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A demonstration that a hormone is concerned in external pancreatic secretion.

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A dog with the tail of the pancreas transplanted under the skin, and a Thiry fistula of the jejunum was demonstrated. The continuous secretion of the pancreatic transplant was collected for two hours. It amounted to 0.4 cc. Normal twentieth hydrochloric acid was applied by perfusion to the mucosa of the Thiry fistula after washing it with warm 0.9 per cent salt solution. After a latent period of 5 minutes a copious flow of juice from the pancreatic transplant resulted, amounting to 0.5 cc. in twenty minutes.

This experiment clearly demonstrates that when dilute hydrochloric acid (from N/10 to N/20) is applied to the intestinal mucosa something (a hormone, we believe) is caused to enter the blood or lymph stream which excites the cells of the pancreas to form pancreatic juice.

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Blood sugar during the crisis of malarial fever.

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In previous papers¹ we have called attention to the fact that a distinct balance exists in the autonomic orientation between the peripheral region of the body and the splanchnic area. Müller² has studied the relation of this balance to the distribution of

¹ Petersen, W. F., Levinson, S. A., and Hughes, T. P., *J. Immunol.*, 1923, viii, 323-407; Müller, E. F., and Petersen, W. F., *Kl. Wchr.*, 1926, v, 2.

² Müller, E. F., *Arch. Int. Med.*, 1925, xxxv, 796.

leukocytes, while in our own work with the lymph we have studied the alternations in permeability. In the present series of observations we have studied the changes in the blood sugar during malarial fever (artificial inoculation) with particular reference to the crisis.

In the fasting patient we have determined that the period of the chill and rise in temperature is associated with a decrease in the blood sugar level. This corresponds to the time of a peripheral leukopenia and a diminished concentration of blood protein. With the crisis and fall in temperature, blood sugar increases, leukocytes increase in the peripheral blood stream and the blood proteins increase. These pictures can be regarded as a result of a reversal of the autonomic balance. In the first stage we have a peripheral sympathetic tonus with a splanchnic parasympathetic orientation; in the period of defervescence, a peripheral parasympathetic and splanchnic sympathetic tonus. We cannot, of course, exclude the effect of metabolic utilization of the sugar. We believe, however, that the magnitude of the sugar mobilization during the period of defervescence would indicate a splanchnic sympathetic effect.

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The culture of planarian tissues *in vitro*.

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This preliminary paper is devoted to a description of the technique and some suggestive results of the culture *in vitro* of the tissues of the flatworm, *Planaria dorotocephala*. Practical sterilization of the material has been accomplished by exposing the worms, in a small amount of water, to ultra-violet radiation from a quartz mercury arc lamp at a distance of 35 cm. during 4 minutes. After such an exposure the bacteria associated with the worms are practically all killed or prevented from reproducing, without injury to the worms. The hanging-drop, as well as the petri-dish technique were used for the tissue cultures.

Buffer solutions composed of the common physiological salts,