sheath, separated from the pia mater by a comparatively wide interval, the **subarachnoid cavity**, which is filled with cerebrospinal fluid. The **pia mater** closely invests the medulla spinalis and sends delicate septa into its substance; a narrow band, the **ligamentum denticulatum**, extends along each of its lateral surfaces and is attached by a series of pointed processes to the inner surface of the dura mater.

Thirty-one pairs of spinal nerves spring from the medulla spinalis, each nerve having an anterior or ventral, and a posterior or dorsal root, the latter being distinguished by the presence of an oval swelling, the **spinal ganglion**, which contains numerous nerve cells. Each root consists of several bundles of nerve fibers, and at its attachment extends for some distance along the side of the medulla spinalis. The pairs of spinal nerves are grouped as follows: cervical 8, thoracic 12, lumbar 5, sacral 5, coccygeal 1, and, for convenience of description, the medulla spinalis is divided into cervical, thoracic, lumbar and sacral regions, corresponding with the attachments of the different groups of nerves.

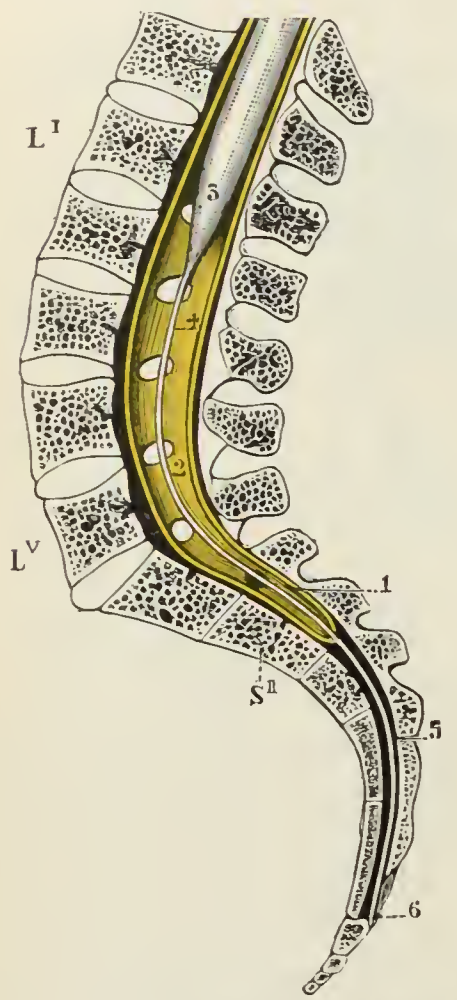

FIG. 661.—Sagittal section of vertebral canal to show the lower end of the medulla spinalis and the filum terminale. *Li*, *Lv*. First and fifth lumbar vertebræ. *Sii*. Second sacral vertebra. 1. Dura mater. 2. Lower part of tube of dura mater. 3. Lower extremity of medulla spinalis. 4. Intradural, and 5, Extradural portions of filum terminale. 6. Attachment of filum terminale to first segment of coccyx. (Testut.)

Although no trace of transverse segmentation is visible on the surface of the medulla spinalis, it is convenient to regard it as being built up of a series of superimposed **spinal segments** or **neuromeres**, each of which has a length equivalent to the extent of attachment of a pair of spinal nerves. Since the extent of attachment of the successive pairs of nerves varies in different parts, it follows that the spinal segments are of varying lengths; thus, in the cervical region they average about 13 mm., in the mid-thoracic region about 26 mm., while in the lumbar and sacral regions they diminish rapidly from about 15 mm. at the level of the first pair of lumbar nerves to about 4 mm. opposite the attachments of the lower sacral nerves.

As a consequence of the relative inequality in the rates of growth of the medulla spinalis and vertebral column, the nerve roots, which in the early embryo passed transversely outward to reach their respective intervertebral foramina, become more and more oblique in direction from above downward, so that the lumbar and sacral nerves descend almost vertically to reach their points of exit. From the appearance these nerves present at their attachment to the medulla spinalis and from their great length they are collectively termed the **cauda equina** (Fig. 662).

The **filum terminale** is a delicate filament, about 20 cm. in length, prolonged downward from the apex of the conus medullaris. It consists of two parts, an upper and a lower. The upper part, or **filum terminale internum**, measures about 15 cm. in length and reaches as far as the lower border of the second sacral vertebra. It is contained within the tubular sheath of dura mater, and is surrounded by the nerves forming the cauda equina, from which it can be readily recognized by its bluish-white color. The lower part, or **filum terminale externum**, is closely invested