

nized consisted in a dilatation of the blood-vessels, particularly of the arteries of the cerebro-spinal centres, with extravasation into the adjacent nervous matter, which had undergone secondary changes in consequence. These changes consisted in a degeneration and absorption of the peri-vascular nervous tissue, producing cavities or excavations, which were found in constant association with the arteries . . . in every part of the spinal cord and encephalon, attaining their greatest development in the medulla oblongata and pons varolii. The excavations were generally the most marked where the blood-vessels piercing the brain were the largest and most numerous." Dr. Dickinson refers these effects to the previously dilated condition of the vessels, the consequent thinning of the walls of which, no doubt, greatly facilitated the extravasation. He argues, very forcibly too, that these results are not chargeable to the state of the blood, inasmuch as "the veins and capillaries appeared to take no share in the morbid process," as they might be expected to do, if the extravasation were depending to any considerable extent on the condition of that fluid. Hence, he concludes, not only "that diabetes is primarily and essentially a nervous disease," but also that "a widening or distension of the arteries is the initial change in the pathological series." (*Med. Chir. Trans.*, 1870, p. 251; *Braith. Retrospect*, July, 1871, pp. 105-107.)

These references will suffice for this part of the subject; and as no fact in physiology is better established than that the calibre of the arteries is under the control of the vaso-motor nervous system, we pass at once to the enquiry, Are the vaso-motor nerves paralyzed, or excited, when they thus permit or produce arterial dilatation?

On the generally accepted vaso-motor theory, arterial dilatation is the result of vaso-motor paralysis, just as arterial contraction is held to depend upon vaso-motor excitation. We have had the boldness to challenge this theory; and in our recently published "Physiological Therapeutics," we have cited numerous examples of the failure of this theory to account for the facts with which we believe we are justified in stating it is under no circumstances in accord.

We have further endeavoured to show that the real function of the vaso-motor nerves is to dilate the arteries, (as when excited, in flushing, blushing, &c.) and that the arteries owe their reduction of calibre to the inherent contractile power of their muscular tissue. Thus, in death, when nerve-force is extinct, the entire arterial system is contracted; whereas, if the accepted vaso-motor theory were true, they ought to be here dilated, since nerve-force no longer induces their contraction. We cannot refer to the facts and arguments in support of our thesis, just referred to, in this place; but, taken in connection with some additional facts regarding diabetes, we think strong ground will appear for the conclusion that in the arterial dilatation of diabetes, as well as elsewhere, the vaso-motor nerves are excited, and not paralyzed;—and that the treatment ought to be regulated accordingly.

These facts are:—It is favourable to the view that the vaso-motor nerves are not paralyzed; that in Dr. Dickinson's cases "such parts of the sympathetic system as were examined, [microscopically] namely, the upper cervical and the semilunar ganglia, were apparently natural," and "the nerve-cells of the brain and cord [in which the vaso-motor nerves originate] generally perfect;" whereas, in paralysis, especially of the insane, there is often wasting of the nerve-cells.

If diabetes originated in paralysis of the vaso-motor centres in the medulla and cord, we ought to find evidence of contemporaneous paralysis of other portions of the nervous system, and as a consequence, that the onset of the disease would be characterized by weakness, exhaustion or debility. But the very opposite is the case, as a rule. Thus, M. Andral, of the French Academy, reports to that body, that of 84 cases of this disease, he has been able to trace the diabetes to defective nutrition in but very few cases, and he observes that "during the many years that I have attended persons of all classes of society, in and out of hospitals, I have met with a larger number of cases among the well-to-do than among the poor. . . . I have found more than once that persons before they became diabetic were remarkable on account of the strength of their constitution, some of them