

of the mid-brain. The axons come from large cells in the stratum opticum and stratum lemnisci and sweep ventrally around the central gray matter of the aqueduct, cross the raphé in the fountain decussation of Meynert and turn downward in the tegmentum in the ventral longitudinal bundle. Some of the fibers do not cross in the raphé but pass down on the same side; it is uncertain whether they come from the superior colliculus of the same side or arch over the aqueduct from the colliculus of the opposite side. The tectospinal fasciculus which comprises the major part of the ventral longitudinal bundle passes down through the tegmentum and reticular formation of the pons and medulla oblongata ventral to the medial longitudinal bundle. In the medulla the two bundles are more or less intermingled and the tectospinal portion is continued into the antero-lateral funiculus of the spinal cord ventral to the rubrospinal fasciculus with which some of its fibers are intermingled. Some of the fibers of the tectospinal fasciculus pass through the red nucleus giving off collaterals to it, others are given off to the motor nuclei of the cranial nerves and in the spinal cord they terminate either directly or indirectly by terminals and collaterals among the nuclei of the anterior column. Since the superior colliculus is an important optic reflex center, this tract is probably concerned in optic reflexes; and possibly also with auditory reflexes since some of the fibers of the central auditory path, the lateral lemniscus, terminate in the superior colliculus.

The **vestibulospinal fasciculus** (*part of the anterior marginal fasciculus* or *Loewenthal's tract*) situated chiefly in the marginal part of the anterior funiculus is mainly derived from the cells of the terminal nuclei of the vestibular nerve, probably Deiters's and Bechterew's, and some of its fibers are supposed to come from the nucleus fastigiatus (roof nucleus of the cerebellum). The latter nucleus is intimately connected with Deiters's and Bechterew's nuclei. The vestibulospinal fasciculus is concerned with equilibratory reflexes. Its terminals and collaterals end about the motor cells in the anterior column. It extends to the sacral region of the cord. Its fibers are intermingled with the ascending spinothalamic fasciculus, with the anterior proper fasciculus and laterally with the tectospinal fasciculus. Its fibers are supposed to be both crossed and uncrossed. In the brain-stem it is associated with the dorsal longitudinal bundle.

The **pontospinal fasciculus** (*Bechterew*) arises from the cells in the reticular formation of the pons from the same and the opposite side and is associated in the brain-stem with the ventral longitudinal bundle. In the cord it is intermingled with the fibers of the vestibulospinal fasciculus in the anterior funiculus. Not much is known about this tract.

There are probably other descending fasciculi such as the thalamospinal but not much is known about them.

MENINGES OF THE BRAIN AND MEDULLA SPINALIS.

The brain and medulla spinalis are enclosed within three membranes. These are named from without inward: the **dura mater**, the **arachnoid**, and the **pia mater**.

The Dura Mater.

The **dura mater** is a thick and dense inelastic membrane. The portion which encloses the brain differs in several essential particulars from that which surrounds the medulla spinalis, and therefore it is necessary to describe them separately; but at the same time it must be distinctly understood that the two form one complete membrane, and are continuous with each other at the foramen magnum.

The **Cranial Dura Mater** (*dura mater encephali; dura of the brain*) lines the interior of the skull, and serves the twofold purpose of an internal periosteum