Unmyelinated fibers having exactly the same appearance are found in large numbers in the vagus[5] and splanchnic nerves.[6]

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Gall Bladder Visualization and Jaundice.

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In this study we were interested in 2 questions: (1) Does tetraiodophenolphthalein when present in the gall bladder disappear following obstruction of the common bile duct on the ingestion of meals containing fat? (2) What is the effect of existing obstructive jaundice on the visualization of the gall bladder? To answer the first question the gall bladders of 5 dogs were visualized with tetraiodophenolphthalein, the common bile duct was ligated and meals containing fat were given daily. This is a repetition of the experiment of Copher.[1] It was found that the shadow becomes more dense for 2 or 3 days following the ligation of the common bile duct and this density is maintained as long as 2 weeks after the ligation. We did not follow any of the dogs for a longer period. These findings confirm those of Copher.

To answer the second question the common bile ducts of 5 dogs were ligated, and from 60 to 96 hours later the tetraiodophenolphthalein was injected. It was found that in 2 dogs the gall bladder was faintly perceptible in 14 hours, in one dog in 22 hours, and in the 2 others in 50 hours. At later periods up to 114 hours, the shadow slowly became more visible, but "normal density" was not obtained in any of the dogs. In each of these dogs the gall bladder was visualized and evacuated with egg yolk prior to common duct ligation. The presence of jaundice did not increase the toxicity of the dye.

It has been maintained by some writers[2] that the bile which enters the gall bladder is normally resorbed *in toto*. If this were true, it would be possible to claim that the disappearance of the gall bladder

[5] Chase, M. R., and Ranson, S. W., *J. Comp. Neurol.*, 1914, **24**, 31.

[6] Ranson, S. W., and Billingsley, P. R., *J. Comp. Neurol.*, 1918, **29**, 405.

[1] Copher, G. H., *J. Am. Med. Assn.*, 1925, **84**, 1563.

[2] Halpert, B., and Hanke, M. T., *Am. J. Physiol.*, 1929, **88**, 351.

shadow on the ingestion of a meal is due not to evacuation of the gall bladder, but to increased resorption of the dye. However, our results show that the ingestion of a number of meals with the common duct tied does not cause a decreased density nor a disappearance of the shadow. The only way to explain adequately the disappearance of the shadow in the dog 2 or 3 hours after a meal of egg yolk or within an hour after the injection of cholecystokinin is that most of the gall bladder contents leave via the biliary passages. In view of the mass of data in the literature on man, the cat and the dog showing that the gall bladder can evacuate, one cannot avoid accepting the foregoing explanation as a proven fact for these animals.

The results on the second question demonstrate that in obstructive jaundice in the dog the gall bladder does not visualize in a normal manner in that it is slow in visualizing and the density of the dye does not develop to the usual extent. This result is not surprising in view of the fact that the formation of bile is decreased in obstructive jaundice. Recently Rudisill[3] has found that the gall bladder of man may visualize in certain types of jaundice. Rudisill also found that in jaundice in man the toxicity of the dye is not increased, which we have confirmed in the dog.

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Protein Digestion in the Human Stomach.

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The primary function of the stomach being to digest protein, it would be desirable to be able to determine the actual accomplishment of the stomach in health and disease as far as protein digestion is concerned, instead of relying on acidity determinations as an indication. Determinations of the ratio of soluble to insoluble protein in gastric contents following a test meal might give useful information provided that the gastric contents remained a uniform suspension, and provided solid and liquid left the stomach at the same rate. On the other hand, if insoluble iron oxide were mixed with the flour and baked into the bread used as a test meal and if this oxide adhered to the undissolved portion of the gastric contents,

[3] Rudisill, H., *J. Am. Med. Assn.*, 1930, **95**, 1425.