

cortex are conducted by the pyramidal tract fibers (**corticopontine fibers**). These fibers probably terminate in relation with association neurons which control the coördinated action of all the eye muscles. This association and coördination mechanism is interposed between the terminals and collaterals of the voluntary fibers and the neurons within the nuclei of origin of the motor fibers to the eye muscles. The fibers of the posterior longitudinal bundle are supposed to play an important role in the coördination of the movements of the eyeball. Whether it is concerned only with coördinations between the vestibular apparatus and the eye or with more extensive coördinations is unknown. Many fibers of the posterior longitudinal bundle have their origin in the terminal nuclei of the vestibular nerve and from the posterior longitudinal bundle many collaterals and terminals are given off to the abducent nucleus as well as to the trochlear and oculomotor nuclei. The abducens nucleus probably receives collaterals and terminals from the ventral longitudinal bundle (tectospinal fasciculus); fibers which have their origin in the superior colliculus, the primary visual center, and are concerned with visual reflexes. Others probably come from the reflex auditory center in the inferior colliculus and from other sensory nuclei of the brain-stem.

The **Trigeminal Nerve** (*V cranial*) contains somatic motor and somatic sensory fibers. The motor fibers arise in the motor nucleus of the trigeminal and pass ventro-laterally through the pons to supply the muscles of mastication. The sensory fibers arise from the unipolar cells of the semilunar ganglion; the peripheral branches of the T-shaped fibers are distributed to the face and anterior two-thirds of the head; the central fibers pass into the pons with the motor root and bifurcate into ascending and descending branches which terminate in the sensory nuclei of the trigeminal.

The **motor nucleus** of the trigeminal is situated in the upper part of the pons beneath the lateral angle of the fourth ventricle. It is serially homologous with the facial nucleus and the nucleus ambiguus (motor nucleus of the vagus and glosso-pharyngeal) which belong to the motor nuclei of the lateral somatic group. The axons arise from large pigmented multipolar cells. The motor nucleus receives reflex collaterals and terminals, (1) from the terminal nucleus of the trigeminal of the same and a few from the opposite side, via the central sensory tract (trigeminohalamic tract); (2) from the mesencephalic root of the trigeminal; (3) from the posterior longitudinal bundle; (4) and probably from fibers in the formatio reticularis. It also receives collaterals and terminals from the opposite pyramidal tract (corticopontine fibers) for voluntary movements. There is probably a connecting or association neuron interposed between these fibers and the motor neurons.

The **terminal sensory nucleus** consists of an enlarged upper end, the **main sensory nucleus**, and a long more slender descending portion which passes down through the pons and medulla to become continuous with the dorsal part of the posterior column of the gray matter especially the substantia gelatinosa of the spinal cord. This descending portion consists mainly of substantia gelatinosa and is called the **nucleus of the spinal tract of the trigeminal nerve**.

The **main sensory nucleus** lies lateral to the motor nucleus beneath the superior peduncle. It receives the short ascending branches of the sensory root. The descending branches which form the **tractus spinalis**, pass down through the pons and medulla on the lateral side of the **nucleus of the tractus spinalis**, in which they end by collaterals and terminals, into the spinal cord on the level of the second cervical segment. It decreases rapidly in size as it descends. At first it is located between the emergent part of the facial nerve and the vestibular nerve, then between the nucleus of the facial nerve and the inferior peduncle. Lower down in the upper part of the medulla it lies beneath the inferior peduncle and is broken up into bundles by the olivocerebellar fibers and the roots of the ninth and tenth cranial nerves. Finally it comes to the surface of the medulla under the tubercle of