

NEUROLOGY.

THE Nervous System is the most complicated and highly organized of the various systems which make up the human body. It is the mechanism concerned with the correlation and integration of various bodily processes and the reactions and adjustments of the organism to its environment. In addition the cerebral cortex is concerned with conscious life. It may be divided into two parts, **central** and **peripheral**.

The **central nervous system** consists of the **encephalon** or **brain**, contained within the cranium, and the **medulla spinalis** or **spinal cord**, lodged in the vertebral canal; the two portions are continuous with one another at the level of the upper border of the atlas vertebra.

The **peripheral nervous system** consists of a series of nerves by which the central nervous system is connected with the various tissues of the body. For descriptive purposes these nerves may be arranged in two groups, **cerebrospinal** and **sympathetic**, the arrangement, however, being an arbitrary one, since the two groups are intimately connected and closely intermingled. Both the cerebrospinal and sympathetic nerves have nuclei of origin (the somatic efferent and sympathetic efferent) as well as nuclei of termination (somatic afferent and sympathetic afferent) in the central nervous system. The cerebrospinal nerves are forty-three in number on either side—twelve **cranial**, attached to the brain, and thirty-one **spinal**, to the medulla spinalis. They are associated with the functions of the special and general senses and with the voluntary movements of the body. The sympathetic nerves transmit the impulses which regulate the movements of the viscera, determine the caliber of the bloodvessels, and control the phenomena of secretion. In relation with them are two rows of **central ganglia**, situated one on either side of the middle line in front of the vertebral column; these ganglia are intimately connected with the medulla spinalis and the spinal nerves, and are also joined to each other by vertical strands of nerve fibers so as to constitute a pair of knotted cords, the **sympathetic trunks**, which reach from the base of the skull to the coccyx. The sympathetic nerves issuing from the ganglia form three great prevertebral plexuses which supply the thoracic, abdominal, and pelvic viscera; in relation to the walls of these viscera intricate nerve plexuses and numerous **peripheral ganglia** are found.

STRUCTURE OF THE NERVOUS SYSTEM.

The nervous tissues are composed of **nerve cells** and their various processes, together with a supporting tissue called **neuroglia**, which, however, is found only in the brain and medulla spinalis. Certain long processes of the nerve cells are of special importance, and it is convenient to consider them apart from the cells; they are known as **nerve fibers**.

To the naked eye a difference is obvious between certain portions of the brain and medulla spinalis, viz., the **gray substance** and the **white substance**. The gray substance is largely composed of nerve cells, while the white substance contains only their long processes, the nerve fibers. It is in the former that nervous impressions are received, stored, and transformed into efferent impulses, and by the latter