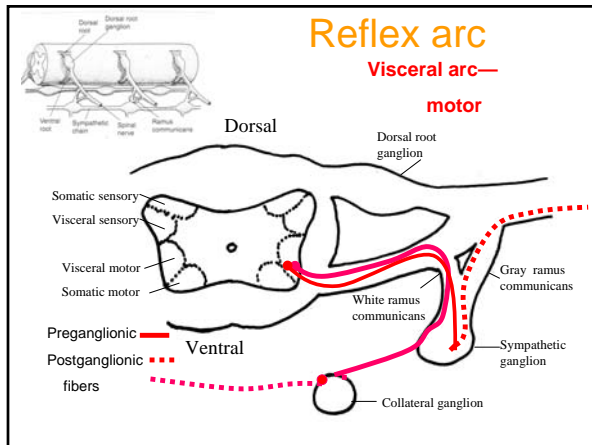
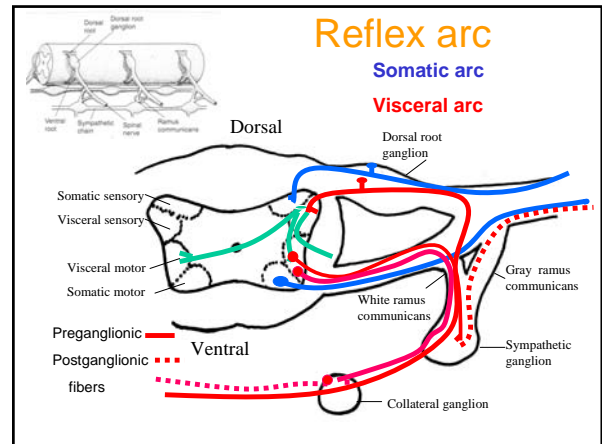


Autonomic Nervous System

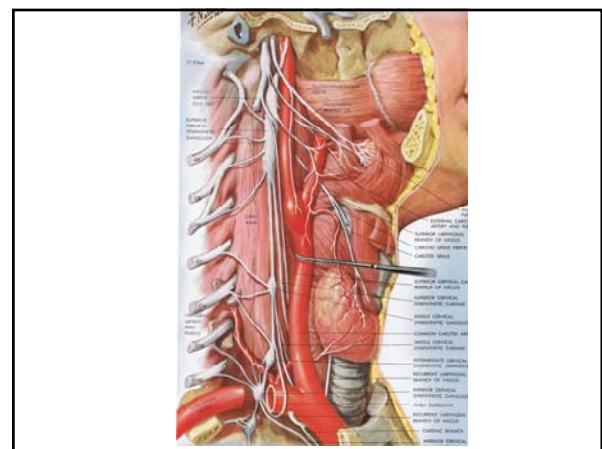
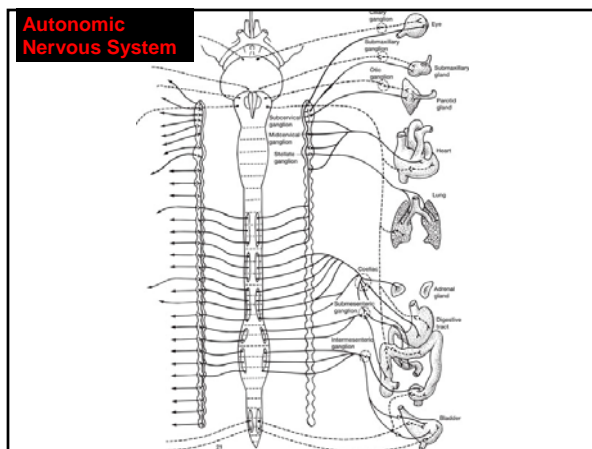
Define—visceral motor neurons
ventral root
pre- and post-ganglionic

