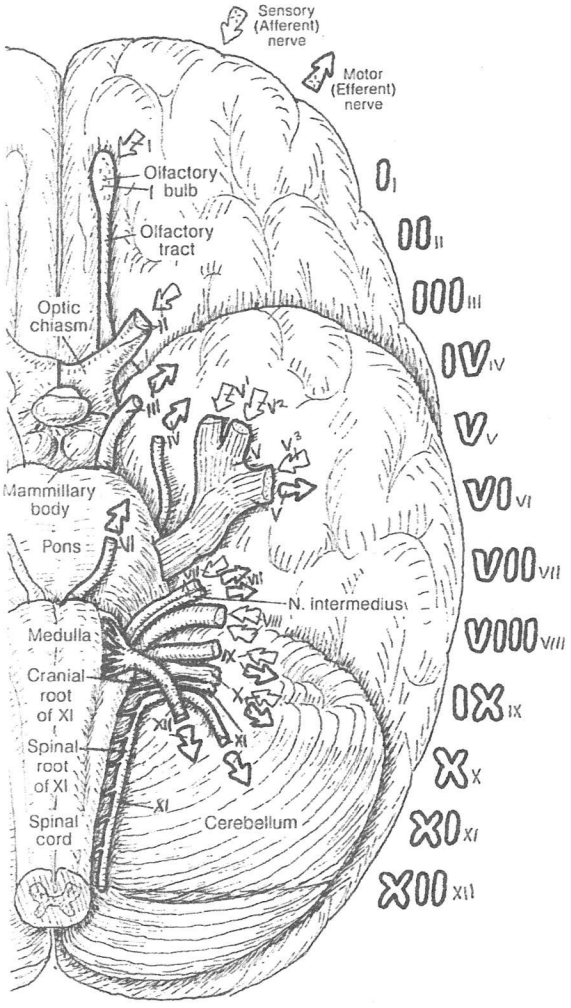
See 70

CRANIAL NERVES

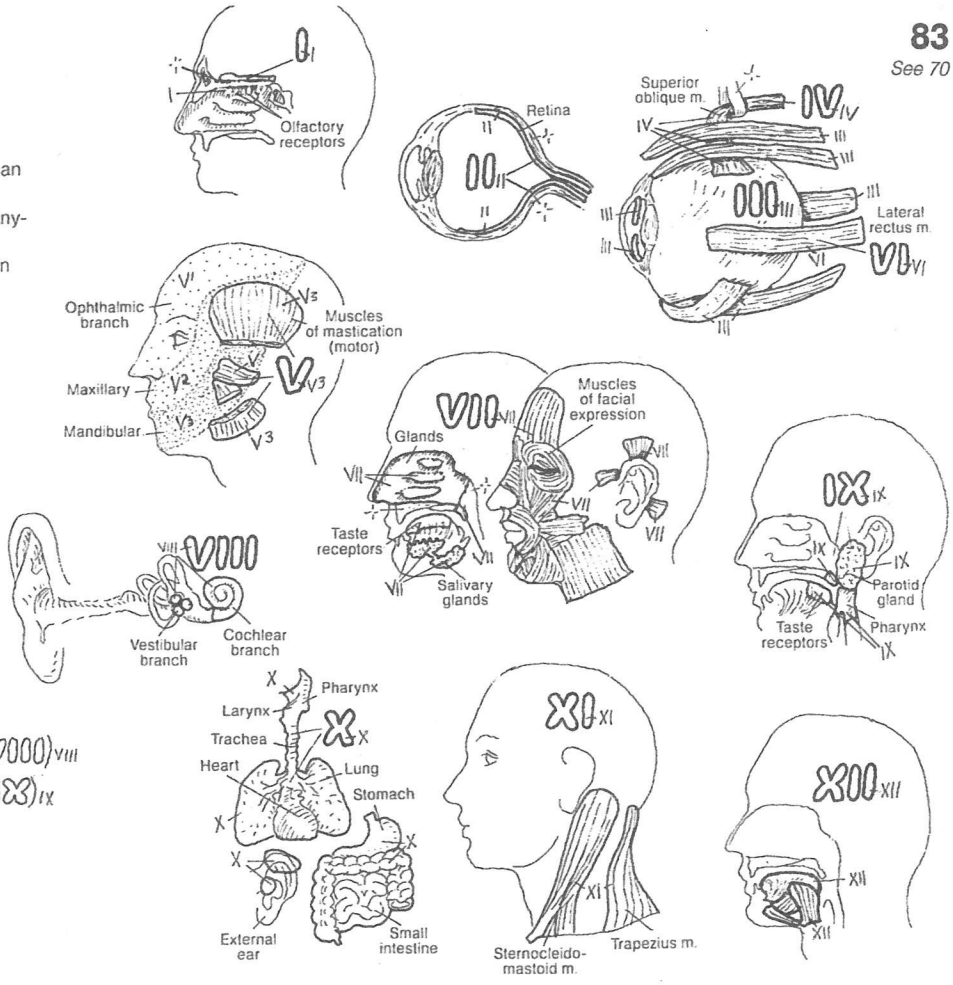
CN: Use light colors throughout. (1) Beginning with the first cranial nerve, color the title on the left; the large Roman numeral, the cranial nerve (cut), and the related function arrow at lower left; and the Roman numeral and accompanying illustration at upper right. The illustrations generally depict target organs/areas. (2) Note carefully the direction of the function arrows at lower left (sensory/afferent is incoming; motor/efferent is outgoing). (3) The accessory nerve (XI) has two roots: a spinal root and a cranial root that travels with the vagus nerve (X).

