The section of the nerve was performed in January, 1913, and sensibility, at the time of writing, is not yet normal. It is, therefore, too early to present any definite conclusions. In general, however, the following points, subject to such modification in details as a subsequent working over of the data in the light of the completed experiment may necessitate, may be noted: (1) The section of the cutaneous nerve did not destroy the sensibility of the subcutaneous tissue, which provided to a considerable extent the capacity for localization. (2) With the exception of certain early general pains, that were probably, strictly speaking, not of cutaneous origin, it may be said that the return of warmth, cold, pressure, and pain began at approximately the same time. (3) The regions insensitive to these four qualities of sensations, both immediately after the section of the nerve and during the period of returning sensibility, were approximately, but by no means exactly, the same. (4) On the whole, the return of sensitivity tended to begin at the outside of the affected area and to progress toward the center, although decided irregularities in this course appeared. (5) In general, hypoesthesia preceded normal sensitivity, periods of hyperesthesia, however, being noted for pain and for cold. (6) The observations up to the present time indicate that the return to normal sensitivity will not be simultaneous in the cases of the four sense qualities and that the return in the case of temperature sensations is the more rapid.

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The alleged discharge of the internal secretion of the pancreas into the lymph.

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In 1898 Biedel[1] reported a "new form of experimental diabetes" by ligation of the thoracic duct and by establishing a fistula of the thoracic duct. These results were interpreted as proving that the internal secretion of the pancreas reaches the blood indirectly via the lymph of the thoracic duct, and led to attempts to modify or control diabetes by treatment with lymph from the thoracic

[1] Beidl, *Centralb. f. Physiol.*, XII, p. 624.

duct, with contradictory and practically negative results.[1] In cases where we have adequate tests for the internal secretion of an organ (for example, the adrenal glands) it has been shown that these secretions pass directly into the blood, not into the lymph. Despite this, the view that the internal secretions are discharged primarily into the lymph appears to be an attractive one to many physiologists, as shown by the survival of this theory in the case of the thyroids, and the recent attempts to secure evidence for the theory in the case of the hypophysis.

It is not clear that the glycosuria reported by Biedl following interference with the thoracic lymph is true pancreatic diabetes. Ligation of the thoracic duct may cause a temporary hyperglycosuria owing to injury of the liver by the edema from the back pressure of the lymph. And the fistula experiments do not exclude a temporary glycosuria due to the operation and the anesthesia.

We have repeated the thoracic duct fistula experiment of Biedl in two dogs with negative results. We found it impossible to maintain a continuous flow of lymph with a cannula in the duct owing to clotting. We therefore ligatured the veins in such a way that the thoracic lymph discharged into the external jugular vein, and this vein was slit open and secured to the skin, thus allowing free escape of the lymph. The dogs were under constant observation throughout the experiment, so that there was no retention of lymph from clotting at the slit in the jugular vein. In Dog I there was free escape of the thoracic lymph for 32 hours, in Dog II for 33 hours. The urine drawn from time to time by catheter showed no sugar at any time. The dogs showed an abnormal thirst, but the total secretion of urine was less than normal, owing probably to the continued loss of lymph.

Since extirpation of the pancreas brings on diabetes in from 6–10 hours, while complete elimination of the thoracic lymph for 32–33 hours does not induce even mild glycosuria, it is evident that the internal secretion of the pancreas enters the blood directly and not indirectly via the thoracic duct.

[1] The literature is discussed by Allen, "Glycosuria and Diabetes," Boston, 1913.