

# Areas of the Brain Stem

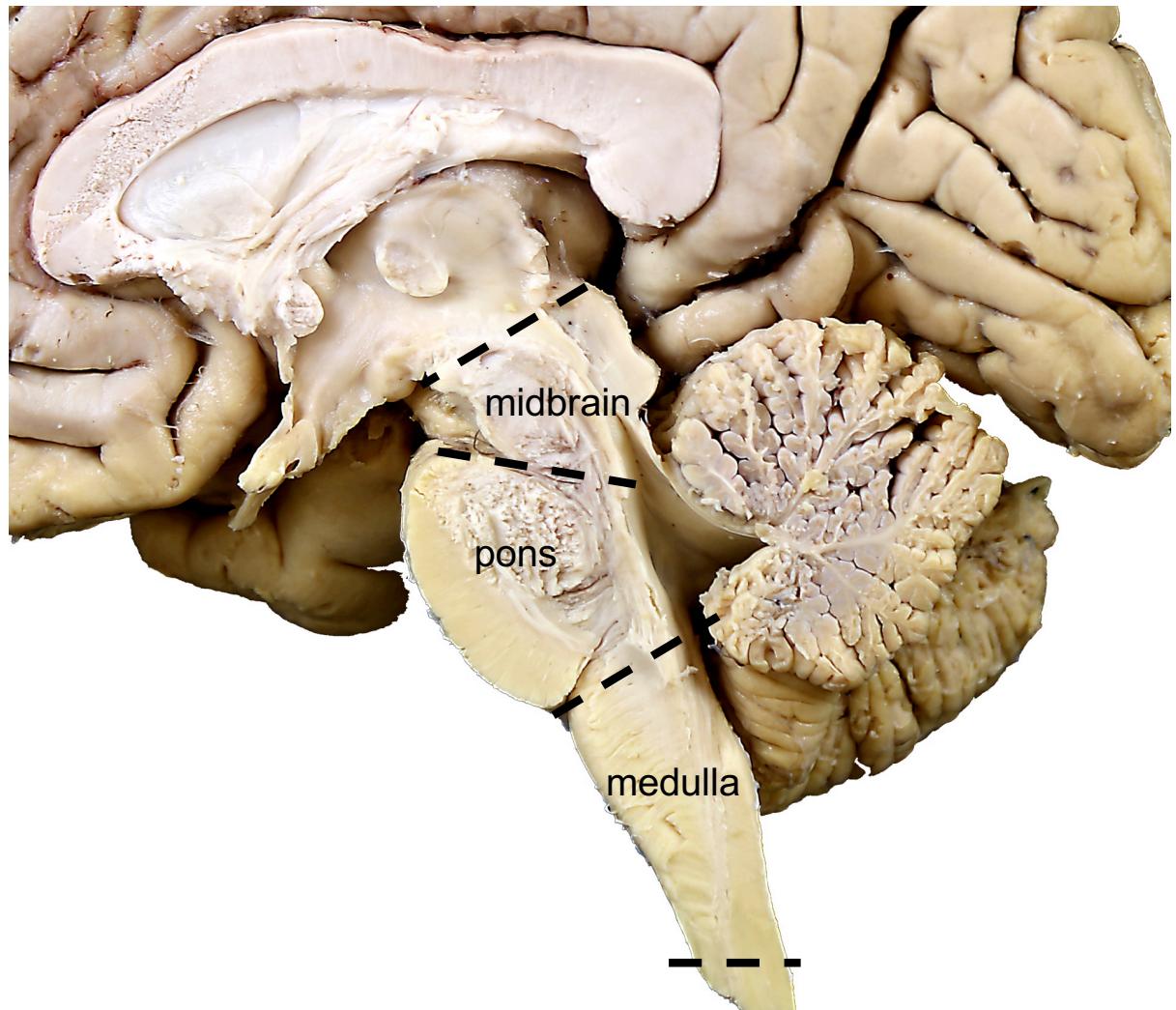
## *Objectives:*

Learn the structures that form the ventricular space, tegmentum and base of the midbrain, pons and medulla oblongata.

Learn to identify these structures on a sagittal section of a plastinated brain, on the brain stem model, and on representative transverse sections of the brain stem.

