

neurons the fibers of the cerebrospinal fasciculi correspond not to individual muscles, but to associated groups of muscles.

The anterior and lateral cerebrospinal fasciculi constitute the motor fasciculi of the medulla spinalis and have their origins in the motor cells of the cerebral cortex. They descend through the internal capsule of the cerebrum, traverse the cerebral peduncles and pons and enter the pyramid of the medulla oblongata. In the lower part of the latter about two-thirds of them cross the middle line and run downward in the lateral funiculus as the lateral cerebrospinal fasciculus, while the remaining fibers do not cross the middle line, but are continued into the same side of the medulla spinalis, where they form the anterior cerebrospinal fasciculus. The fibers of the latter, however, cross the middle line in the anterior white commissure, and thus all the motor fibers from one side of the brain ultimately reach the opposite side of the medulla spinalis. The proportion of fibers which cross in the medulla oblongata is not a constant one, and thus the anterior and lateral cerebrospinal fasciculi vary inversely in size. Sometimes the former is absent, and in such cases it may be presumed that the decussation of the motor fibers in the medulla oblongata has been complete. The fibers of these two fasciculi do not acquire their medullary sheaths until after birth. In some animals the motor fibers are situated in the posterior funiculus.

(b) The **rubrospinal fasciculus** (Monakow) (*prepyramidal tract*), lies on the ventral aspect of the lateral cerebrospinal fasciculus and on transverse section appears as a somewhat triangular area. Its fibers descend from the mid-brain, where they have their origin in the red nucleus of the tegmentum of the opposite side. Its terminals and collaterals end either directly or indirectly in relation with the motor cells of the anterior column. The rubrospinal fasciculus is supposed to be concerned with cerebellar reflexes since fibers which pass from the cerebellum through the superior peduncle send many collaterals and terminals to the red nucleus.

(c) The **olivospinal fasciculus** (Helweg) arises in the vicinity of the inferior olivary nucleus in the medulla oblongata, and is seen only in the cervical region of the medulla spinalis, where it forms a small triangular area at the periphery, close to the most lateral of the anterior nerve roots. Its exact origin and its mode of ending have not yet been definitely made out.

2. *Ascending Fasciculi*.—(a) The **dorsal spinocerebellar fasciculus** (*fasciculus cerebellospinalis*; *direct cerebellar tract of Flechsig*) is situated at the periphery of the posterior part of the lateral funiculus, and on transverse section appears as a flattened band reaching as far forward as a line drawn transversely through the central canal. Medially, it is in contact with the lateral cerebrospinal fasciculus, behind, with the fasciculus of Lissauer. It begins about the level of the second or third lumbar nerve, and increasing in size as it ascends, passes to the vermis of the cerebellum through the inferior peduncle. Its fibers are generally regarded as being formed by the axons of the cells of the dorsal nucleus (*Clarke's column*); they receive their medullary sheaths about the sixth or seventh month of fetal life. Its fibers are supposed to conduct impulses of unconscious muscle sense.

The **superficial antero-lateral fasciculus** (*tract of Gowers*) consists of four fasciculi, the ventral spinocerebellar, the lateral spinothalamic, the spinotectal and the ventral spinothalamic.

(b) The **ventral spinocerebellar fasciculus** (*Gowers*) skirts the periphery of the lateral funiculus in front of the dorsal spinocerebellar fasciculus. In transverse section it is shaped somewhat like a comma, the expanded end of which lies in front of the dorsal spinocerebellar fasciculus while the tail reaches forward into the anterior funiculus. Its fibers come from the same but mostly from the opposite side of the medulla spinalis and cross both in the anterior white commissure and in the gray commissure; they are probably derived from the cells of the dorsal nucleus and from other cells of the posterior column and the intermediate portion