

its origin in the posterior nerve roots. The motor or efferent nerves arise as outgrowths of the neuroblasts situated in the basal laminae of the mid- and hind-brain. While, however, the spinal motor nerve roots arise in one series from the basal lamina, the cranial motor nerves are grouped into two sets, according as they spring from the medial or lateral parts of the basal lamina. To the former set belong the oculomotor, trochlear, abducent, and hypoglossal nerves; to the latter, the accessory and the motor fibers of the trigeminal, facial, glossopharyngeal, vagus nerves (Figs. 659, 660).

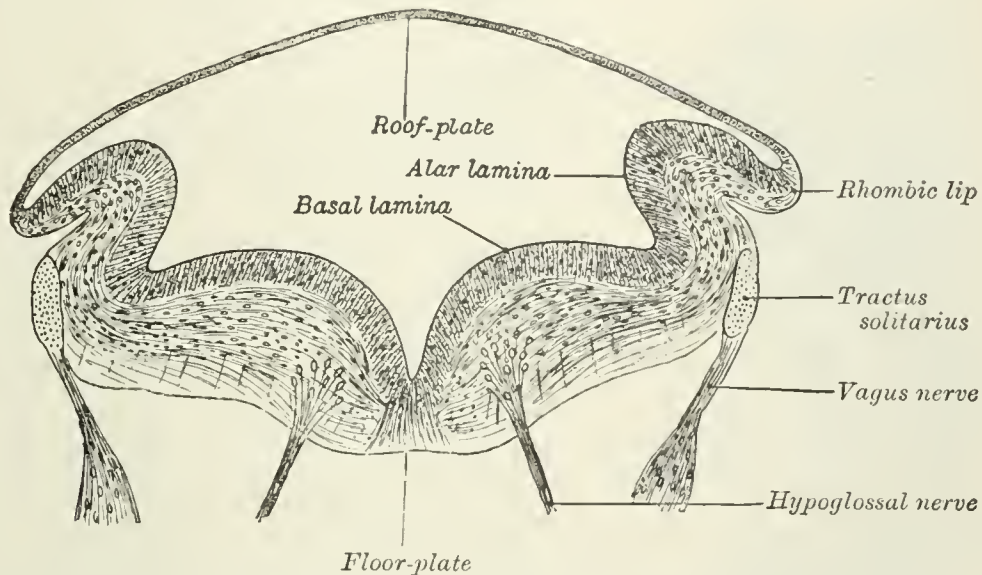


FIG. 660.—Transverse section of medulla oblongata of human embryo. (After His.)

## THE MEDULLA SPINALIS OR SPINAL CORD.

The **medulla spinalis** or **spinal cord** forms the elongated, nearly cylindrical, part of the central nervous system which occupies the upper two-thirds of the vertebral canal. Its average length in the male is about 45 cm., in the female from 42 to 43 cm., while its weight amounts to about 30 gms. It extends from the level of the upper border of the atlas to that of the lower border of the first, or upper border of the second, lumbar vertebra. Above, it is continuous with the brain; below, it ends in a conical extremity, the **conus medullaris**, from the apex of which a delicate filament, the **filum terminale**, descends as far as the first segment of the coccyx (Fig. 661).

The position of the medulla spinalis varies with the movements of the vertebral column, its lower extremity being drawn slightly upward when the column is flexed. It also varies at different periods of life; up to the third month of fetal life the medulla spinalis is as long as the vertebral canal, but from this stage onward the vertebral column elongates more rapidly than the medulla spinalis, so that by the end of the fifth month the medulla spinalis terminates at the base of the sacrum, and at birth about the third lumbar vertebra.

The medulla spinalis does not fill the part of the vertebral canal in which it lies; it is ensheathed by three protective membranes, separated from each other by two concentric spaces. The three membranes are named from without inward, the **dura mater**, the **arachnoid**, and the **pia mater**. The **dura mater** is a strong, fibrous membrane which forms a wide, tubular sheath; this sheath extends below the termination of the medulla spinalis and ends in a pointed cul-de-sac at the level of the lower border of the second sacral vertebra. The dura mater is separated from the wall of the vertebral canal by the **epidural cavity**, which contains a quantity of loose areolar tissue and a plexus of veins; between the dura mater and the subjacent arachnoid is a capillary interval, the **subdural cavity**, which contains a small quantity of fluid, probably of the nature of lymph. The **arachnoid** is a thin, transparent