alter their permeability to sodium chloride, whereas membranes prepared under the same conditions containing fifty per cent. of "Lecithin" by weight become relatively semi-permeable with decreasing drying times.

II. Changes in the sizes of the aggregates of the lecithin molecules is suggested as a possible influence on the permeability of the lecithin-collodion membranes.

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Notes on studies in the physiology of the gall bladder.

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In undertaking the following animal experiments on the nature of the expulsive action of the gall bladder, we had particularly in mind the investigation of the modus operandi of magnesium sulphate when applied to the papilla of Vater as suggested by Meltzer.

Laparotomy and duodenotomy was performed on several dogs anesthetized with chloretone. Observation of the gall bladder immediately after laparotomy showed a distended bladder in all except one animal. The flaccid bladder was seen in a fasting dog.

A solution of methylene blue was injected into the gall bladder to differentiate its content from the bile flowing from the liver. The duodenal mucosa in the region of and including the papilla of Vater was irrigated with magnesium sulphate solution; although an increased flow of bile was observed, no expulsion of the gall bladder content was noted. This observation was carried on for several hours in a series of eight dogs. The gall bladder retained its bile independent of whether the dog was in the fasting or the actively digesting state.

Stimulation of liver bile flow as obtained with magnesium sulphate was also observed after the application of sodium sulphate, sodium phosphate, peptone, *N*/10 hydrochloric acid, bile and sodium glycocholate. No stimulation was seen after the application of water, sodium chloride or sodium hydroxide.

Attempts to produce contraction by nervous stimulation were unsuccessful. Strong direct faradic stimulation of the organ failed to produce contraction or expulsion of contents.

A series of experiments, in which phenoltetrachlorphthalein was injected intravenously and subsequently recovered when excreted in the bile, showed the appearance of this substance in the duodenum in from ten to fifteen minutes after injection. A flow into the gall bladder of liver bile was demonstrated by the recovery of the phenoltetrachlorphthalein from the bladder bile when the cystic duct was patent. None of the dye was found in the sac when the duct was tied off.

Observations on the filling of gall bladders emptied by digital compression showed the filling to be a slow and irregular process in spite of the fact that the bile flow into the duodenum may or may not be continuous. Bile flow into the duodenum was observed with regularity in the cases of fasting dogs as also in the absence of immediate digestion.

Stasis of gall bladder contents was investigated in a series of experiments in which, under aseptic precautions, a sterilized suspension of an inert finely divided substance (charcoal or carmine) was introduced into the gall bladder. The dogs were permitted to live for periods of 12 hours, 1, 3, 7 days. During these periods they were fed a mixed ration of protein, fat, carbohydrate and water. At autopsy, the coloring matter was recovered from the gall bladders up to and including three days. No traces were found in intestinal washings. The bladder was found to have emptied in one week. Patency of the ducts was shown by the slight digital pressure needed to expel the bladder contents.