of the sympathetic. In the superior orbital fissure it occasionally gives off a branch to the lacrimal nerve. It gives off a recurrent branch which passes backward between the layers of the tentorium cerebelli and divides into two or three filaments which may be traced as far as the wall of the transverse sinus.

THE TRIGEMINAL NERVE (N. TRIGEMINUS; FIFTH OR TRIFACIAL NERVE).

The **trigeminal nerve** is the largest cranial nerve and is the great sensory nerve of the head and face, and the motor nerve of the muscles of mastication.

It emerges from the side of the pons, near its upper border, by a small *motor* and a large *sensory root*—the former being situated in front of and medial to the latter.

Motor Root.—The fibers of the motor root *arise* from two nuclei, a superior and an inferior. The **superior nucleus** consists of a strand of cells occupying the whole length of the lateral portion of the gray substance of the cerebral aqueduct. The **inferior** or **chief nucleus** is situated in the upper part of the pons, close to its dorsal surface, and along the line of the lateral margin of the rhomboid fossa. The fibers from the superior nucleus constitute the **mesencephalic root**: they descend through the mid-brain, and, entering the pons, join with the fibers from the lower nucleus, and the motor root, thus formed, passes forward through the pons to its point of emergence. It is uncertain whether the mesencephalic root is motor or sensory.

Sensory Root.—The fibers of the sensory root *arise* from the cells of the semilunar ganglion which lies in a cavity of the dura mater near the apex of the petrous part of the temporal bone. They pass backward below the superior petrosal sinus and tentorium cerebelli, and, entering the pons, divide into upper and lower roots. The upper root ends partly in a nucleus which is situated in the pons lateral to the lower motor nucleus, and partly in the locus cæruleus; the lower root descends through the pons and medulla oblongata, and ends in the upper part of the substantia gelatinosa of Rolando. This lower root is sometimes named the **spinal root** of the nerve. Medullation of the fibers of the sensory root begins about the fifth month of fetal life, but the whole of its fibers are not medullated until the third month after birth.

The **Semilunar Ganglion** (*ganglion semilunare* [*Gasseri*]; *Gasserian ganglion*) occupies a cavity (*cavum Meckelii*) in the dura mater covering the trigeminal impression near the apex of the petrous part of the temporal bone. It is somewhat crescentic in shape, with its convexity directed forward: medially, it is in relation with the internal carotid artery and the posterior part of the cavernous sinus. The motor root runs in front of and medial to the sensory root, and passes beneath the ganglion; it leaves the skull through the foramen ovale, and, immediately below this foramen, joins the mandibular nerve. The greater superficial petrosal nerve lies also underneath the ganglion.

The ganglion receives, on its medial side, filaments from the carotid plexus of the sympathetic. It give off minute branches to the tentorium cerebelli, and to the dura mater in the middle fossa of the cranium. From its convex border, which is directed forward and lateralward, three large nerves proceed, viz., the **ophthalmic, maxillary,** and **mandibular.** The ophthalmic and maxillary consist exclusively of sensory fibers; the mandibular is joined outside the cranium by the motor root.

Associated with the three divisions of the trigeminal nerve are four small ganglia. The **ciliary ganglion** is connected with the ophthalmic nerve; the **sphenopalatine ganglion** with the maxillary nerve; and the **otic** and **submaxillary ganglia** with the mandibular nerve. All four receive sensory filaments from the trigeminal, and