out and five to ten cubic centimeters of saliva can thus be obtained after giving the dog 1/100 gr. of pilocarpine subcutaneously. None of the cultures made from the saliva showed *Bacillus prodigiosus;* however, I do not believe that this route is absolutely excluded.

One clinical test was made. A "typhoid-carrier" who is known to have had typhoid bacilli in her stools for some years, at times almost in pure culture, but at present in the ratio of about ten per cent. of the total number of fæcal bacteria, was submitted to an examination. If the bacteria ascend from the intestine then typhoid bacilli should be found in her stomach. This patient was starved for eight hours; at the end of the period her mouth was washed with sterile salt solution, and the washings tested for typhoid bacilli. Her stomach, which was found to be empty after this period, was accordingly washed out and the washings, which were of neutral reaction, likewise plated on Conradi-Drigalski media. Neither of these fluids was found to contain typhoid bacilli, nor indeed colon bacilli.

From these experiments I conclude that bacteria injected by way of the rectum into rabbits are not carried in a viable state above the small intestine, and that they do not enter the respiratory tract by this route. In fact their presence in the small intestine may at times be due not to antiperistalsis, but to excretion from the blood or the bile. Furthermore; where experiment has showed them to be present in the lungs, the trachea and the œsophagus, they have entered these organs by way of the blood stream.

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The action of soaps on the pneumococcus.

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The object of the study to be reported briefly is the ascertaining of the manner in which the pneumococcus is disposed of in the body of infected animals that recover. The animal experiments were made on full grown rats. A strain of pneumococcus fatal to them in 1/10,000 of a cubic centimeter of a twenty-four hour bouillon culture was employed. Strong solutions (1 to 5 per cent.)

of soap (sodium oleate) precipitate the diplococci in an adherent mass which afterwards undergoes complete solution in water or salt solution. Solutions of soap of a strength of 1 to 10,000 do not produce visible changes in the bacterial suspensions but reduce slightly the number of viable cocci. Solutions of 1 to 15,000 or 1 to 20,000 do not affect the viability in cultures but reduce somewhat the virulence. At the same time the diplococci appear somewhat swollen but not otherwise altered.

Untreated diplococci begin to multiply at once in the peritoneal cavity of rats. The treated diplococci at first almost entirely disappear from the cavity and begin to multiply after eight or more hours and cause death at a later period than the controls. There is a greater emigration of leucocytes in the case of the treated cocci than in that of the controls. There is little or no phagocytosis. Normal goat serum does not affect the process appreciably; but immune goat serum prevents multiplication of the treated cocci and brings about recovery of the rats but, under the conditions of the experiment, not of the control rats injected with untreated cocci. Phagocytosis does not play a direct part in the recovery.

The experiments can be repeated *in vitro* with approximately similar results. The soap-treated cocci are subject to serum lysis, while the untreated are not, and the lysis is not assisted but rather hindered by the presence of living leucocytes. The study is being continued.

51 (389)

The influence of shaking upon trypsin and rennin and a comparison of this influence with that upon pepsin.

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At the December meeting of this Society we mentioned our studies of the effects of shaking upon ferments and reported that pepsin can be practically destroyed by shaking. Our studies were extended to other digestive ferments and we wish now to report very briefly that shaking proves to be very injurious also to trypsin