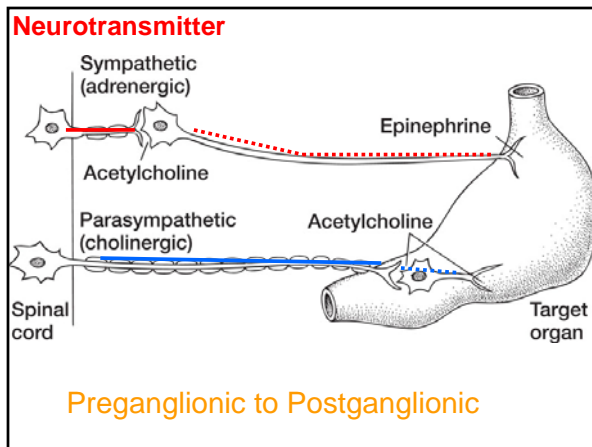
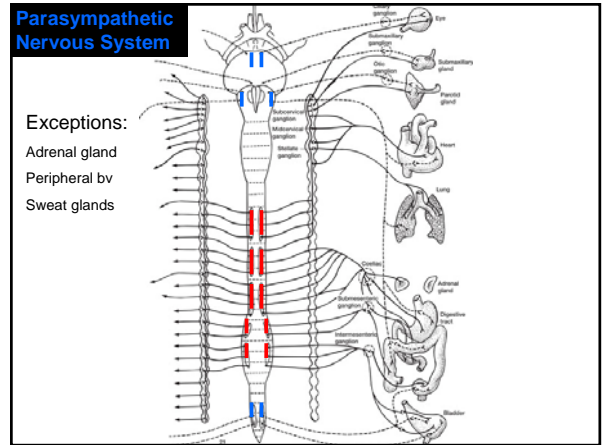
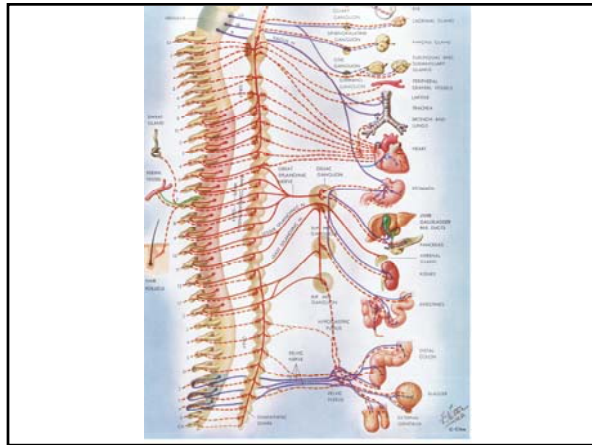
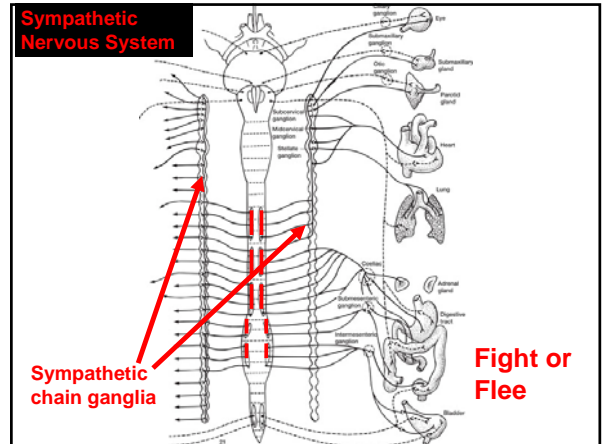
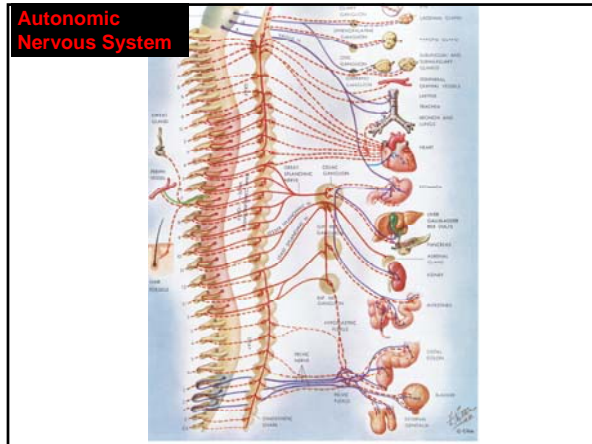


