($3 \times 10^{-7}$) and of the ion $H_2PO_4$ ($2 \times 10^{-7}$). Although the equilibrium in such a system at 40° C. may be somewhat different it is evident that this equilibrium is calculated almost perfectly to protect protoplasm from variation in neutrality. The variation in hydrogen and hydroxyl ionization can hardly be more than $5 \times 10^{-7}$.

The theory of the transport of carbonic acid is now being investigated in the light of this great variation of combined carbonic acid, and the variation which has been found in "acidosis."

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## The influence of adrenalin upon the venous blood flow.

By **RUSSELL BURTON-OPITZ.**

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

The blood flow in the femoral, external jugular and azygos veins was measured by means of the stromuhr described by the author. During the experiment, solutions of adrenalin were injected centrally to the stromuhr. The effect of the adrenalin showed itself in a retardation of the venous inflow which appeared in from 14–16 seconds after the injection. Considering the velocity of the venous blood stream, it must be assumed that the adrenalin did not produce its characteristic effect until it had reached the arterial side of the circulatory system. The experiments tend to disprove the existence of vaso-motor nerves in the central veins and the pulmonary circuit.

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## The viscosity of laked blood.

By **RUSSELL BURTON-OPITZ.**

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It was found that the viscosity of laked blood prepared by the process of freezing, is very much less than the viscosity of defibrinated blood. The specific gravity was only slightly lessened.