

DR. R. MAURICE BUCKE

ON THE FUNCTIONS OF THE GREAT SYMPATHETIC NERVOUS SYSTEM.

MR. PRESIDENT AND GENTLEMEN,—I propose for submit to your consideration to-day some thoughts upon the functions of the great sympathetic nervous system which have occupied my mind in a more or less coherent form for many years, and if it shall seem, as it may, upon first sight, to some of you, that certain of the views which I have to propound are extravagant, I trust that you will not condemn them hastily, but as men belonging to, and worthy of, a liberal profession, that you will calmly weigh and, without passion or prejudice, adopt or reject them as shall seem to your judgment best.

Although it is necessary that you should have a tolerably clear idea of the structure and distribution of the great sympathetic in order to follow me in the remarks which I propose to make, yet I do not intend to do more than to recall briefly to your minds the general outlines of this part of the subject, with which you are all of necessity more or less familiar. You will recollect that the great sympathetic consists in the first place of a double chain of ganglia over fifty in number extending from the base of the brain along the sides of the spinal column to the coccyx; in the second place of certain ganglia such as the superficial and deep cardiac, the semilunar, and innumerable others named and unnamed, scattered among the thoracic, abdominal, and pelvic viscera; and thirdly of innumerable nerve cords, these last being capable of division into three classes; namely: (1) those which connect the sympathetic ganglia to one another, these are not strictly speaking nerve cords, but are prolongations of the ganglia in a cordlike form; (2) next those which connect the sympathetic with the cerebro-spinal nervous system; and (3) lastly those which arising in the sympathetic ganglia are distributed to the various organs which are supplied with nerves from this nervous system. The only other thing to be especially remarked about the structure of this great nerve is the immense number and great complexity of its plexuses. These plexuses, speaking generally, are made up of nerve cords from different sympathetic ganglia, of filaments derived from spinal nerves, and others from cranial nerves; that is, in a given plexus there will unite nerves from perhaps two, three, or more sympathetic ganglia, with filaments from one or more spinal nerves, and perhaps from one or two cranial nerves; from these plexuses the nerves proceed to their ultimate distribution, the object of the plexus seeming to be to bring together and combine these various elements in order to form an extremely complex nerve. Now as regards the ultimate distribution of the great sympathetic, a matter of great importance to us in deciding upon its functions; in the first place it sends branches to all the spinal and cranial nerves, which presumably follow the course of those nerves and are distributed with them to the organs supplied with nerves by the cerebro-spinal nervous system. Secondly it is probably distributed to the coats of all the arteries in the body, though the arteries carrying blood to the head, face, and glandular organs are better supplied by it than others; thus the common, internal, and external carotids, the phrenic, the renal, the gastric, hepatic, splenic, superior mesenteric, sacral, internal iliac, vesical and uterine arteries, are known to be freely supplied by it. Thirdly the viscera, thoracic, abdominal, and pelvic, are all supplied more or less abundantly with sympathetic nerves. I will mention the different organs in their order, according to the amount of the supply, relative to their mass, which they severally receive, as well as I have been able to ascertain it, but I must warn you that this classification is only approximative; between two such organs, for instance, as the spleen and pancreas it is impossible to say which is best supplied. You will see as we go on that this classification, although imperfect, is somewhat important in view of the deductions that we shall be able to draw from it. (1) At the head of the list beyond all question stands the heart, for it not only receives the six cardiac nerves from the upper, middle,