flow, but also a slight backward movement, such as can be accounted for by the stretching of the venous valves.

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On vaso-motor nerves in the pulmonary circuit.

By **RUSSELL BURTON-OPITZ.**

[*From the Physiological Laboratory of Columbia University, at the College of Physicians and Surgeons.*]

To test the existence of vaso-motor nerves in the pulmonary circuit, the following method was devised: The inlet tube of the stromuhr, recently exhibited by the author before this society,[1] was connected with a receptacle containing Ringer's solution and the outlet tube with a button cannula, to be inserted subsequently into the pulmonary artery of dogs. The chest wall having been resected, loose ligatures were placed around the nerves in the vicinity of the ganglion stellatum and the pulmonary artery. A cannula was inserted into the appendix of the left auricle.

The procedure was as follows: Long forceps-clamps were quickly placed upon the central portion of the pulmonary artery, and transversely across the left auricle close to its junction with the left ventricle. The button cannula having been inserted into the pulmonary artery distally to the clamp, the blood-vessels of the lungs were then supplied with circulating fluid from the receptacle and drained by way of the cannula in the left auricle. Thus, all influences of the heart which might have disturbed vaso-motor reactions in the pulmonary circuit were excluded.

A change in the flow directly attributable to vaso-motor influences, could not be obtained by stimulation of any of the aforesaid nerves. Stimulation of the vagus in the neck, as well as centrally and distally to the ganglion stellatum, was ineffective.

In view of these negative results, it seemed advisable to test the influence of adrenalin upon the flow through the pulmonary blood-vessels. A T-tube was inserted between the stromuhr and the button cannula, through which solutions of different strengths were injected. In spite of the fact that these solutions had pro-

[1] This volume, p. 24.

duced decided vaso-motor reactions in other parts of the body a few minutes previous to these experiments, they remained ineffective when introduced into the pulmonary circuit.

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The effect of salicylic acid upon autolysis.

By **L. B. STOOKEY.**

[*From the Physiological Laboratory, Medical Department, University of Southern California.*]

The liver, kidney, spleen and muscle taken from dogs which had received subcutaneously doses of sodium salicylate (0.1 gram, in 1 per cent. solution, per kilo of body weight) daily, during a period of ten days, showed rates of autolysis greater than those observed in the same organs taken from normal dogs.

The influence of other drugs upon autolysis is being investigated.

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On the synthesis of protein through the action of trypsin.

By **ALONZO ENGLEBERT TAYLOR.**

[*From the Laboratory of Pathology, University of California.*]

The application of the theory of thermodynamics to general chemical reactions has resulted in the definition of the following principles, all of which have been confirmed by experiment as well as by mathematical considerations:

All chemical reactions are reversible reactions;

All chemical reactions progress to an equilibrium in the system.

There is in every chemical reaction a driving force and an internal chemical resistance.

Catalytic acceleration operates through a reduction in the internal chemical resistance; since the driving force is unaltered, the station of equilibrium is attained more quickly, that is, the experimental velocity of the reaction is increased.

The catalytic acceleration operates in either direction of the reaction; no matter in which direction the reaction may happen