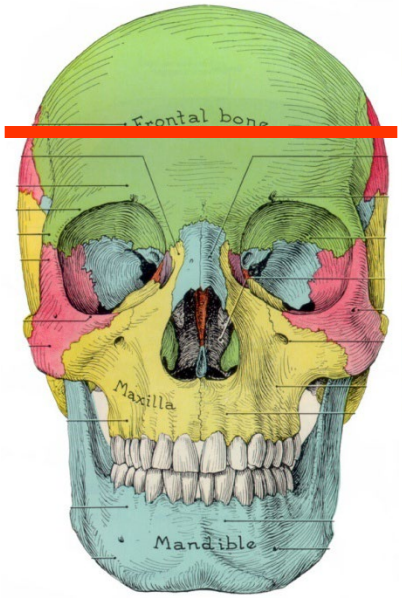
INSTRUCTIONS FOR DISSECTION FRIDAY FEB 9, 2024: EXPOSE BRAINSTEM IN CRANIAL CAVITY

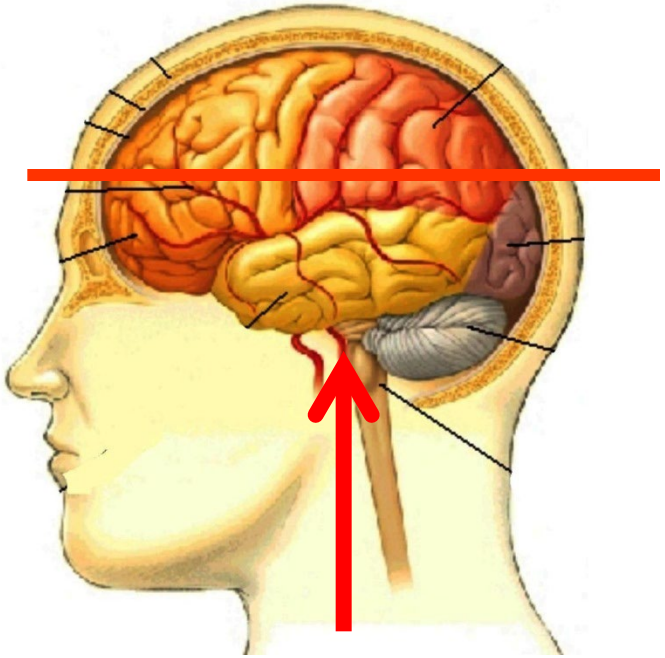
STRUCTURE OF CRANIAL CAVITY – ALREADY DONE - saw cut to remove calvarium



SKULL

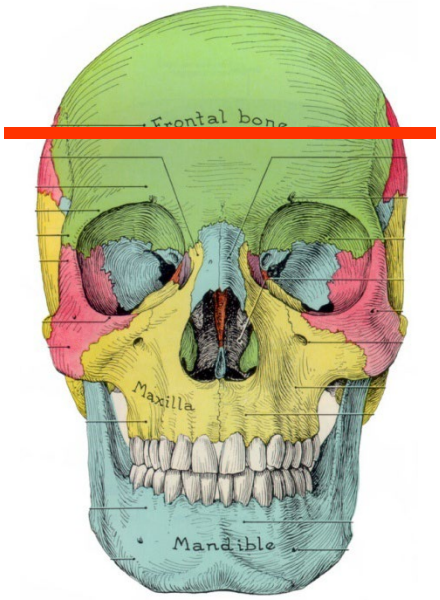
INTERIOR OF SKULL - LEARN OPENINGS FORAMINA

