5. The **nucleus of the cochlear nerve** consists of: (*a*) the **lateral cochlear nucleus**, corresponding to the tuberculum acusticum on the dorso-lateral surface of the inferior peduncle; and (*b*) the **ventral** or **accessory cochlear nucleus**, placed between the two divisions of the nerve, on the ventral aspect of the inferior peduncle.

The **nuclei of the vestibular nerve.** (*a*) The medial (**dorsal** or **chief vestibular nucleus**), corresponding to the lower part of the area acustica in the rhomboid fossa; the caudal end of this nucleus is sometimes termed the **descending** or **spinal vestibular nucleus.** (*b*) The **lateral** or **nucleus of Deiters**, consisting of large cells and situated in the lateral angle of the rhomboid fossa; the dorso-lateral part of this nucleus is sometimes termed the **nucleus of Bechterew.**

The fibers of the vestibular nerve enter the medulla oblongata on the medial side of those of the cochlear, and pass between the inferior peduncle and the spinal tract of the trigeminal. They then divide into ascending and descending fibers. The latter end by arborizing around the cells of the **medial nucleus**, which is situated in the **area acustica** of the rhomboid fossa. The ascending fibers either end in the same manner or in the **lateral nucleus**, which is situated lateral to the area acustica and farther from the ventricular floor. Some of the axons of the cells of the lateral nucleus, and possibly also of the medial nucleus, are continued upward through the inferior peduncle to the roof nuclei of the opposite side of the cerebellum, to which also other fibers of the vestibular root are prolonged without interruption in the nuclei of the medulla oblongata. A second set of fibers from the medial and lateral nuclei end partly in the tegmentum, while the remainder ascend in the medial longitudinal fasciculus to arborize around the cells of the nuclei of the oculomotor nerve.

The Cerebellum.—The cerebellum constitutes the largest part of the hindbrain. It lies behind the pons and medulla oblongata; between its central portion and these structures is the cavity of the fourth ventricle. It rests on the inferior occipital fossæ, while above it is the tentorium cerebelli, a fold of dura mater which separates it from the tentorial surface of the cerebrum. It is somewhat oval in form, but constricted medially and flattened from above downward, its greatest diameter being from side to side. Its surface is not convoluted like that of the cerebrum, but is traversed by numerous curved furrows or sulci, which vary in depth at different parts, and separate the laminæ of which it is composed. Its average weight in the male is about 150 gms. In the adult the proportion between the cerebellum and cerebrum is about 1 to 8, in the infant about 1 to 20.

Lobes of the Cerebellum.—The cerebellum consists of three parts, a median and two lateral, which are continuous with each other, and are substantially the same in structure. The median portion is constricted, and is called the **vermis**, from its annulated appearance which it owes to the transverse ridges and furrows upon it; the lateral expanded portions are named the **hemispheres.** On the upper surface of the cerebellum the vermis is elevated above the level of the hemispheres, but on the under surface it is sunk almost out of sight in the bottom of a deep depression between them; this depression is called the **vallecula cerebelli**, and lodges the posterior part of the medulla oblongata. The part of the vermis on the upper surface of the cerebellum is named the **superior vermis**; that on the lower surface, the **inferior vermis.** The hemispheres are separated below and behind by a deep notch, the **posterior cerebellar notch**, and in front by a broader shallower notch, the **anterior cerebellar notch.** The anterior notch lies close to the pons and upper part of the medulla, and its superior edge encircles the inferior colliculi and the superior cerebellar peduncle. The posterior notch contains the upper part of the falx cerebelli, a fold of dura mater.

The cerebellum is characterized by a laminated or foliated appearance; it is marked by deep, somewhat curved fissures, which extend for a considerable dis-