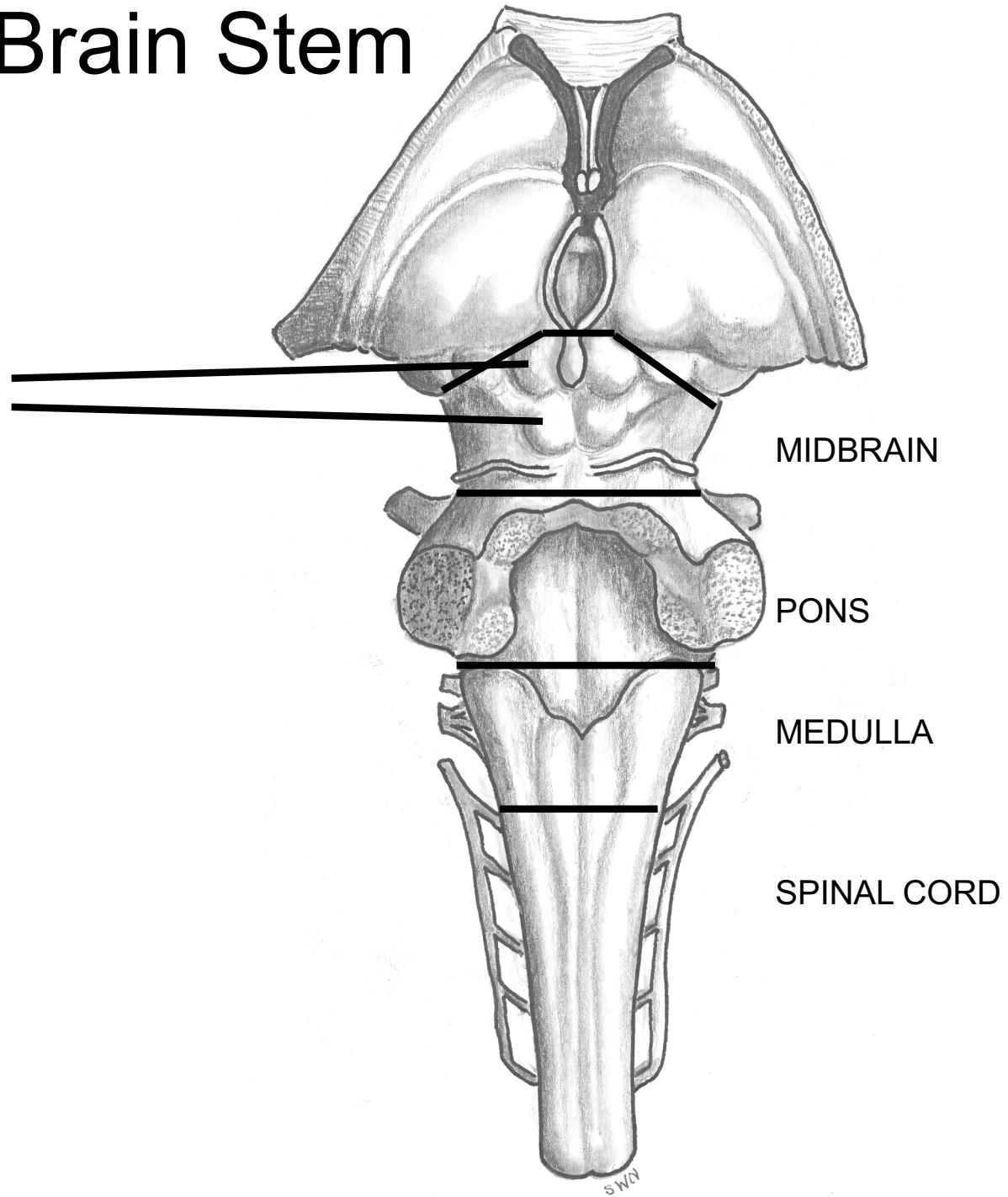
## *Specimens Required:*

Hemisected whole brain  
Rubber brain stem model



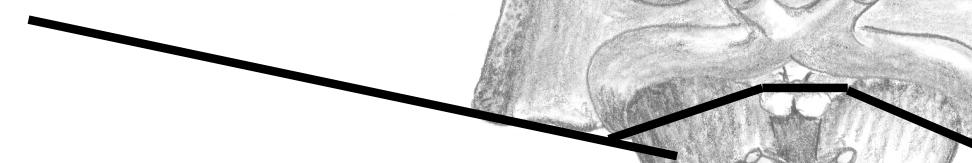
# Areas of the Brain Stem

Dorsal midbrain:  
superior colliculi  
inferior colliculi