ALSO CUT THROUGH BRAIN – DISSECT LOWER HALF TO EXPOSE BRAIN STEM

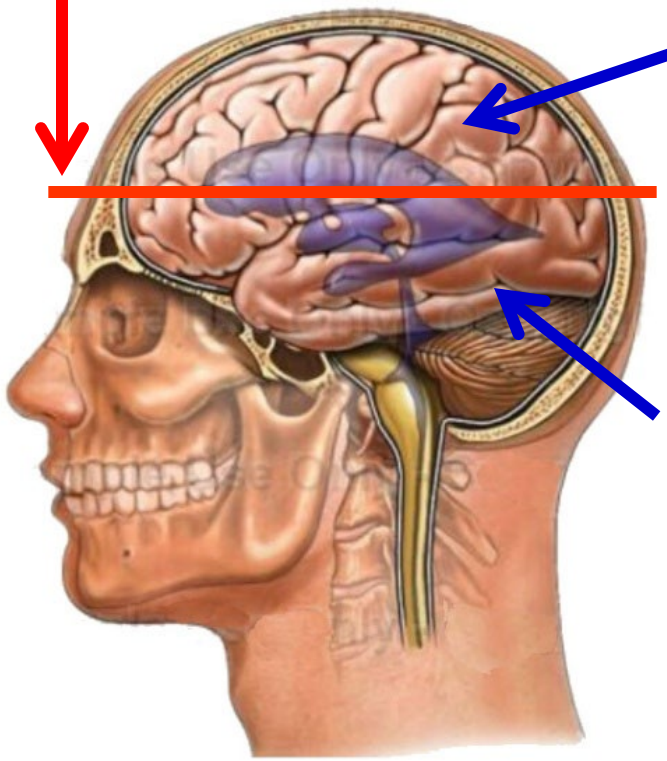


BRAIN STEM – SEE CRANIAL NERVES, ARTERIAL CIRCLE OF WILLIS

DISSECT LOWER HALF (ATTACHED TO BODY) TO EXPOSE BRAINSTEM; LEAVE UPPER HALF INTACT



VIEW FROM ABOVE AFTER REMOVE CALVARIUM (SKULL CAP)



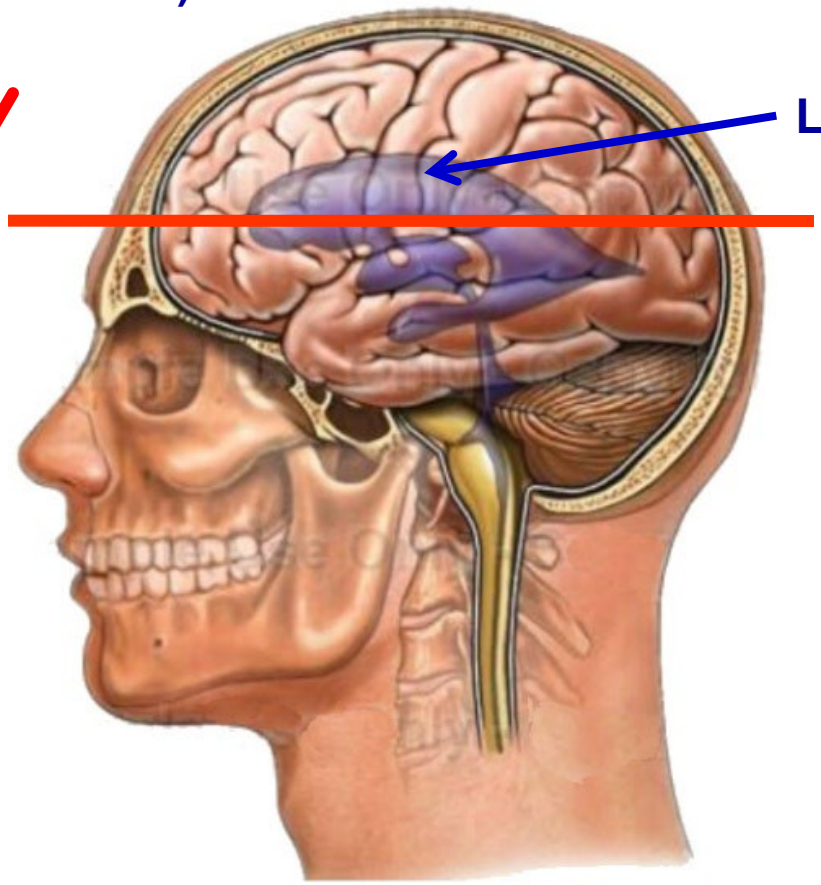
UPPER HALF HAS CALVARIUM (WITH DURA) AND UPPER HALF OF BRAIN - LEAVE INTACT WITH CADAVER FOR REVIEW

LOWER HALF ON CADAVER HAS REMAINDER OF BRAIN, BRAINSTEM, CRANIAL NERVES, ARTERIES

REMOVE CALVARIUM (SAW CUTS ALREADY MADE)