CRANIAL NERVES

- OLFACTORY (I) I
- OPTIC (II) II
- OCULOMOTOR (III) III
- TROCHLEAR (IV) IV
- TRIGEMINAL (V) V
- ABDUCENS (VI) VI
- FACIAL (VII) VII
- VESTIBULOCOCHLEAR (VIII) VIII
- GLOSSOPHARYNGEAL (IX) IX
- VAGUS (X) X
- ACCESSORY (XI) XI
- HYPOGLOSSAL (XII) XII



ANTERIOR-INFERIOR SURFACE
(Left brain, brainstem, and cerebellum)



Cranial nerves I and II are derived from the forebrain; all others arise from the brain stem. *V = visceral*, referring to smooth muscle, glands, and organs with hollow cavities; *S = somatic*, referring to the skin, eye, skeletal, facial, and skeletal muscles; *A = afferent or sensory*; *E = efferent or motor*. All motor nerves depicted include proprioceptive fibers (sensory for muscle, tendon, and joint movement).

- I VA: smell-sensitive (olfactory) receptors in roof/walls of nasal cavity.
- II SA: light-sensitive (visual) receptors in the retina of the eye.
- III SE: to extrinsic eye muscles (exc. lat. rectus and sup. oblique); VE: parasympathetic to ciliary and pupillary sphincter (eye) muscles via ciliary ganglion in the orbit.
- IV SE: to superior oblique muscle of the eye.
- V SA: from face via three divisions indicated; VE: to muscles of mastication, tensor tympani, tensor veli palatini, mylohyoid, and digastric muscles.
- VI SE: to lateral rectus muscle of the eye.
- VII VA: from taste receptors ant. tongue; SA: from ext. ear; VE parasympathetic to glands of nasal/oral cavity, lacrimal gland (via pterygopalatine ganglion in fossa of same name), submandibular/sublingual salivary glands (via submandibular ganglion in region of same name); VE: to facial muscles, stapedius (mid. ear), stylohyoid, post. digastric muscles.
- VIII SA: cochlear part is sound-sensitive; vestibular part is sensitive to head balance and movement (equilibrium).
- IX VA: from taste receptors post. one-third tongue; SA: from ext. ear and ext. auditory canal; VA: from mucous membranes of posterior mouth, pharynx, auditory tube, and middle ear; from pressure and chemical receptors in carotid body and common carotid artery; VE: to sup. constrictor m. of the pharynx, stylopharyngeus; VE: parasymp. to parotid gland (via otic ganglion in infratemporal fossa).
- X VA: from taste receptors at base of tongue and epiglottis; SA: from ext. ear and ext. aud. canal; VA: from pharynx, larynx, thoracic and abdominal viscera; VE: to muscles of palate, pharynx, and larynx; VE: parasymp. to muscles of thoracic and abdominal viscera (via intramural ganglia).
- XI Cranial root: joins vagus (VA to laryngeal muscles); spinal root (C1–C5): innervates trapezius and sternocleidomastoid muscles.
- XII SE: to extrinsic and intrinsic muscles of tongue.