backward in the groove between the caudate nucleus and the thalamus to the amygdaloid nucleus. Other fibers are said to pass in the opposite direction from the amygdaloid nucleus to the thalamus.

PATHWAYS FROM THE BRAIN TO THE SPINAL CORD.

The descending fasciculi which convey impulses from the higher centers to the spinal cord and located in the lateral and ventral funiculi.

The **Motor Tract** (Fig. 764), conveying voluntary impulses, arises from the pyramid cells situated in the motor area of the cortex, the anterior central and the posterior portions of the frontal gyri and the paracentral lobule. The fibers are at first somewhat widely diffused, but as they descend through the corona radiata they gradually approach each other, and pass between the lentiform nucleus and thalamus, in the genu and anterior two-thirds of the occipital part of the internal capsule; those in the genu are named the **geniculate fibers,** while the remainder constitute the **cerebrospinal fibers**; proceeding downward they enter the middle three-fifths of the base of the cerebral peduncle. The geniculate fibers cross the middle line, and end by arborizing around the cells of the motor nuclei of the cranial nerves. The cerebrospinal fibers are continued downward into the pyramids of the medulla oblongata, and the transit of the fibers from the medulla oblongata is effected by two paths. The fibers nearest to the anterior median fissure cross the middle line, forming the **decussation of the pyramids,** and descend in the opposite side of the medulla spinalis, as the **lateral cerebrospinal fasciculus** (*crossed pyramidal tract*). Throughout the length of the medulla spinalis fibers from this column pass into the gray substance, to terminate either directly or indirectly around the motor cells of the anterior column. The more laterally placed portion of the tract does not decussate in the medulla oblongata, but descends as the **anterior cerebrospinal fasciculus** (*direct pyramidal tract*); these fibers, however, end in the anterior gray column of the opposite side of the medulla spinalis by passing across in the anterior white commissure. There is considerable variation in the extent to which decussation takes place in the medulla oblongata; about two-thirds or three-fourths of the fibers usually decussate in the medulla oblongata and the remainder in the medulla spinalis.

The axons of the motor cells in the anterior column pass out as the fibers of the anterior roots of the spinal nerves, along which the impulses are conducted to the muscles of the trunk and limbs.

From this it will be seen that all the fibers of the motor tract pass to the nuclei of the motor nerves on the opposite side of the brain or medulla spinalis, a fact which explains why a lesion involving the motor area of one side causes paralysis of the muscles of the opposite side of the body. Further, it will be seen that there is a break in the continuity of the motor chain; in the case of the cranial nerves this break occurs in the nuelei of these nerves; and in the case of the spinal nerves, in the anterior gray column of the medulla spinalis. For clinical purposes it is convenient to emphasize this break and divide the motor tract into two portions: (1) a series of **upper motor neurons** which comprises the motor cells in the cortex and their descending fibers down to the nuclei of the motor nerves; (2) a series of **lower motor neurons** which includes the cells of the nuclei of the motor cerebral nerves or the cells of the anterior columns of the medulla spinalis and their axis-cylinder processes to the periphery.

The **rubrospinal fasciculus** arises from the large cells of the red nucleus. The fibers cross the raphé of the mid-brain in the decussation of Forel and descend in the formatio reticularis of the pons and medulla dorsal to the medial lemniscus and as they pass into the spinal cord come to lie in a position ventral to the crossed pyramidal tracts in the lateral funiculus. The rubrospinal fibers end either directly or