

numerous in the tail than in the body or head. In tissues treated with Müller's fluid they appear, under low magnification, as conspicuous points of a bright yellow color. With high magnification they are found to be composed of small polygonal cells having a round nucleus and homogeneous protoplasm. These islands, therefore, are really ductless glands imbedded in the substance of the pancreas.

Without going into details, it may be briefly stated that Opie found that in a certain percentage of the cases of interstitial pancreatitis diabetes was an accompaniment of the disease. He showed that the diabetes occurred especially in the interacinar form of pancreatitis, in which the interstitial tissue grows in and surrounds the individual acini, rather than in the interlobular type of the disease. What was of most importance, however, was the observation that diabetes was associated only in those cases where the islands of Langerhans were practically completely destroyed, and this was naturally most likely to occur in the interacinar type. The thought naturally occurred to Opie to make a systematic histological examination of the pancreas in a consecutive series of fatal diabetes cases. He found that in nearly every instance the islands were almost completely destroyed and had undergone a hyaline degeneration. Ssobolew, working independently, published in 1901 practically identical observations on the relationship between disease of the islands and diabetes. In view of the intimate relationship, in his series, between involvement of the islands and diabetes, Opie was led to conclude that there was a very intimate connection between them and carbohydrate metabolism. Laguesse and Schäfer had previously suggested that the islands furnish an internal secretion in the same manner that the thyroid and adrenals do. Owing to their minute size and the impossibility of isolating them from the rest of the gland substance, it has been practically impossible to produce experimental evidence supporting this view, although Ssobolew claims to have done so. Occurring as ductless glands, and being surrounded by a rich capillary network, it is extremely probable that these islands secrete some substance—call it a “glycolytic ferment” after Lépine if we will—which enters the circulating blood, and which is necessary for the proper combustion of carbohydrates in the system.

From what has been said it will be perfectly obvious to everyone that a careful microscopic examination of the pancreas is necessary before excluding it as a cause of diabetes. The gland on macroscopic examination may appear perfectly normal, while on microscopic study these small islands may be found completely degen-