solution was then centrifugalized, and the ether containing the cholesterin was poured off. This procedure was repeated until only a small powdered precipitate was left behind. The microscopic examination of this precipitate revealed a few yeast cells in branches, several starch granules, epithelial cells, bacteria in clumps and plant rests. These bodies, it seems to me, can be interpreted only as duodenal contents They may in this case have been a factor in the formation of the stones, but the chief conclusion that I wish to draw from this observation is, that if it is possible for duodenal contents to regurgitate into the gall-bladder, it must be possible for bacteria from the duodenum to do likewise, if there exists stagnation of the bile. Although Cushing found the duodenum of rabbits practically sterile, this would not exclude the possibility of an ascending infection. Assuming even that the same were true of the normal duodenum of the human, it would certainly not be the case where there existed affections of the stomach and duodenum such as dilatation of the stomach, duodenitis, etc.

Leaving out the consideration for the time, being a further consideration of the manner in which the infection occurs, but granting that it is an all-important factor, I desire to consider shortly the investigations that led up to the absolute proof of the relationship existing between cholecystitis and cholelithiasis. Cases of cholecystitis following and complicating typhoid fever have been very frequently reported and bacteriologic proof presented of the typhoid origin of these infections. Flexner found living bacilli in the bile of 50 per cent. of the fatal cases of typhoid fever. Blachsteins found them as late as 128 days after injecting them into the veins of animals. Hunner isolated and cultivated the bacilli from the bile of a patient 18 years after an attack of typhoid fever. Miller found the same 7 years after typhoid infection. Early in 1898 Cushing had collected four cases from the literature of gall-stones following typhoid fever. In these cases there was a co-existing cholecystitis, due to a typhoid infection, as was proven by the bacteriologic examination. While the clinical observations all point in one direction, viz., to the infectious origin of biliary lithiasis, the experimental investigations are even more convincing. With the above data at hand, various attempts were made to produce gall-stones in animals artificially.

These efforts, at first unfruitful, after a time resulted in the formation of imperfect concretions. In 1867, however, Gilbert produced well-formed stones in the gall-bladder of a dog, and soon afterwards Richardson, Mignet, Cushing and