Autonomic Nervous System

Define—visceral motor neurons
ventral root
pre- and post-ganglionic

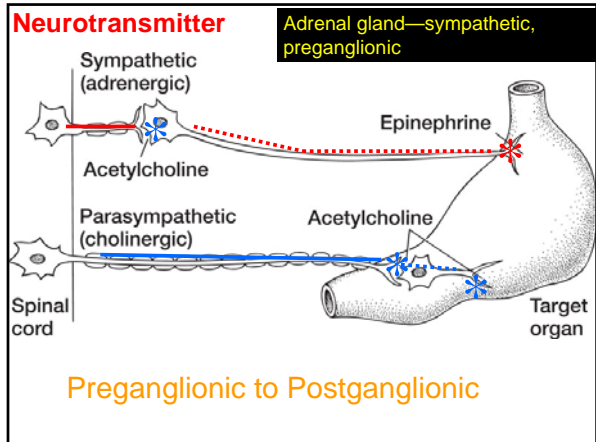
Two contrasting systems
sympathetic
parasympathetic





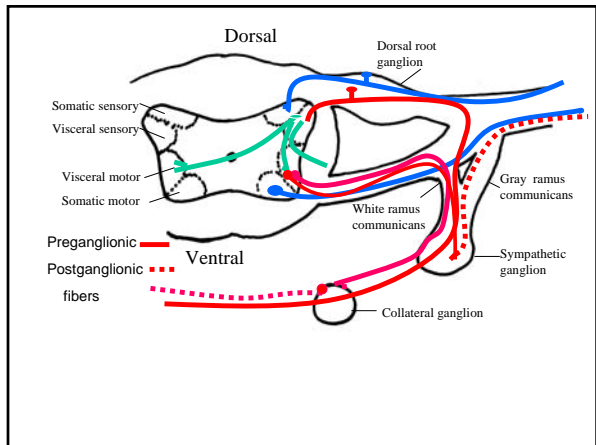
Otto Loewi

• 1873—1961



Medical Implications

Raynaud's Disease

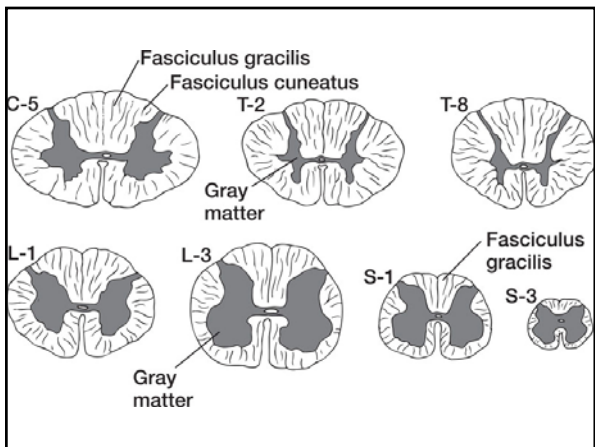
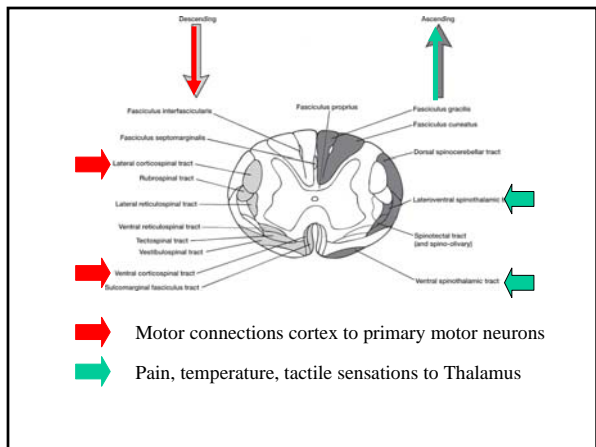


