information on these substances is still very defective. Cultures are killed at a temperature of 60° C. It is not probable that the typhoid bacillus produces spores, but it resists drying for days. Bouillon cultures are destroyed by carbolic acid, 1 to 200, and by corrosive sublimate, 1 to 2,500.

In recent cases of typhoid fever the bacillus is found in the lymphoid tissues of the intestines, in the mesenteric glands, in the spleen, and in the liver. It occurs also in irregular clumps in the contents of the intestines and in the stools. The bacillus is said to have been found rarely in the blood, in the rose-colored spots (?), and in the urine.

Outside the body the bacilli retain their vitality for weeks in water. Whether an increase can occur is not yet finally settled. Bolton denies it, but the general opinion seems to be that such increase may take place to some extent. They disappear from ordinary water in competition with saprophytes in a few days. In milk they undergo rapid development without changing the appearance of the milk. They may increase in the soil and retain their vitality for months. They are not killed by freezing, but, as Prudden has shown, may live in ice for months. In many epidemics the bacilli have been detected in the infected water. The detection however of the typhoid bacillus in drinking-water is by no means easy, and the question in individual cases must be settled by experts who have had special experience with this germ. Both Prudden and Ernst have found it in water-filters.

Modes of Conveyance.—(*a*) *Contagion.*—Typhoid fever is certainly not a very contagious disease, but the possibility of direct transmission must be acknowledged. The poison is not given off from the skin or in the breath, but in the fæces. Practically only those persons are liable to contract the disease in this way who have to do with the stools or with the body-linen of patients. I have known several instances in which nurses appear to have been infected under these conditions.

(*b*) *Infection of water* is unquestionably the most common mode of conveyance. Many epidemics have been shown to originate in the contamination of a well or a spring. A very striking one occurred at Plymouth, Pa., in 1885, which was investigated by Shakespeare. The town, with a population of eight thousand, was in part supplied with drinking-water from a reservoir fed by a mountain stream. During January, February, and March, in a cottage by the side of and at a distance of from sixty to eighty feet from this stream, a man was ill with typhoid fever. The attendants were in the habit at night of throwing out the evacuations on the ground toward the stream. During these months the ground was frozen and covered with snow. In the latter part of March and early in April there was considerable rainfall and a thaw, in which a large part of the three months' accumulation of discharges was washed into the brook, not sixty feet distant. At the very time of this thaw the patient had numerous and copious discharges. About the 10th of April cases of typhoid fever broke out in the town, appearing for a time at the rate of fifty a