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7047 P

Mechanism of Pancreatic Secretion.

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In a series of experiments performed on cats anesthetized by urethane, Mellanby[1] found that the introduction of bile of the proper reaction into the duodenum caused a copious secretion of pancreatic juice. The activity of the bile was found to be due to cholic acid and its compounds. The interpretation suggested was that the bile salts in the duodenum become associated with and make possible the absorption of secretin into the portal blood, and that this event rather than the passage of acid from the stomach is responsible for pancreatic secretion. It would seem to follow, if this theory were true, that the removal of bile from the intestine would check or greatly decrease the secretion of pancreatic juice. To determine this point, pancreatic and biliary fistulae were prepared in each of 2 dogs. The method has been previously described (Dragstedt, Montgomery, and Ellis[2]), and permits the quantitative collection of each secretion during an entire 24 hour period or for several days. In the first test animal I secreted 4609 cc. of pancreatic juice and 692 cc. of bile in 6 days, when practically all of the bile and pancreatic juice was returned to the alimentary tract. During the succeeding 6 days no bile was returned and 5998 cc. of pancreatic juice and 416 cc. of bile were secreted. In the second test 3971 cc. of pancreatic juice and 752 cc. of bile were secreted in 6 days when both secretions were returned to the stomach whereas in the succeeding 6 days when only the pancreatic juice was returned, 4688 cc. of pancreatic juice and 426 cc. of bile were secreted. The results obtained with animal 2 were essentially similar. In each case the dog secreted a little

[1] Mellanby, J., *J. Physiol.*, 1925, **60**, 85; 1926, **61**, 419, 489; 1928, **66**, I, **64**, 331.

[2] Dragstedt, L. R., Montgomery, M. L., and Ellis, J. C., PROC. SOC. EXP. BIOL. AND MED., 1930, **28**, 109.

more pancreatic juice when no bile was present in the intestine than when it was returned by mouth.

It seems quite definite, therefore, that, in the dog at least, bile salts cannot be considered essential either for the activation of pancreatic secretin or for its passage into the blood in effective form.

7048 C

Removal of Bromsulphalein from the Blood Stream by the Reticulo-Endothelial System.

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The early work of Aschoff, Ribbert, Goldmann and Kiyono showed that colloidal dyes are removed from the blood stream by the reticulo-endothelial system. Phenoltetrachlorphthalein, a colloidal dye, was shown by Schellong and Eisler[1] to remain longer than normally in the blood stream of rabbits following India ink injection or splenectomy and Saxl and Donath[2] obtained similar results after electrocollargol injections in humans. Merklen, Wolf and Arnovljevitch[3] and Fiessinger and Longchampt[4] believed this dye to be a test of the reticulo-endothelial system rather than of the liver.

Bromsulphalein, introduced by Rosenthal and White,[5] to estimate liver function is supposed to circulate as a soluble dye and to be more specifically excreted by the liver than phenoltetrachlorphthalein. Herlitz,[6] however, on the basis of clinical investigations, called attention to the possibility that bromsulphalein might be excreted through the reticulo-endothelial system in general and Kupffer cells in particular rather than through the hepatic parenchyma. To investigate this we performed bromsulphalein tests on dogs which had been splenectomized or had received India ink injections.

Control dye tests were done on 11 apparently normal animals.

[1] Schellong and Eisler, *Z. f. d. ges. exp. Med.*, 1928, **58**, 738.

[2] Saxl and Donath, *Wien. Arch. f. i. Med.*, 1927, **13**, 7.

[3] Merklen, Wolf and Arnovljevitch, *Bull. et Mem. de la Soc. Med. des Hop.*, 1925, **49**, 1180.

[4] Fiessinger and Longchampt, *Presse Med.*, 1925, **33**, 1873.

[5] Rosenthal and White, *J. Pharm. Exp. Therap.*, 1924, **24**, 265.

[6] Herlitz, *Acta. Paediat.*, 1931, **12**, 1 (Supp. 5).