# Areas of the Brain Stem

Ventral midbrain:  
crus cerebri



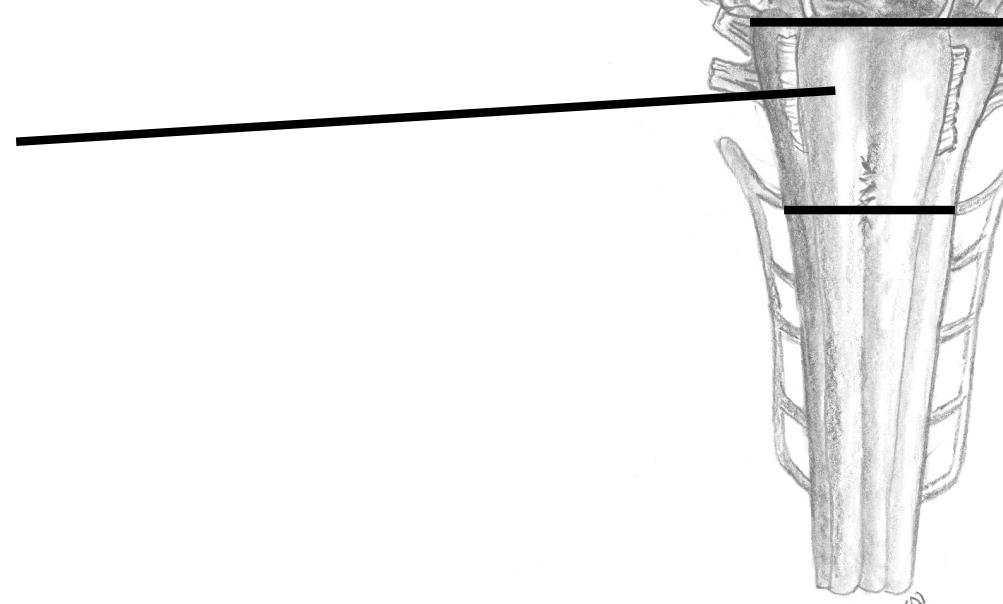
MIDBRAIN

Ventral pons:  
basal pons



PONS

Ventral medulla:  
pyramids



MEDULLA

SPINAL CORD

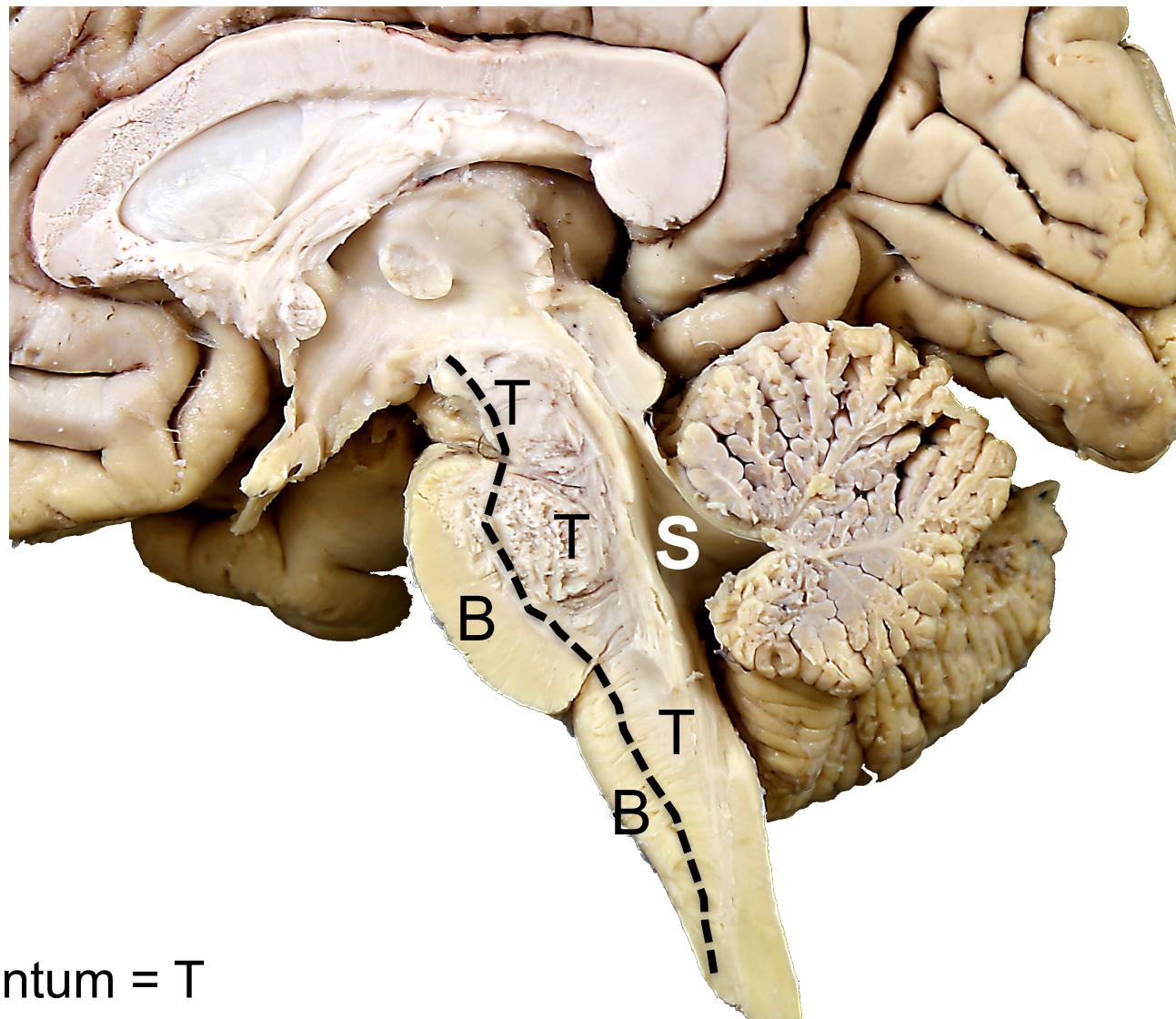
