excised before administering intraperitoneally 2.5 cc. of a 10% bile salt solution per kilo. Even though a peritonitis identical with bile peritonitis was produced no fat necrosis was observed.

The data in this investigation tend to show that bile free in the peritoneal cavity will produce fat necrosis. Experiments with bile salt solutions show that the bile salts are the active agents in the bile. Although there is no evidence to show that bile salts *per se* will produce fat necrosis there is evidence to show that bile salts free in the peritoneal cavity and the presence of the pancreas are essential for its production. Inasmuch as there is no gross nor microscopic evidence of pancreatic necrosis, it is necessary to postulate that the pancreatic enzymes were liberated by permeability changes produced by the local action of the bile salts on the pancreas.

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Effect of Stasis on the Calcium Content of the Bile.

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When bile is stored in the gall bladder its solid constituents undergo a 6 to 8 fold concentration due to the absorption of water. This should produce very high calcium levels theoretically, unless some of the calcium was also absorbed. The solution of this problem is of interest on account of the calcium content of gall stones.

Dogs were anesthetized with ether, the abdomen opened and the cystic duct clamped immediately to prevent emptying of the gall bladder. Then the common duct was opened, cannulae inserted and sufficient liver bile collected for analysis. In 5 experiments the average content of the liver bile on fasting animals was 14.6 mg. per 100 cc. while the simultaneous gall bladder bile contained 52.2 mg. per 100 cc. This is a concentration of about three and a half times, considerably less than the total concentration of the bile, indicating that some calcium as well as water had been absorbed.

The average concentration of normal cystic duct bile in 10 control electrocuted fasting animals was 47.7 mg. In 11 animals in whom the cystic duct had been ligated for varying periods the average calcium content was 39.2 mg. per 100 cc. indicating that a progressive absorption of calcium was taking place. These figures do not truly represent the amount of absorption as the total volume of the gall

bladders was always much less after cystic duct ligation. This of course could not be measured quantitatively but it was grossly quite apparent.

Jaundice had no effect on the procedure. When common duct ligation as well as cystic was done the average for the series was 41.6 mg. per 100 cc. Common duct ligation alone leaving the cystic duct open gave an average of 39.9 mg. per 100 cc. for the cystic bile.

Studies on the gall bladder from dogs with cystic duct ligatures were made at intervals of 2 months. In the later observations in each case the calcium content had been reduced 40-50%.

Some of our dogs showed severe inflammatory changes in the gall bladder, and 4 developed actual empyema. In these the bile calcium was lowest of all the series falling within the range of normal liver bile.

The experiments recently reported by Wilkie[1] indicated that in rabbits experimental infectious cholecystitis gave rise to cholesterin stones if the cystic duct was open and to calcium ones if it was ligated. Our experiments were done on dogs as rabbits' gall bladders are too small to get adequate samples for chemical study. They certainly do not indicate that there is a concentration of bile in the gall bladder after cystic duct ligation.

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Simultaneous Direct and Indirect Blood Pressure Determinations.*

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In experiments on dogs, Erlanger[1] found that the direct blood pressure in the femoral artery was but slightly higher than the indirect pressure. Kolls[2] and Allen[3] found very little difference between the results of cannulation and the auscultatory method of blood pressure determination on both normal unanesthetized and

[1] Wilkie, A. L., *Brit. J. Surg.*, 1928, **15**, 450.

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[1] Erlanger, J., *Am. J. Physiol.*, 1915-16, **39**, 401.

[2] Kolls, A. C., *J. Pharm. and Exp. Therap.*, 1920, **15**, 443.

[3] Allen, F. M., *J. Met. Research*, 1923, **4**, 431.