

or removal of the upper thoracic ganglion. All of them being operations which more or less paralyze the vaso-motor nerves of the liver. (Tyson.)

In a paper by Dr. Hall White, on "the sympathetic system in diabetes," reprinted in the *Brit. Med. Jour.* 1884, pp. 1245 and 1246, he says that by microscopic examination some change in the nerves was found, usually of a chronic inflammatory nature. There was much increase of small cells, great engorgement of vessels, and new growths of fibrous tissue, and such other important changes that he concludes, that the cause of diabetes resides in the sympathetic nervous system. This view is still further strengthened by the fact, that irritation of the central end of the cut vagus will produce glycosuria, but irritation of the peripheral end of the cut nerve *will not produce it*; indicating that the influence of the sympathetic is required.

Since irritation of the cut end of the vagus which remained in connection with the brain was found to produce glycosuria, it was rationally concluded that the pneumogastric conducted the irritation as a sensory nerve, and therefore that irritation of the peripheral distribution of the pneumogastric in any organ to which it is distributed, would, by reflex action, cause it also; thus the *action* of certain drugs, of abnormal states of the stomach, liver, and other organs to which the pneumogastric is distributed, in giving rise to the disease, is accounted for. Irritation of other parts of the sympathetic system of nerves, or of sensory nerves, by diseased organs or otherwise, may, by reflex action, become a chief factor in the causation of this disease. Hence we find in the *Brit. Med. Jour.*, July 11, 1885, a case recorded by Francis Imlach, M.D., in which diabetes was due to ovarian irritation from chronically diseased ovaries, and which was cured by bromide of ammonium and Clemen's solution of the bromide of arsenic, after the "uterine appendages" had been removed. Hence we find such cases as those described by Lawson Tait, which occur in women about the time of the menopause, and which terminate after their systems become accommodated to their changed conditions. Mr. Tait, however, associates eczema of the vulva with these cases. These three conditions no doubt are often found together, but cessation of the menses is not a necessary accompaniment of the diabetes which causes eczema of the vulva; for I

have now in my mind the cases of two women, both suffering in a similar manner with diabetes and eczema vulvæ, the one since her menopause a few years ago; the other, being younger, and having had two children since the accession of the diabetes. Some observers maintain that saccharine urine and certain conditions of the menstrual functions, have an interdependence on one another; and this would not be strange, when we consider the sugar-producing powers of lactation; but it is, nevertheless, doubtful.

Some also have detected marked changes in the brain and spinal cord, in subjects who have died of diabetes; while other, and perhaps equally as acute observers, have not been quite satisfied as to the origin and value of such lesions, or whether they were a cause or a consequence in their relation to diabetes.

Of the *abdominal* organs, the pancreas is the one most frequently affected, a thing we should expect to find on account of the important part which it plays in the digestion of fatty and amylaceous matters. According to Tyson's statements, "it undergoes a pseudo-hypertrophy, consisting chiefly in a hyperplasia of the connective tissue, fatty degeneration of the gland-cells, and atrophy of the glandular structure." Cancerous disease, calculous concretions in the ducts, cystic dilatation, etc., have all been enumerated amongst the post-mortem conditions of the pancreas after diabetes. But I may remark just here, that cancerous disease of the pancreas does not *necessarily* cause diabetes; for, less than two years ago, I assisted at a post-mortem examination of a professional brother dead from cancer of the pancreas, and amongst his symptoms had been loss of appetite, little thirst, scanty and high colored urine, and ascites; symptoms entirely opposite to those indicating diabetes.

The *liver* is occasionally changed in character, sometimes being more or less enlarged; at other times being found atrophied. But either of these conditions might be a consequence of the pancreatic disease.

Other authors, from the time of Cullen down to the present, have not been able to connect a diseased state of the liver with diabetes in all cases, inasmuch as it is frequently found quite unchanged, and apparently healthy after death from this disease.