# Areas of the Brain Stem

The brain stem is divided into the **tegmentum** (containing the nuclei of the cranial nerves) and the **base** (containing descending fiber tracts)

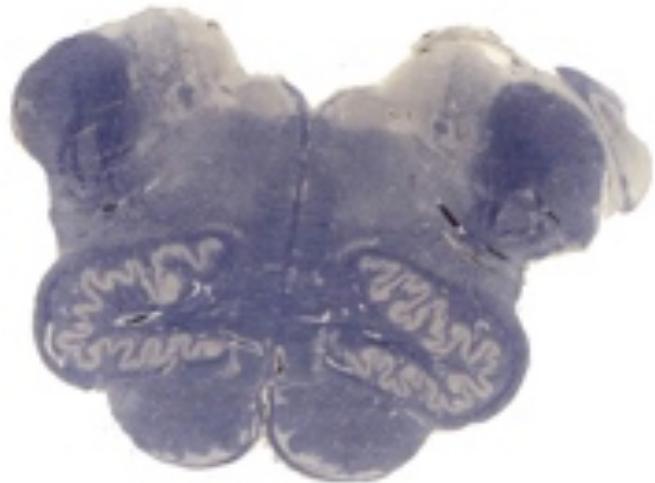
Ventricular Space = S  
(Fourth Ventricle)