DISSECT BRAIN ON CADAVER (LOWER HALF) TO EXPOSED BRAINSTEM

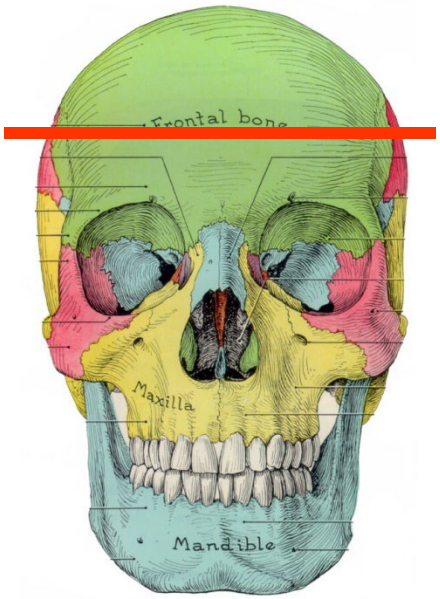
VIEW FROM ABOVE AFTER REMOVE CALVARIUM (SKULL CAP)

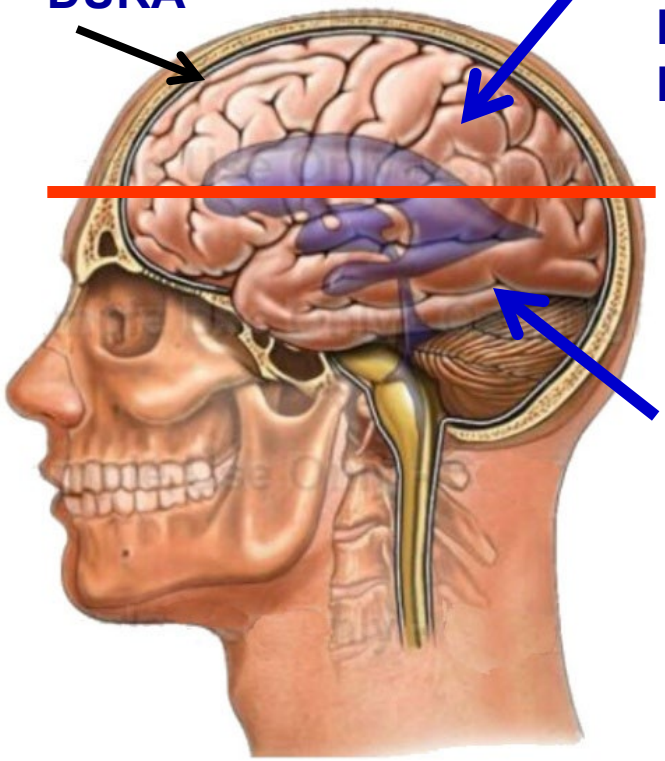


LATERAL VENTRICLE

CUT THROUGH BRAIN – VIEW VENTRICLES OF BRAIN, CHOROID PLEXUS

SEPARATE DURA AND BRAIN FROM CALVARIUM: LIFT DURA TO SEE 'BRIDGING' VEINS





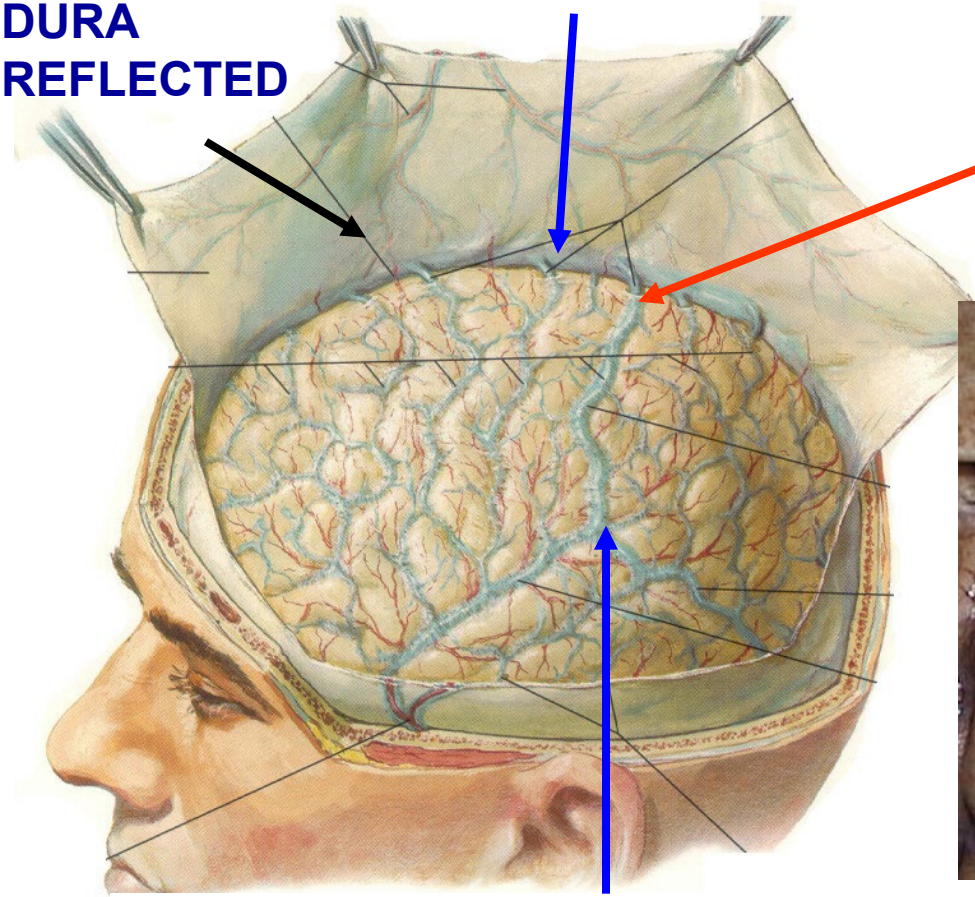
REMOVE CALVARIUM
(SAW CUTS ALREADY MADE)