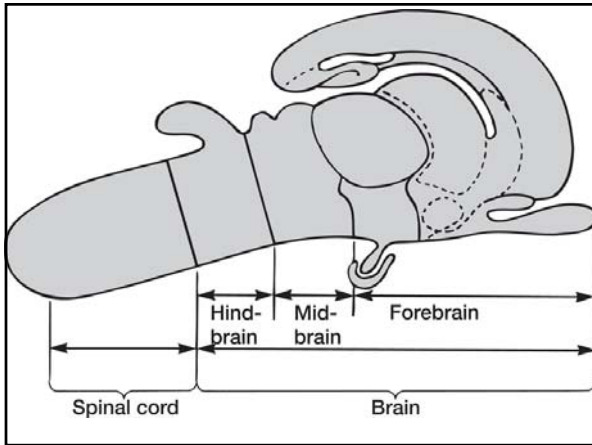
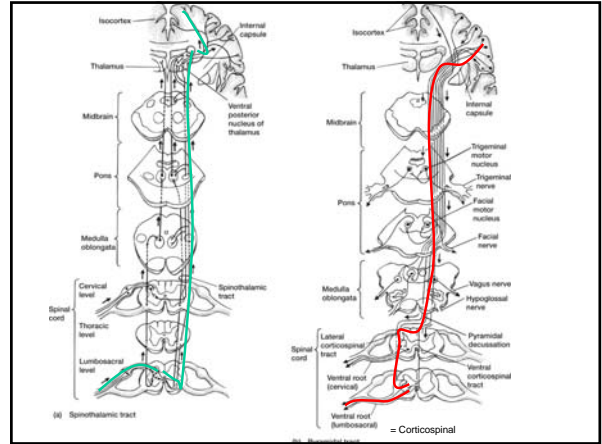
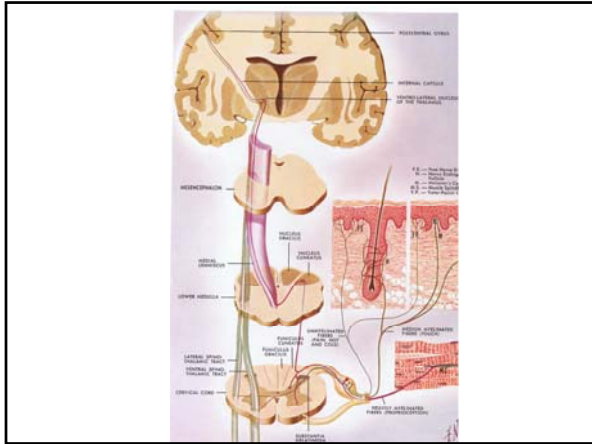
Types of Sensory Receptors

Exteroceptors -- outside

Interoceptors -- inside

Proprioceptors -- special interoceptors





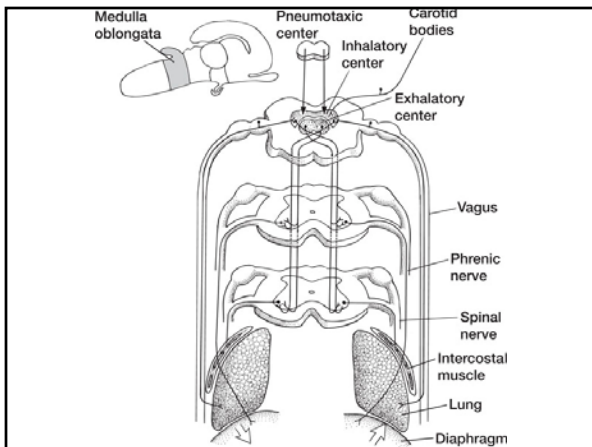
Medulla oblongata

Functions

- roots of cranial nerves
- ascending and descending pathways
- centers (visceral, auditory, proprioceptive) (e.g. respiration, heart beat)