Central Cellular Core, Tegmentum = T

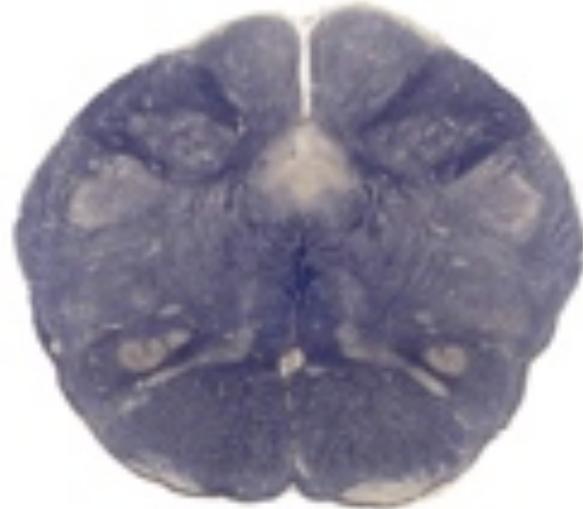
Descending Pathways, Base = B



# Sections of the Brain Stem

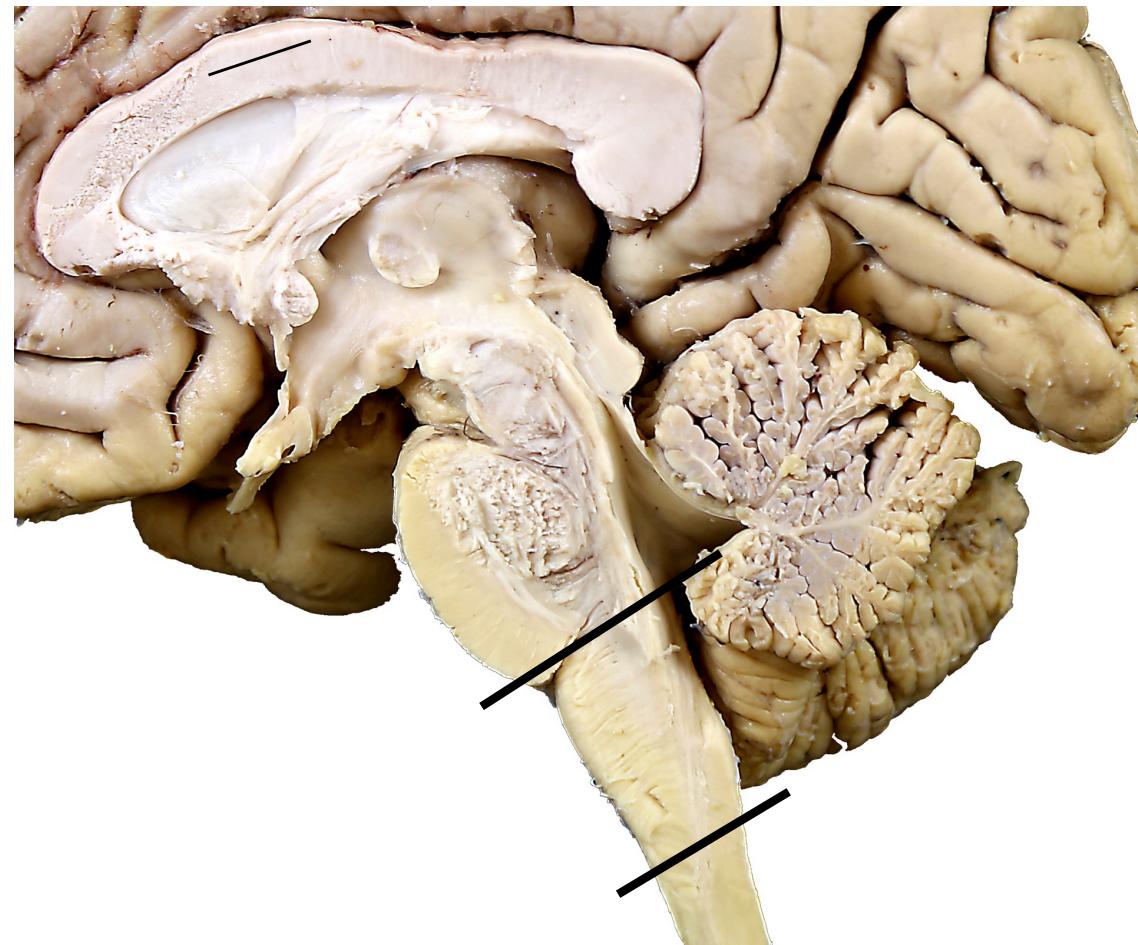


Open medulla



Closed medulla

Transverse sections of the brain stem stained for myelin reveal internal structures, particularly those of the tegmentum (see following pages).



