related to the posterior longitudinal bundle which lies against its ventro-lateral aspect and many of its cells lie among the fibers of the posterior longitudinal bundle. The nucleus of the oculomotor nerve contains several distinct groups of cells which differ in size and appearance from each other and are supposed to send their axons each to a separate muscle. Much uncertainty still exists as to which group supplies which muscle. There are seven of these groups or nuclei on either side of the midline and one medial nucleus. The cells of the anterior nuclei are smaller and are supposed to give off the sympathetic efferent axons. The majority of fibers arise from the nucleus of the same side some, however, cross from the opposite side and are supposed to supply the Rectus medialis muscle. Since oculomotor and abducens nuclei are intimately connected by the posterior longitudinal bundle this decussation of fibers to the Medial rectus may facilitate the conjugate movements of the eyes in which the Medial and Lateral recti are especially involved.

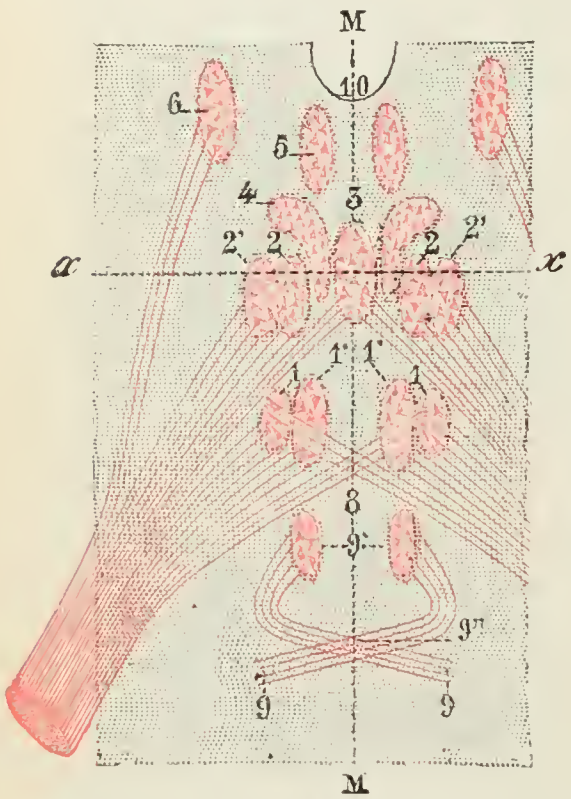

Fig. 762.—Figure showing the different groups of cells, which constitute, according to Perlia, the nucleus of origin of the oculomotor nerve. 1. Posterior dorsal nucleus. 1′. Posterior ventral nucleus. 2. Anterior dorsal nucleus. 2′. Anterior ventral nucleus. 3. Central nucleus. 4. Nucleus of Edinger and Westphal. 5. Antero-internal nucleus. 6. Antero-external nucleus. 8. Crossed fibers. 9. Trochlear nerve, with 9′, its nucleus of origin, and 9″, its decussation. 10. Third ventricle. *M*, *M*. Median line. (Testut.)

Many collaterals and terminals are given off to the oculomotor nucleus from the posterior longitudinal bundle and thus connect it with the vestibular nucleus, the trochlear and abducens nuclei and probably with other cranial nuclei. Fibers from the visual reflex center in the superior colliculus pass to the nucleus. It is also connected with the cortex of the occipital lobe of the cerebrum by fibers which pass through the optic radiation. The pathway for voluntary motor impulses is probably similar to that for the abducent nerve.

The **Optic Nerve** or **Nerve of Sight** (*II cranial*) consists chiefly of coarse fibers which arise from the ganglionic layer of the retina. They constitute the third neuron in the series composing the visual path and are supposed to convey only visual impressions. A number of fine fibers also pass in the optic nerve from the retina to the primary centers and are supposed to be concerned in the pupillary reflexes. There are in addition a few fibers which pass from the brain to the retina; they are supposed to control chemical changes in the retina and the movements of the pigment cells and cones. Each optic nerve has, according to Salzer, about 500,000 fibers.

In the optic chiasma the nerves from the medial half of each retina cross to enter the opposite optic tract, while the nerves from the lateral half of each retina pass into the optic tract of the same side. The crossed fibers tend to occupy the medial side of each optic nerve, but in the chiasma and in the optic tract they are more intermingled. The optic tract is attached to the tuber cinereum and lamina terminalis and also to the cerebral peduncle as it crosses obliquely over its under surface. These are not functional connections. A small band of fibers from the medial geniculate body joins the optic tract as the latter passes over it and crosses to the opposite tract and medial geniculate body in the posterior part of the chiasma. This is the commissure of Gudden and is probably connected with the auditory system.

Most of the fibers of the optic tract terminate in the lateral geniculate body, some pass through the superior brachium to the superior colliculus, and others