Input

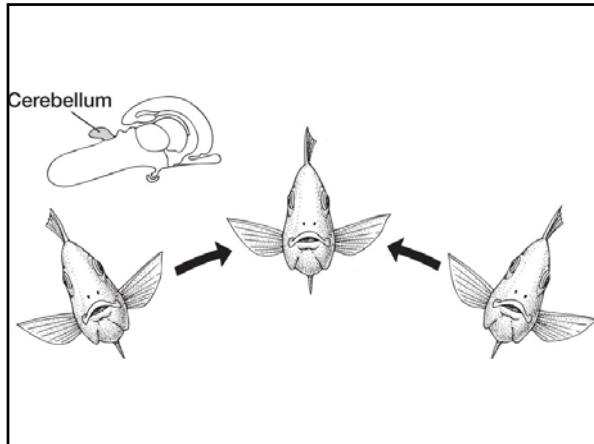
- sensory nerves, hypothalamus



Cerebellum

Functions—monitors & modifies

- Equilibrium (touch, vision, hearing, etc)



Medulla oblongata Cerebellum

Cerebellum

Functions—monitors & modifies

Equilibrium (touch, vision, hearing, etc)

Refinement of motor action

Ataxia
Dysmetria

Medulla oblongata Cerebellum

Cerebellum

Functions—monitors & modifies

Equilibrium (touch, vision, hearing, etc)

Refinement of motor action

Evolution

fishes—acousticolateralis system
(lateral line system)

tetrapods—proprioception from limbs, body

Tectum

Pineal eye Cerebrum Thalamus

Tectum Retina Eye

OPTIC LOBES (mesencephalon)

Anatomy

tectum—roof
sensory

tegmentum—floor
motor

Evolution

transfer forward

Blindsight

Blindsight

AMPHIBIAN

vertebrae optic lobes cerebellum

optic tract

SAURILE

vertebrae (amphioxys)

Thalamus

MAMMAL

superior colliculus inferior colliculus

Epithalamus

Epithalamus Hypothalamus Thalamus

Pineal Epithalamus Optic chiasm Mammillary body

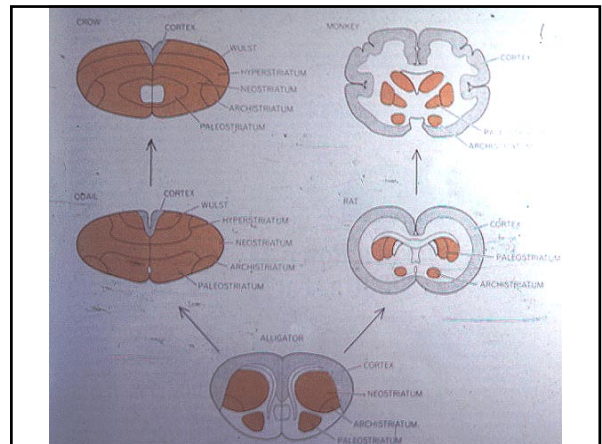
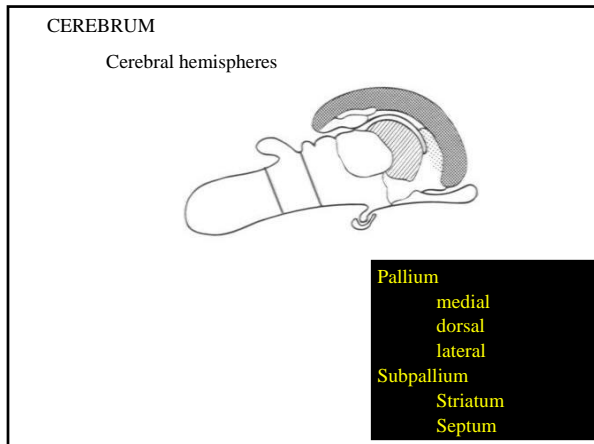
Pons Intermediate mass Caudate nucleus Putamen Globus pallidus