CALVARIUM ALREADY REMOVED WITH UPPER HALF OF BRAIN; DURA CUT BUT STILL TIGHTLY ATTACHED TO CALVARIUM

SEPARATE DURA AND BRAIN FROM CALVARIUM: LIFT DURA TO SEE 'BRIDGING' VEINS

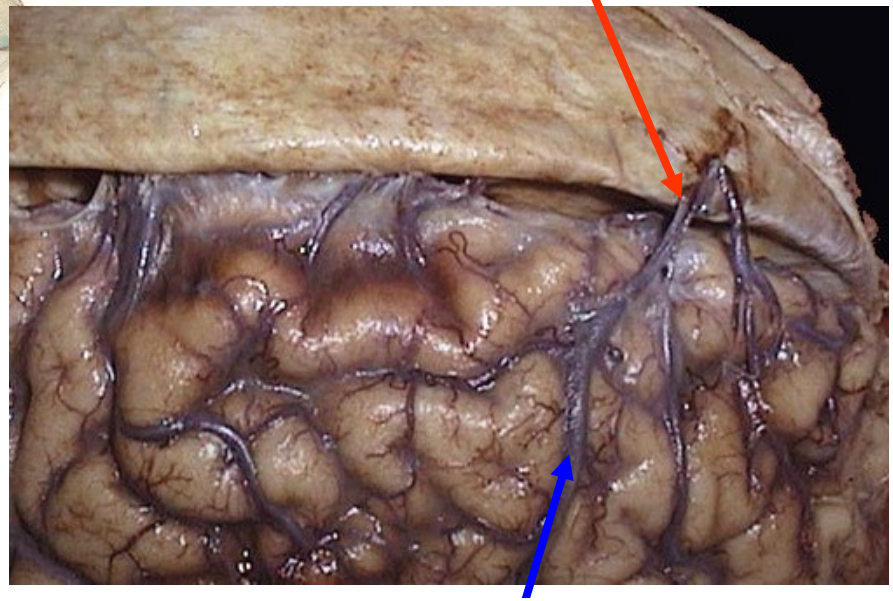
Superior Sagittal Sinus

DURA REFLECTED



Superior Cerebral veins

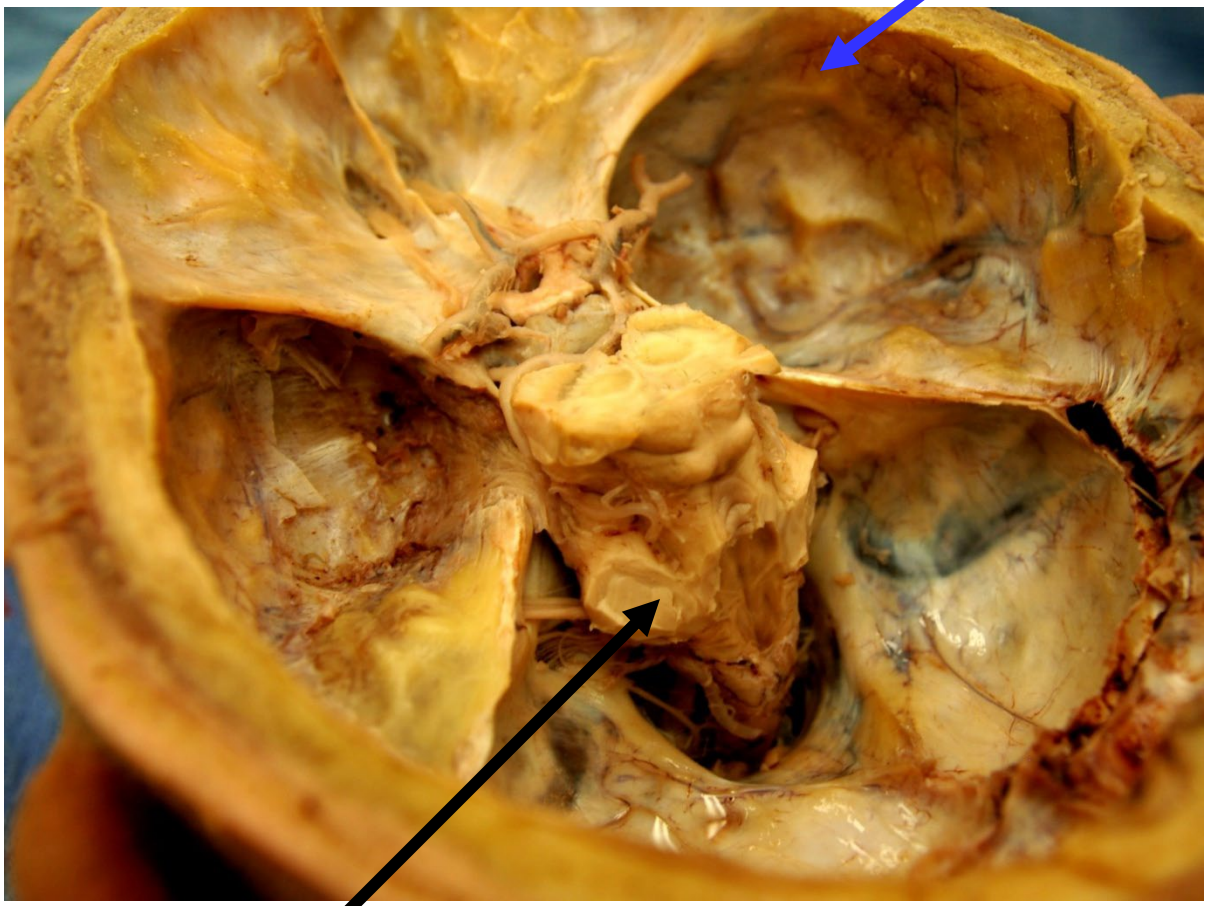
'BRIDGING' VEINS



Superior Cerebral veins

Photo from lecture of Dr. Nancy Norton

END OF DISSECTION SHOULD LOOK LIKE THIS



REMOVE BRAIN AND LEAVE BRAIN STEM AND CRANIAL NERVES

OVERALL: HOW BRAIN FITS INTO CRANIAL CAVITY

DONE ON BODIES ON WHICH YOU HAVE ALREADY WORKED

PICTURES OF BRAINS OF CADAVERS IN GROSS LAB (DISTRIBUTED)

