

How comes it that gall-stones are formed? Recall the fact that from a pint to a pint and a half of bile is formed and has to be excreted every twenty-four hours, and that this liquid has a high specific gravity and contains from a quarter to half an ounce of solid material, and we can readily understand that where there is any obstruction to its flow the liquid material may pass the obstruction, while the other ingredients remain behind and form concretions or stones. Further, by no means all the bile which is excreted by the liver passes directly through these ducts into the intestine, but a considerable portion of it after passing through the hepatic duct passes backwards through the cystic duct into the gall-bladder, which acts as a reservoir. Observe also the inverted position of the gall-bladder, the fundus at a lower level than a considerable proportion of the ducts, and you will readily perceive how, if the bile be abnormal or contain an excess of solid material, or there be any obstruction in the ducts, the liquid portion will pass through while the other constituents remain behind and solidify. When you take these facts into account, and likewise the feeble expulsive power of the gall-bladder—especially in old age—the origin of gall-stones need puzzle no one.

The materials of which gall-stones are mostly composed are, first, cholesterin; second, lime, more especially in its combination with bilirubinate.

There is now a general concensus of opinion that the main source of cholesterin when formed in excess is the lining membrane of the gall-bladder and bile ducts. And right here we have our strong argument for removal of the gall-bladder in cases of severe recurrent attack. Lime is one of the normal constituents of the bile. It is doubtful if it is secreted in any quantity, or at all, by the liver cells. Most probably it is entirely the product of the disintegration of the cells lining the hepatic ducts. It is evident that not only cholesterin, but bilirubinate of lime, and all the materials that go to the formation of stones, have their origin in something that produces irritation of the lining membrane of the gall-bladder and bile-ducts.

The indirect causations of gall-stones are:

1. *Heredity*.—That there is an hereditary tendency to gall-stones we may regard as probable, but, like many things else in the field of medicine, as “not proven.”

2. *Age*.—Under twenty years of age they are seldom found, but more frequently as age advances.

3. *Sex*.—Gall-stones are four or five times more frequent in women than in men, and the causes are universally referred to pregnancy, diseases of the uterus, corset-wearing, and to some extent to sedentary habits.