THALAMUS

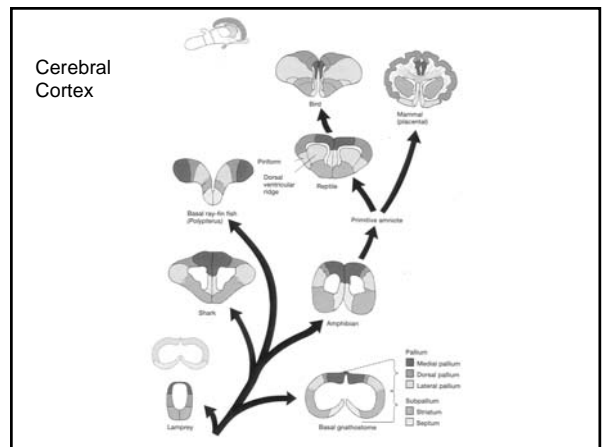
Epithalamus
pineal, habenular nucleus,
post. commissure

Hypothalamus
visceral brain center
(temp., water, appetite,
emotion, other)

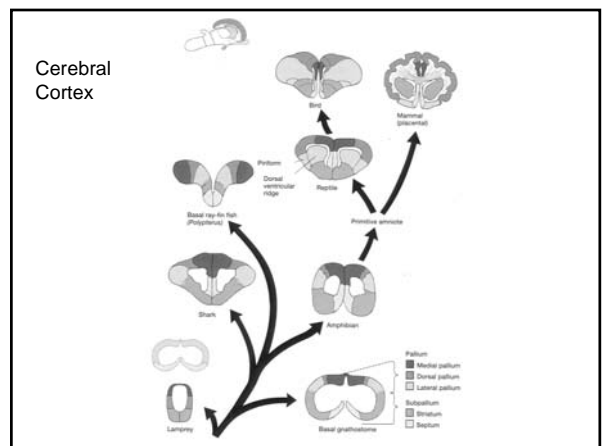
Thalamus proper
relay center