# Sections of the Brain Stem

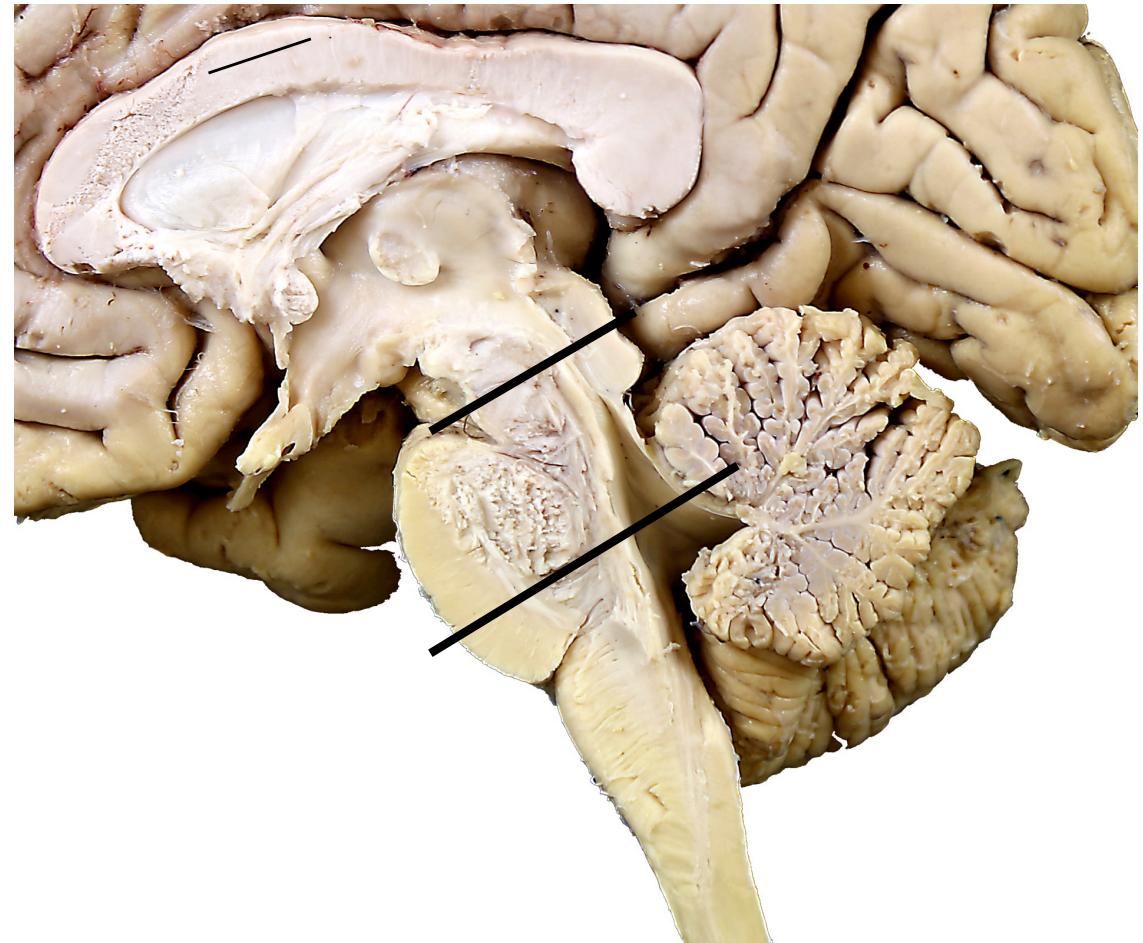


Midbrain



Pons

Transverse sections of the brain stem stained for myelin reveal internal structures, particularly those of the tegmentum (see following pages).

