piece of glass and cautiously evaporated it by means of a spirit-of-wine lamp; with a microscope of a magnifying power of 200, he then saw numerous and well defined crystals of

various forms. He further states that the basic form of them all appeared to be a straight prism with rhomboidal base.

It is clear, however, that M. Leroyer has not hitherto obtained the pure principle; further inquiries are therefore requisite.

Action of Digitaline on the Animal System.

M. Leroyer made the following experiments.—He dissolved a grain of digitaline in the abdomen of a middle-sized rabbit, and in a few minutes observed the respiration become slower, the pulse, which had previously been rapid, fell to 60, and was regular; all the vital phenomena were gradually extinguished, and the animal died without agitation or agony, as if passing into sleep.

Half a grain of digitaline dissolved in two gros of warm water, was injected into the vein of a cat: the animal died in a quarter of an hour, with the same symptoms as those above-mentioned. During the last few minutes of life, the respiration fell to six or eight, and the pulse, from being feeble and irregular, disappeared altogether.

A middle-sized dog was killed in fifty minutes by the injection into the jugular vein of half an ounce of water, holding a grain and a half of digitaline in solution.

The arterial blood of animals killed by digitaline, was of a decided venous colour, and had a very feeble tendency to coagulate; examined with the microscope, the red globules, particularly in the blood of the cat, appeared to have lost somewhat of their usual figure, but were not decomposed. Other observations have been made on small animals, from the moment of administering the poison to that of death. As they approached the latter event, the blood appeared more and more inclined to remain fluid, but

the globules in nowise altered in form. It would appear that the deleterious principle, being in solution in the blood, acts directly on the nervous system.

Nevertheless, an attentive examination of the brain and its appendages, have not enabled MM. Leroyer and Prevost to discover on what particular parts the digitaline acts. The cerebral sinusses were gorged with blood, but the cerebral substance itself did not appear to have suffered any change.

It is desirable that the chemical and physiological experiments of M. Leroyer on this substance should be repeated.

SALICINE.

Willow-bark having been frequently employed against intermittent fevers, M. Leroux, a pharmacist of Vitry-le-Français, succeeded in extracting from it a substance in which probably reside its febrifuge properties. He obtained it by the following process:—

Boil three pounds of the willow bark (*salix helix*), in 15 pounds of water, holding four ounces of subcarbonate of potass in solution; strain and add to the cold decoction two pounds of fluid subacetate of lead; filter, add sulphuric acid and precipitate the whole lead by sulphuretted hydrogen gas; saturate the excess of acid by chalk; filter again, evaporate and neutralize it by diluted sulphuric acid; withdraw the colouring matter by charcoal, and filter it hot: crystallize twice if the salt is coloured after the first crystallization, and dry in the shade. This process gives about an *once* of salicine. M. Leroux obtains five per cent of the weight of the bark. It exists in the bark of many species of *salix*, as the common willow, *Salix monandra*, *S. incana*, *S. fissa*, &c.

Salicine thus obtained is in small, silky groups of pearly-white crystals, is exceedingly soluble in water