VIEW IN PICTURES

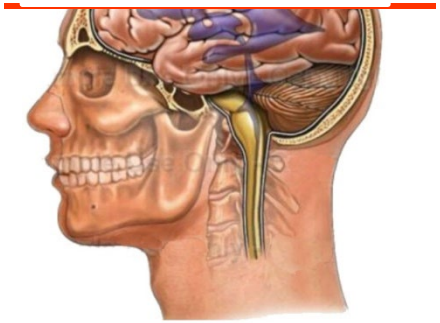


TABLE 14

TABLE 12

CUTS THROUGH BRAIN CAN BE AT DIFFERENT LEVELS

ALREADY DONE: SAW CUTS TO REMOVE CALVARIUM AND TOP OF SKULL

CUT MADE THROUGH ENTIRE BRAIN

DISSECT PART STILL IN BODY

PART OF BRAIN IN CALVARIUM WILL STILL BE INTACT

NOTE: SPECIMENS HAVE BEEN CUT AT DIFFERENT LEVELS SOME DISSECTIONS WILL BE REQUIRE REMOVAL OF LESS TISSUE TO REACH MID BRAIN

TABLE 14

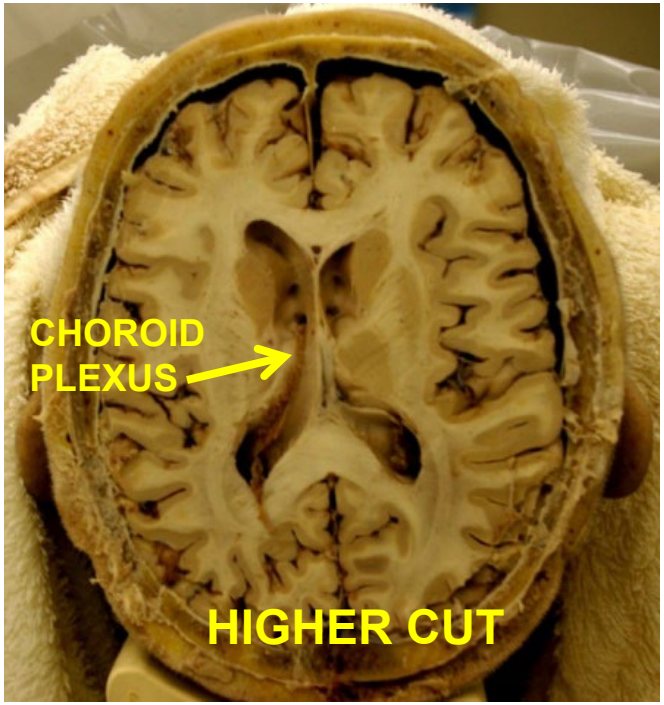
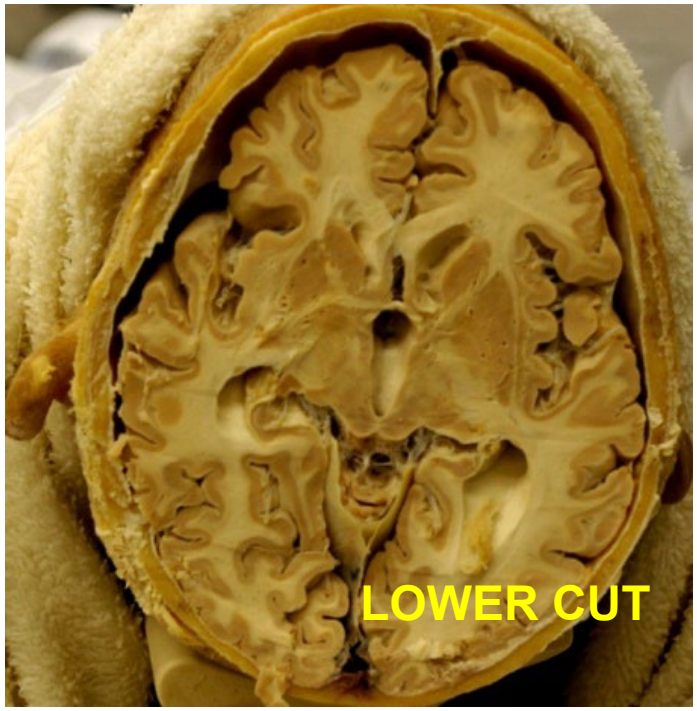
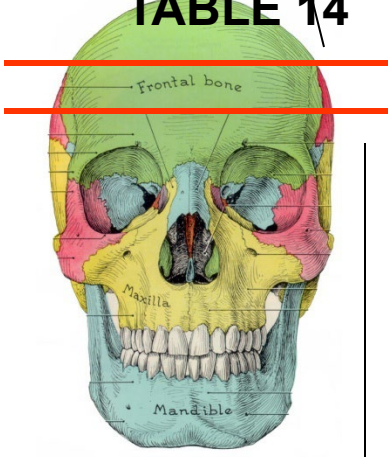


