the second lumbar vertebra, where it tapers off into a fine filament. Throughout its length, back and front, are deep fissures. The anterior fissure divides it in the middle line in front nearly down to the centre, and a smaller cleft, the posterior fissure, nearly extends to the centre of the middle line behind; consequently, there is only a narrow bridge of the cord connecting its two halves throughout its length, and this bridge is traversed through its whole course by a minute canal, which is termed the central canal of the cord. Each half of the cord is divided longitudinally into three equal parts—the anterior, lateral, and posterior columns—by the lines of attachment of two parallel series of delicate bundles of

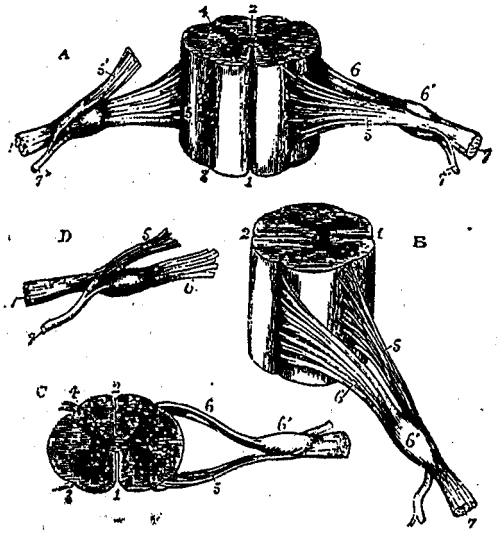

FIG. 32—The Spinal Cord; different views showing the Fissures, the origin of the nerves and the ganglia on them.

nerve filaments, which are the roots of the spinal nerves. Those that arise nearer the back surface of the cord are called the posterior roots; those which arise along the front line are the anterior roots. The trunks of these nerves pass out from the spinal cord by apertures between the vertebræ, and then divide and subdivide as they pass away to supply the different tissues to which they are distributed. There are thirty-one pairs of these spinal nerves, and consequently there are twice as many sets of roots of spinal nerves, which are given off in two lateral series from each half of the cord.

Now, experiments have proved that the action of these nerves is very different, inasmuch as those which pass off from the *anterior* part of the cord act as *motor* nerves, and those which pass off from the *posterior* part subserve the function of sensation, and so are termed the *sensory* nerves. For example, it has been shown that if, in a living animal, the anterior roots of a spinal nerve be cut, the animal loses all control over the muscles to which that nerve is distributed, although the sensibility of the region of the skin supplied by the nerve remains quite perfect. If the posterior roots, on the other hand, be cut, all sensation is lost, but the power of voluntary movement remains unaffected. If both roots be cut, movement

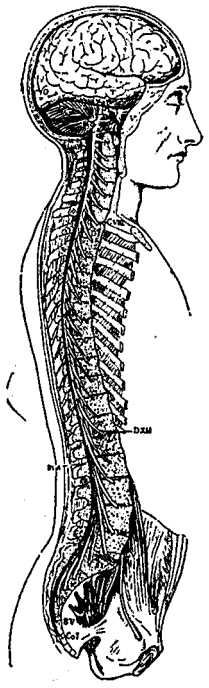

FIG. 33.—Cerebro-Spinal Column, showing Brain, Spinal Cord and Spinal Nerves.

and sensation are completely lost, the muscles are paralysed, and the skin may be cut or torn without any sensation being caused. Students have a "tip" for remembering this very important fact which nurses will find useful. It consists of the word MAPS:—M, motor—A, anterior; P, posterior—S, sensory. The importance of this knowledge in the diagnosis and comprehension of disease of the nervous system, is, as you will readily perceive, very great indeed; because by means of the symptoms it is possible to localise the exact site of the disease. You will, therefore, understand that—to go back to our original analogy—just as, when the telegraphic wires are cut, no message can be passed through them, and so the offices they supply are rendered useless, so the destruction or impairment of any part of a nerve results in the impairment or loss of power of the muscles or organs which that nerve supplies.

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