

rine matter."—(*Proct. Pylh. Art. 1510.*) Since his time its origin has been sought for, one might say, in all the different organs and tissues of the body. The brain and the nervous system—especially the sympathetic—it has been shown, play a very important part in the production of glycosuria. Some of the experimental operations which may give rise to it are the following, viz. :—

1. Irritation of the diabetic centre, which is situated in the floor of the fourth ventricle, at the roots of the pneumogastric nerves.

2. Transverse section of the medulla oblongata.

3. Section of the spinal cord above the second dorsal vertebra.

4. Section of the filaments of the sympathetic nerve accompanying the vertebral artery.

5. Destruction or extirpation of the superior cervical ganglion.

6. Sometimes, but not always, division of the sympathetic on the chest.

7. Section or extirpation of the last cervical ganglion.

8. Section of the two nerve filaments passing from the inferior cervical to the superior thoracic ganglion.

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

In a paper by Dr. Hall White, "On the Sympathetic System in Diabetes," reported in the *Brit. Med. Journal*, 1884, pp. 1245, 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 resided 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, and that this influence must proceed from a ganglion, or, in this case, be reflected from the central termination at the

medulla oblongata of the fibres which accompany the vertebral arteries, or other fibres passing down to a lower ganglion. 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. Journal*, July 11, 1885, a case recorded by Francis Imlack, 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 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 two women, both suffering in a similar manner with diabetes and eczema vulva,—one since her menopause a few years ago; but 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;