SCIENTIFIC PROCEEDINGS.

ABSTRACTS OF THE COMMUNICATIONS.

Eighteenth meeting.

Cornell University Medical College, New York City. October 17, 1906. President Flexner in the chair.

1 (144)

The formation of glycogen from sugars by muscle, with a demonstration of a perfusion apparatus.

By **R. A. HATCHER** and **C. G. L. WOLF.**

[*From the Chemical and Pharmacological Laboratories of the Cornell University Medical College, New York City.*]

Contrary to the findings of Külz, saccharose does not form glycogen in muscle. Glucose is a direct glycogen former in muscle. When the glycogen-free muscles of animals which have been starved and treated with strychnin are used, no glycogen is formed either by glucose or saccharose.

A perfusion apparatus was shown which permits the simultaneous and separate perfusion of the hind limbs of an animal and the arterialization of the blood by the lungs of two animals, each pair of lungs being used for an individual limb.

2 (145)

Bile media in typhoid diagnosis.

By **B. H. BUXTON.**

[*From the Department of Experimental Pathology, Loomis Laboratory, Cornell University Medical College, New York City.*]

Ten c.c. of blood are drawn from a vein and distributed into three flasks of sterilized ox bile, 20 c.c. of bile in each flask.

Of twenty seven cases of suspected typhoid examined in the

course of two months, seven were reported negative and twenty positive. Of the seven negative cases, six proved to be certainly not typhoid, and one was very doubtful. Excluding the doubtful case, there is a record of 100 per cent. in cases ranging from the fifth to the nineteenth day. By means of litmus-lactose-agar plates, reports can be made in 24 hours with a fair degree of certainty. After incubating the bile-blood over night, streaks are drawn over the plates, and in 5 or 6 hours a growth may be visible. If the growth prove to be a bacillus which reacts to a microscopical Widal test the case is reported positive.

3 (146)

The inconstant action of muscles.

By **WARREN P. LOMBARD** and **F. M. ABBOTT.**

[*From the Physiological Laboratory of the University of Michigan.*]

The movements of the hind leg of the frog which are generally ascribed to finely adjusted nervous coördination, are in fact largely the result of the mechanical conditions under which the muscles act. These conditions differ with each new position of the bones entering into the joints of the limb, and consequently alter the effects of the contractions of muscles as the positions of the bones change during the course of any given movement. Thus a muscle which in one position of a bone may act as a flexor, in another position may act as an extensor, and a muscle which in one position of a bone may carry it dorsally, in another position may carry it ventrally. Manifestly it is absurd to try to class muscles as flexors and extensors, for example, or to try to name them according to the movement which they are supposed to produce. Nor can one, without qualification, speak of certain muscles as antagonists, when under slightly modified conditions of action they act as synergists. Moreover, it is evident that we can form no estimate of the part played by the central nervous system in coördinated movements of locomotion, for example, until we have ascertained in how far the coördination observed is due to the mechanical conditions under which the muscles are acting. A study of central coördination must, in short, be postponed until