

**THE STRUCTURE AND
FUNCTIONS OF THE BRAIN AND
SPINAL CORD: BEING THE
FULLERIAN LECTURES FOR 1891**

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The Structure and Functions of the Brain and Spinal Cord: Being the Fullerian Lectures for 1891
by Victor Horsley

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VICTOR HORSLEY

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STRUCTURE AND FUNCTIONS
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BRAIN AND SPINAL CORD.

Being the Fullerton Lectures for 1891.

BY

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PREFACE.

THE following Lectures, which are published at the request of some of those who heard them at the Royal Institution in 1891, have no pretensions to form a monograph upon the subject of which they treat. They are merely an elementary review of it, based upon modern physiological and anatomical research. It is intended that the present volume, which discusses the spinal cord and ganglia alone, shall be followed by two others—the subsequent courses of the Fullerian Lectures—one of which has been already delivered, and the other, it is hoped, will be given in the coming year. These deal with the structure and functions of the great brain, or cerebrum, and the little brain, or cerebellum. In the last course, some of the recent results of research in Physiological Psychology will be described.

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In illustration of the present volume I am very greatly indebted to the kindness of Professors Cienkowski, Ecker, Eimer, Gad, Hæckel, His, Kleinenberg, Kölliker, Retzius, and Romanes, for the permission to use drawings from their original papers.

Several figures have also been borrowed, by kind permission, from Professors Landois and Stirling's *Text-book of Human Physiology* and other sources.

Finally, the tedious work of correcting the proof-sheets and of compiling an index has been undertaken by my wife, whose unfailing judgment and criticism I cannot sufficiently acknowledge.

V. H.

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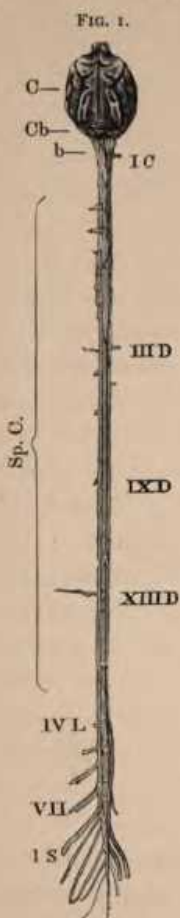
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LECTURE I.

THE study of the central nervous system, of its structure and functions, is interesting and important to every one, and not necessarily only to specialists, such as neurologists, anatomists, and physiologists. But although it is easy to construct in our minds the general outline of the nervous system, such as we see it exemplified in the higher animals, it is nevertheless impossible to connect our popular preconceptions of its function with the actual facts, as they are now being rapidly accumulated by modern research, unless we first pass in some sort of review, however brief, the growth and development of the ideas on this subject, many of which have often suffered change only after centuries had familiarised them into household words, if not household truths.

A good example of the object of our study is shown in Fig. 1—viz., the central nervous apparatus as it exists in the cat: the main parts of which are

A



familiar to all of us—the large brain or cerebrum (C), the small brain or cerebellum (Cb), and, in intimate connection with both of these, the spinal cord or marrow (Sp. C), the upper part of which is designated the medulla oblongata or bulb (b). In intimate relation with the spinal cord, observe some of the numerous spinal nerves which arise by two roots—one motor, one sensory—and are distributed to the various parts of the body.

One small point of detail I must not omit from this outline, on account of the extraordinary prominence which was given to it by the ancients—I mean the relatively unimportant fact that the central nervous system, and specially the cerebrum, is tunnelled by a small cavity, which, widening somewhat above in the large brain, is there termed the