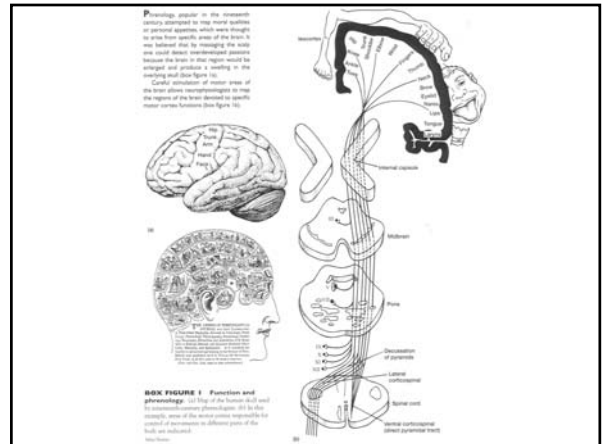
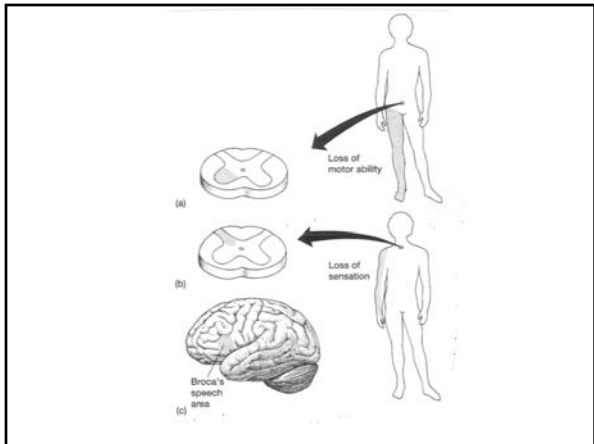
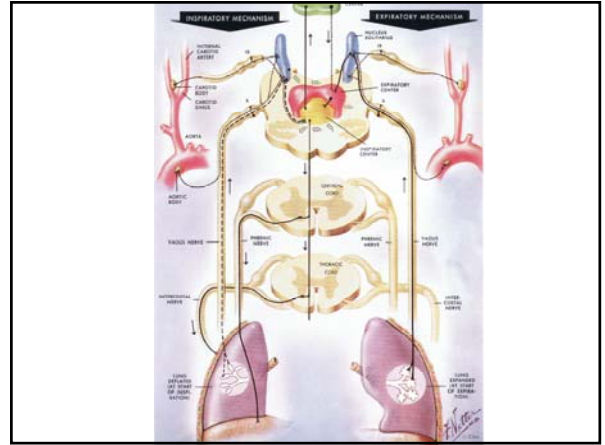
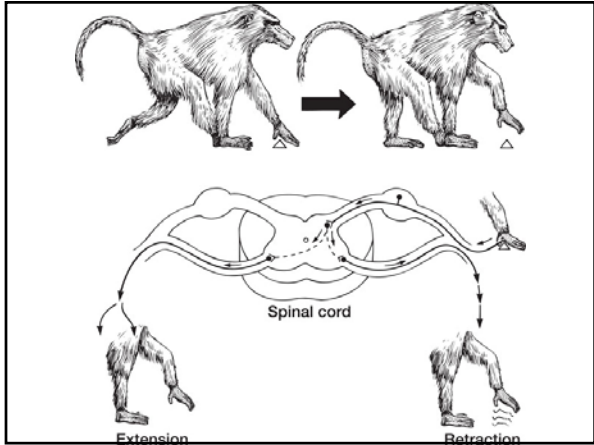
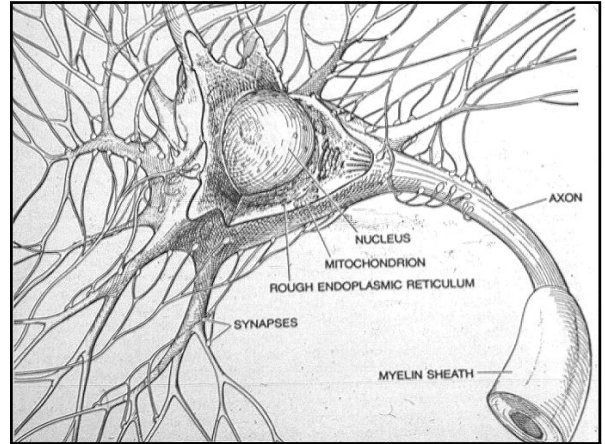
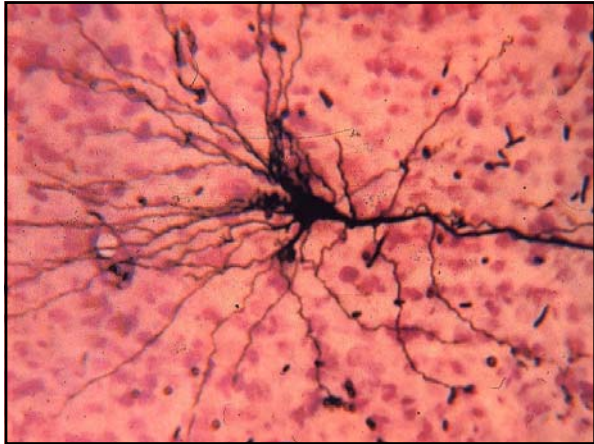


