

has been sterilized by subjection to a relatively low temperature (59° C.) on successive days. The on'y conclusion he could reach was that through the autolysis of the epithelial cells something was liberated which led to the precipitation. This last observation is most important in this that for the first time* we are afforded rational basis of fact in explanation of the existence of pure cholesterin as distinguished from mixed gall-stones.* In an address given by me at Buffalo (upon which this article is largely based), I had urged that the pure cholesterin calculi were of non-microbic causation. I had found the surrounding fluid sterile. Aschoff similarly working over Kehr's abundant material had noted that pure cholesterin calculi occurred in cases of simple obstruction without evidence of cholecystitis. Bacmeister here shows that bacterial growth leads to the precipitation of all the constituents of the mixed gall-stones, whereas, when bacteria are absent, the cholesterin alone is thrown down.

But now there is another series of equally well authenticated cases, which appear at first sight to give the lie direct to these observations upon the origin of cholesterin from the liver bile.

My attention was forcibly directed to this matter some years ago by a case of hydrōps cystidis felleae accidentally encountered at post-mortem. The gall-bladder here was distended with a colorless thin fluid without a trace of bile pigment, and clear and transparent save for the shimmer of abundant glistening cholesterin crystals. The cause of the condition was discovered in a stone which blocked the origin of the cystic duct. This was roughly pear-shaped. The narrower end, imprisoned in the duct, was of mixed formation and pigmented—the free larger end protruding into the gall-bladder was of pure cholesterin. The absolutely colorless

*This is perhaps an incorrect statement, for some years previously Brockbank (On Gall-stones or Cholelithiasis, London, Churchill, 1896, p. 21) had noted that bile taken post-mortem from the bodies of middle aged or elderly individuals who died from cardiac or various chronic diseases without exhibiting cholelithiasis contains when first examined numerous desquamated epithelial cells with but few crystals of cholesterin. In the course of a few days the cells begin to disappear, but the cholesterin becomes abundant. Finally no cells may be found, but the crystals are in great profusion.