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Dye Excretion by the Pancreas.

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With a view of perfecting some test whereby the degree of the external secretory response of the pancreas may be accurately measured in man, we have attempted to determine the permeability of pancreatic acinus tissues to certain dyes intravenously administered.

We have used dogs, in which the main pancreatic duct has been cannulated and connected to a stoppered rubber bag by means of a Rehfuß tube. In some of our preparations, we have in addition ligated the lesser pancreatic duct, the common bile duct, or both. With such a fistula the pancreas secrete copiously. Our procedure has been to stimulate secretion by means of food or water, and then to inject intravenously from 30 mg. to 60 mg. of dye, depending upon its density, dissolved in 25 cc. of physiological salt solution. The continuous secretion has subsequently been followed at 15 minute intervals for periods of an hour or more, and then at irregular intervals for twenty-four hours.

Thus far we have run one or more injections of some 32 dyes, namely, Acid blue, Acid orange, Acid violet, Alizarine blue S., Alkali blue 6B, Aniline blue, Bieberich's scarlet, Bluish eosin, China blue, Congo red, Erythrosin, Hofmann's violet, Indigo carmine, Mendola's blue, Methylene azure I, Methylene blue, Methylene violet, Neutral red, Neutral violet, Orange G crystals, Orange I, Patent blue, Phloxine, Poirrier's blue, Pyrrol blue, Rose Bengal, Thymol sulfonphthalein, Toluidine blue, Tropeolin O, Tropeolin 000 No. 1, Tropeolin 000 No. 2, Trypan blue.

Of these, only two have appeared in the external pancreatic secretion. A heavy dose of methylene blue gives a faint bluish tinge to the secretion at the end of two hours; and a rather heavy dose of methylene violet colors the secretion a distinct reddish violet in from 2 to 3 hours. Methylene violet is toxic in large doses.

Although the pancreatic acinus appears to be a very selective secreting unit, we propose to extend our observations until we have a more complete knowledge of its permeability to other dyes.

This is a preliminary report.