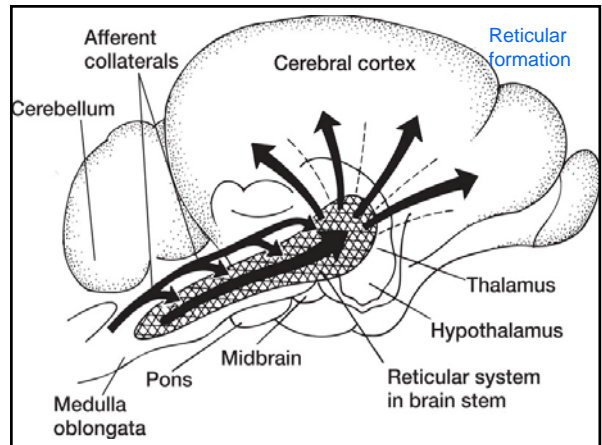
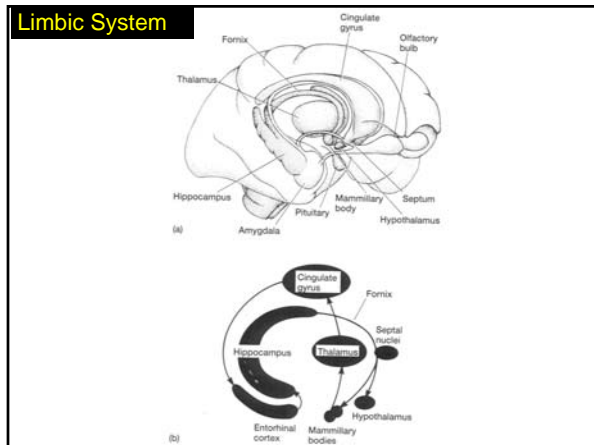
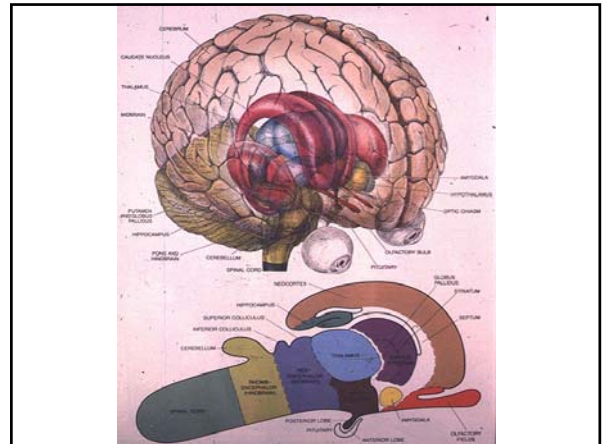
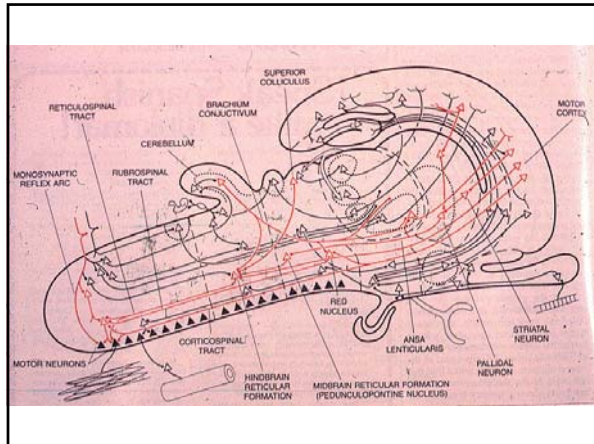
Morphological	out dated (tired)	Descriptive (wired)
PALLIUM		
Medial -----	Archipallium	(Hippocampus)
Dorsal } -----	Neopallium	(Cerebral cortex)
Lateral } -----	Paleopallium	(Piriform cortex)
SUBPALLIUM		
Striatum -----	Corpus striatum	(Basal nuclei)
Septum -----	Septum	(Septal nuclei)
	(limbic system)	



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Experimental Approaches