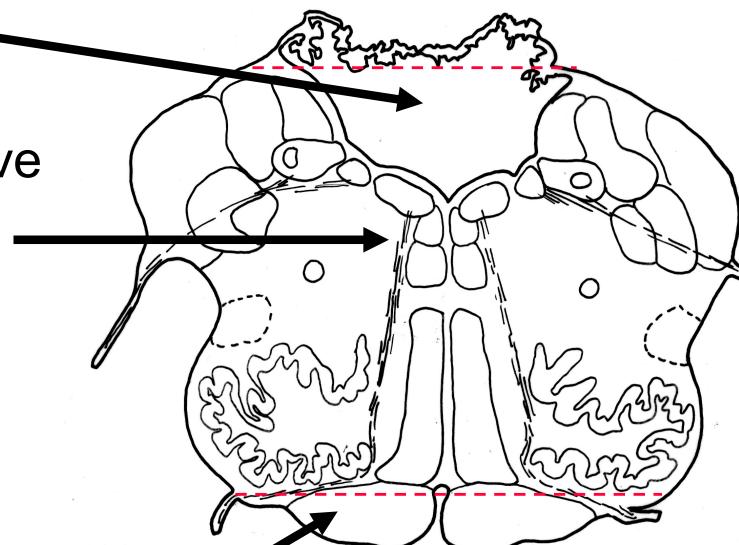


# Medulla Oblongata

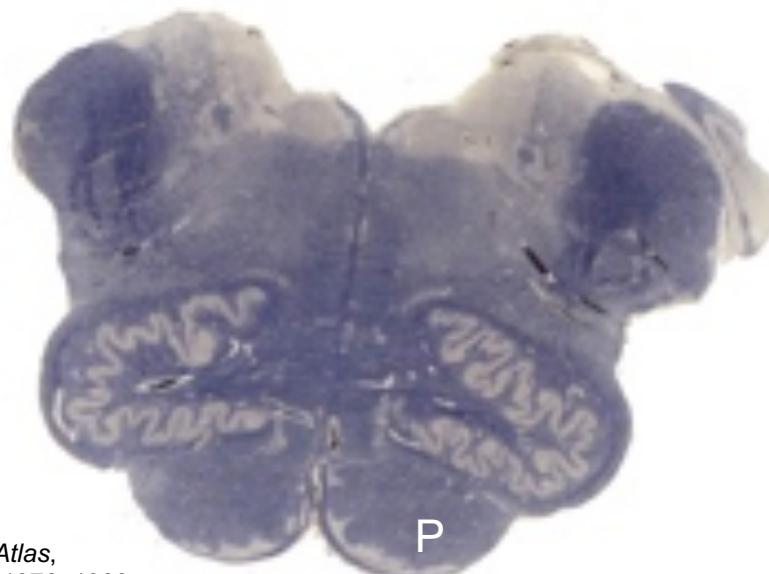
Space: fourth ventricle

Tegmentum: cranial nerve nuclei and root fibers, ascending and descending tracts, reticular formation

Base: pyramids (corticospinal tracts)



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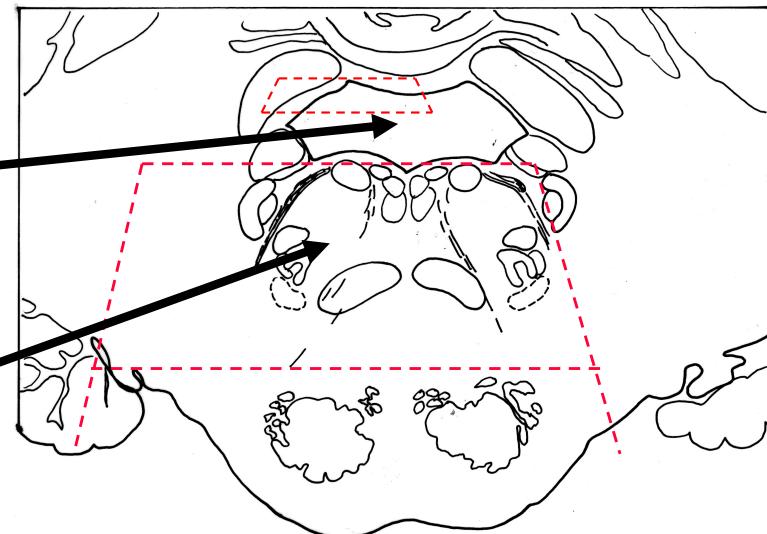
(Fig 44. From *Structure of the Human Brain: A Photographic Atlas*, 3/E by SJ DeArmond and MM Fusco and MD Dewey, 1974, 1976, 1989 by Oxford University Press, Inc. Used by permission of Oxford University Press, Inc.)

