

gether negative, while other experiments tended to show that it was possessed of no obvious febrifuge power. The doses given in these experiments varied from six to twenty-four grains. With the view of settling the question, M. Andral instituted several experiments, the particulars of which are recorded in M. Richelot's memoir. Ten patients of different sexes, whose ages varied from seventeen to thirty-eight, were selected for the purpose, and after considering the results of these, as well as of all that has been mentioned by others, M. Richelot comes to the following conclusion: 1. Salicine appears really to possess febrifuge qualities, but in so small a degree that we ought not to hesitate a moment in preferring the sulphate of quinia. 2. Salicine may be employed in any case where irritation or inflammation exists, contra-indicating the employment of the sulphate of quinia, in hectic fevers with periodical paroxysms and abundant diarrhœa, or where sulphate of quinia cannot be had. 3. It is not only unnecessary but injudicious to employ it at the beginning in high doses. Six or eight grains administered between the paroxysms, on the same principles as quinia, produce as good or even better effects than higher doses; though, if necessary, the doses may be increased.—*Tr.*]

LACTIC ACID.

Process for procuring Lactic Acid

It is extracted both from milk and from the juice of beet-root. If from the latter, it should be left in a stove of a fixed temperature, between 25° and 30°. After a few days, viscous fermentation takes place, and hydrogen mixed with carburetted hydrogen is abundantly evolved. The fermentation ended, and the liquid restored to its former fluidity—which generally occupies two months—it is evaporated to a sy-

ropy consistence: crystals of mannite then appear, and with them a sugar, having the properties of grape-sugar. The product of the evaporation is treated with alcohol, which dissolves the lactic acid, leaving a quantity of precipitated matters. The alcoholic extract is taken up by water, wherefrom a fresh deposit is made; the fluid is then saturated with carbonate of zinc, and a copious precipitation again takes place. Concentrated, the lactate of zinc crystallizes, is collected and heated with water, to which some animal charcoal previously washed with hydrochloric acid is added: the whole is then filtered, and the lactate of zinc, perfectly white, crystallizes: these crystals are again washed with boiling alcohol, in which they are insoluble. By successive treatment with baryta and sulphuric acid the lactic acid is separated and concentrated in vacuo. Finally on shaking it with sulphuric ether, which dissolves it, a flaky matter is separated. (See Ann. de Chimie et de Physique, April, 1833.)

By a precisely similar proces, milk affords lactic acid. M. Carriol has also discovered it in the aqueous solution of the strychnos nux vomica.

Physical and Chemical Properties of Lactic Acid.

Concentrated in vacuo until it loses no more water, lactic acid is a colourless fluid of a syrupy consistence, and a density, at the temperature of $20^{\circ},5$, equal to 1,215. It is inodorous, and excessively acid to the taste. It absorbs moisture from the atmosphere. Water and alcohol dissolve any quantity of it. It has the property of rapidly dissolving phosphate of lime, particularly that of the bones, a property worthy the attention of medical men.

Mode of administering Lactic Acid.

As lactic acid is the solvent of food in the stomach, I thought that it might be advantageously

used in dyspepsia or simple debility of the digestive organs: and I have not been disappointed.

I give it in the form of lemonade or lozenges.

Lactic Lemonade.

Liquid lactic acid	1 to 4 gros.
Simple water	1 pinte.
—— syrup	2 ounces.

Lozenges of Lactic Acid.

Pure lactic acid	2 gros.
Powdered sugar	1 once.
Tragacanth gum	q. s.
Volatile oil of vanilla	4 drops.

The lozenges should weigh half a gros each, and be kept in a well-stopped glass. Six of them may be taken in twenty-four hours.

From the facility with which lactic acid dissolves calcareous phosphate, it might be feasible to try it in cases of white or phosphate of lime gravel. I have not yet had an opportunity of doing so.

I have commenced a series of clinical experiments with the lactates of soda, potass, &c. but the results are not yet ripe for publication.

VOLATILE OIL OF BLACK MUSTARD SEED.

To procure this oil, not less than 10 kilogrammes of the best black mustard powder should be used. Mix it with from 50 to 55 kilogrammes of water, and place them in an alembic, which is connected with a double-balled receiver: then distil. The volatile oil condenses at the bottom of the receiver in the form of brownish flakes. When six litres of water have passed over, change the receiver, as after that no volatile oil is deposited. Pour off the superabundant distilled water, and rarefy the oil, by a naked fire in