[327] of urea in relation to nitrogenous metabolism through the activity of the liver cells. This consists in the conversion of certain nitrogenous bodies (NH_3, amino acids, etc.) into urea, which in turn is carried to the kidneys, where it is excreted. (3) The formation of bile, which is in part an excretion carrying with it waste material and in part a secretion concerned in digestion, playing an important rôle, particularly in the absorption of fats.

Other functions are frequently ascribed to the liver. Their connection with it, however, is not so well established and they have not played so important a rôle in the studies of liver physiology. In this group must be considered the formation of fibrinogen and of antithrombin. Undoubtedly still other important functions exist of which at present little or nothing is known.

The Function of the Liver in Disease.

With the occurrence of disease in the liver, functional changes undoubtedly appear. Their character varies greatly with the nature of the underlying pathological processes at work. They can be associated with, or totally independent of, morphological changes, macroscopically or microscopically demonstrable. In most of the outspoken diseases of the liver, however, recognizable objective anatomical alterations occur,
[328] such as enlargement or contraction, changes in consistency, etc. They may or may not be associated with evidence of portal obstruction, ascites, the development of enlarged collateral circulatory channels or of biliary obstruction—jaundice, bile in the urine, acholic stools, etc.

Through routine clinical histories and examinations, with a study of the urine and fæces, the presence or absence of liver disease can be readily determined in most cases. Information concerning the severity of the disease and the extent of the involvement of liver function is, however, not so readily obtained. In certain liver affections symptoms either of an obstructive or toxic nature are ascribed to the liver changes. There is not, however, a well-defined symptom complex which can be accepted as the picture of hepatic insufficiency, such as exists, for instance, in relation to diseases