

LACTIC ACID.

In 5 per cent. solution, this acid proves a speedy poison. Its effects in 1 per cent. solution will be clear from the following extract from my notes :

Exp.—R. 56. Lactic acid 1 per cent. freely applied.

Its effects :

- (1) Slows rhythm.
- (2) Auricle affected before ventricle.
- (3) In ten minutes, whole heart arrested in well-marked diastole.
- (4) The heart cannot be excited to action by mechanical means (prick with seeker). Neither Acetate of Strychnia in 1 per cent. solution, nor Digitalin applied in the usual manner, cause any improvement.

It is thus seen that lactic acid in 5 per cent. solution is a rapid poison, while in solution of 1 per cent. it depresses the heart and gradually kills it in diastole.

DIGITALIN, IN SOMEWHAT LESS THAN 1 PER CENT. SOLUTION.

Of all the drugs and poisons used, none has produced such decided manifest, rapid and constant action as digitalin. It was used in a solution of rather less than 1 per cent., and the results were precisely the same whether applied to the isolated heart or to the heart *in situ*, though, as is to be expected, much more rapid in the former case, on account of the better state of nutrition in the heart under normal conditions, enabling it to resist longer all kinds of foreign influences. This principle applies in all cases, so far as I have observed, of the action of cardiac drugs and poisons.

The action of digitalin may be stated thus :

1. Digitalin, when applied to a rapidly-beating heart, slows it.
2. *Its invariable action, no matter what the condition of the heart, is to produce gradually increasing systolic contraction, the diastolic relaxation getting less and less till the heart is finally arrested in most pronounced systolic tetanus.*
3. The peculiar action of the drug requires a short period before there is any decided manifestation of its effects ; but when the latter do appear, they rapidly advance to a maximum.