# Pons

Space: fourth ventricle

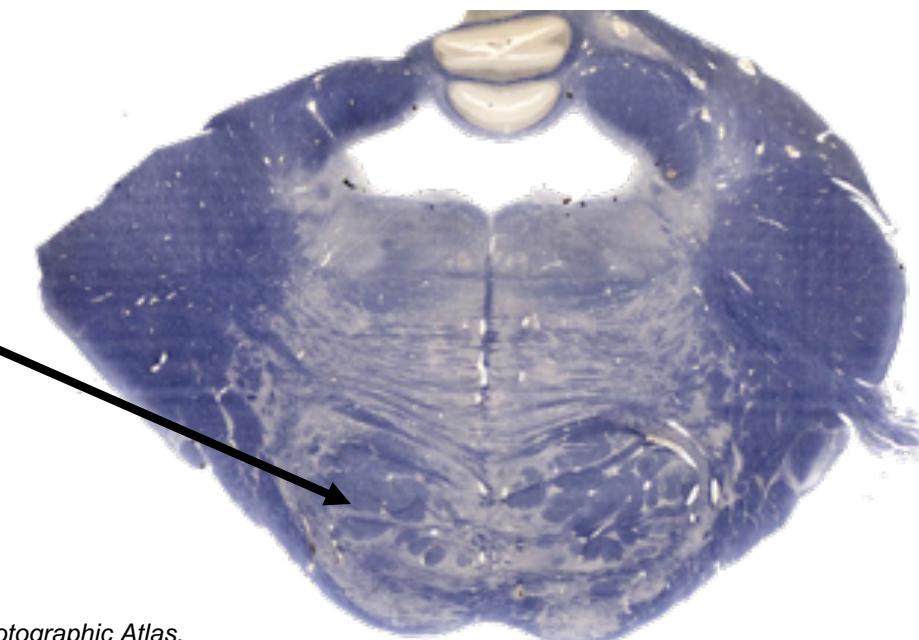
Tegmentum: cranial nerve nuclei and root fibers, ascending and descending tracts, reticular formation

Base: corticospinal tracts embedded in the pontine nuclei and fibers of the basal pons



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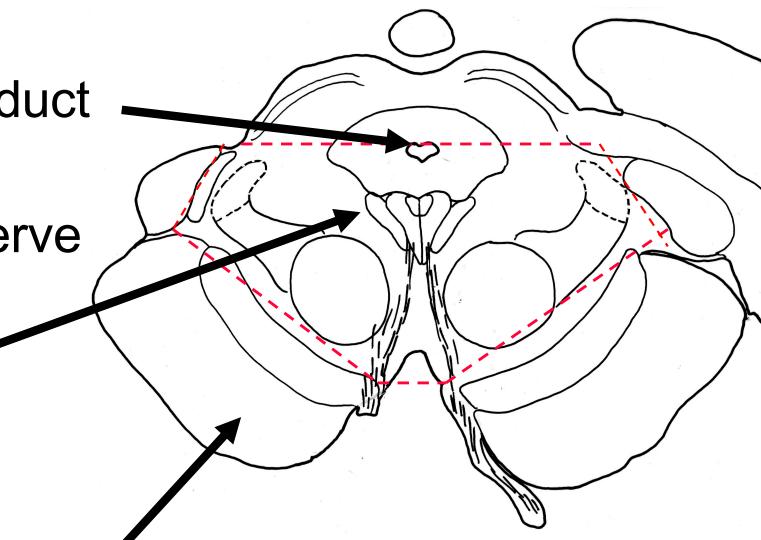
NOTE: The cerebellum has been dissected away from the pons along the straight cut edges.

# Midbrain

Space: cerebral aqueduct

Tegmentum: cranial nerve nuclei, ascending and descending tracts, reticular formation

Base: crus cerebri  
(the corticospinal tracts and the corticopontine fibers)  
substantia nigra



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(Fig 54. From *Structure of the Human Brain: A Photographic Atlas*,  
3/E by SJ DeArmond and MM Fusco and MD Dewey, 1974, 1976, 1989  
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# Areas of the Brain Stem

## Question I

For each neuroanatomical structure (1 - 6) indicate the area of the brain stem (A - F) in which it is found. (An area of the brain stem may be used as an answer once, more than once, or not at all.)

- A. Tegmentum midbrain
- B. Tegmentum pons
- C. Tegmentum medulla
- D. Base of the midbrain
- E. Base of the pons
- F. Base of the medulla

- \_\_\_\_\_ 1. Reticular formation
- \_\_\_\_\_ 2. Pyramid
- \_\_\_\_\_ 3. Pontine nuclei
- \_\_\_\_\_ 4. Substantia nigra
- \_\_\_\_\_ 5. Crus cerebri
- \_\_\_\_\_ 6. Cranial nerve nuclei

# Areas of the Brain Stem

1. A, B, C
2. F
3. E
4. D
5. D
6. A,B,C