TABLE 12



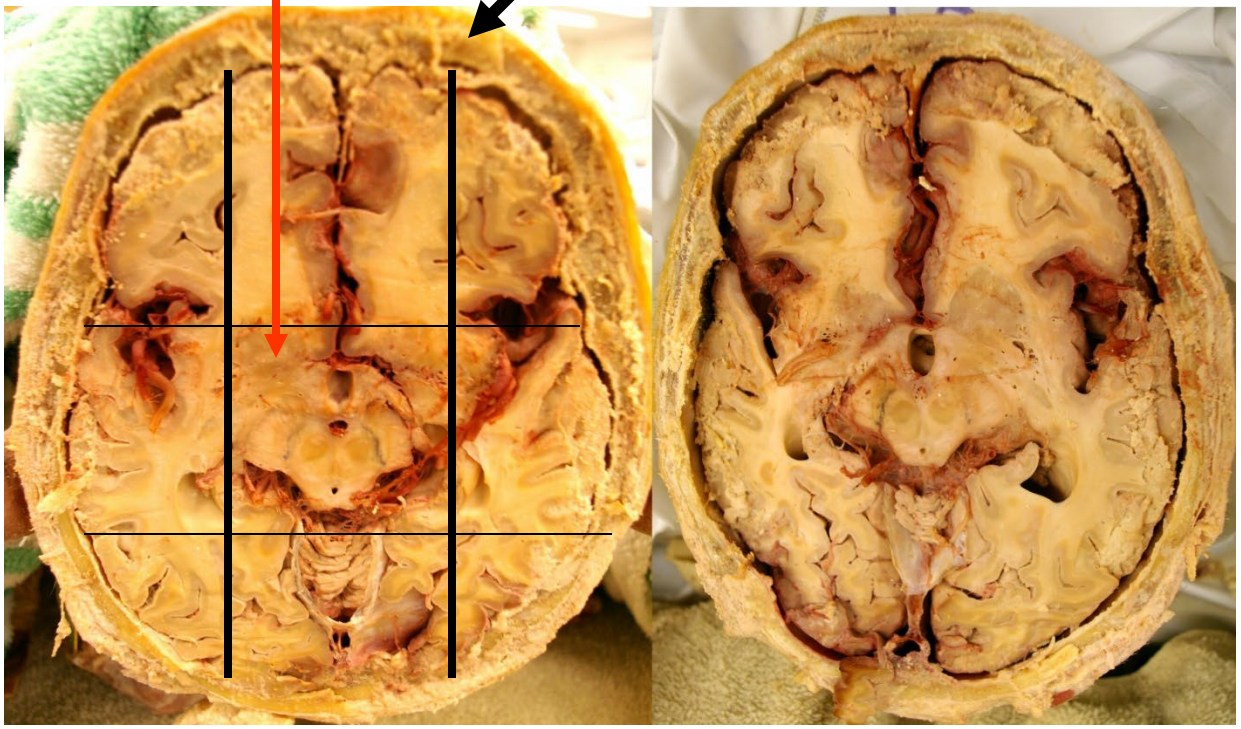
HIGHER - TABLE 14



LOWER - TABLE 12

CUTS THROUGH BRAIN CAN BE AT DIFFERENT LEVELS, EXACT ORIENTATIONS

INSTRUCTIONS FOR DISSECTION FRIDAY FEB 11: EXPOSE BRAINSTEM IN CRANIAL CAVITY - WILL BE POSTED THIS WEEK



CUTS WILL BE MADE TO REMOVE CORTEX AND OTHER BRAIN STRUCTURES SURROUNDING BRAIN STEM

SURROUNDING TISSUE IS REMOVED BY HAND

NOTE: PART OF BRAIN IN CALVARIUM WILL BE LEFT INTACT

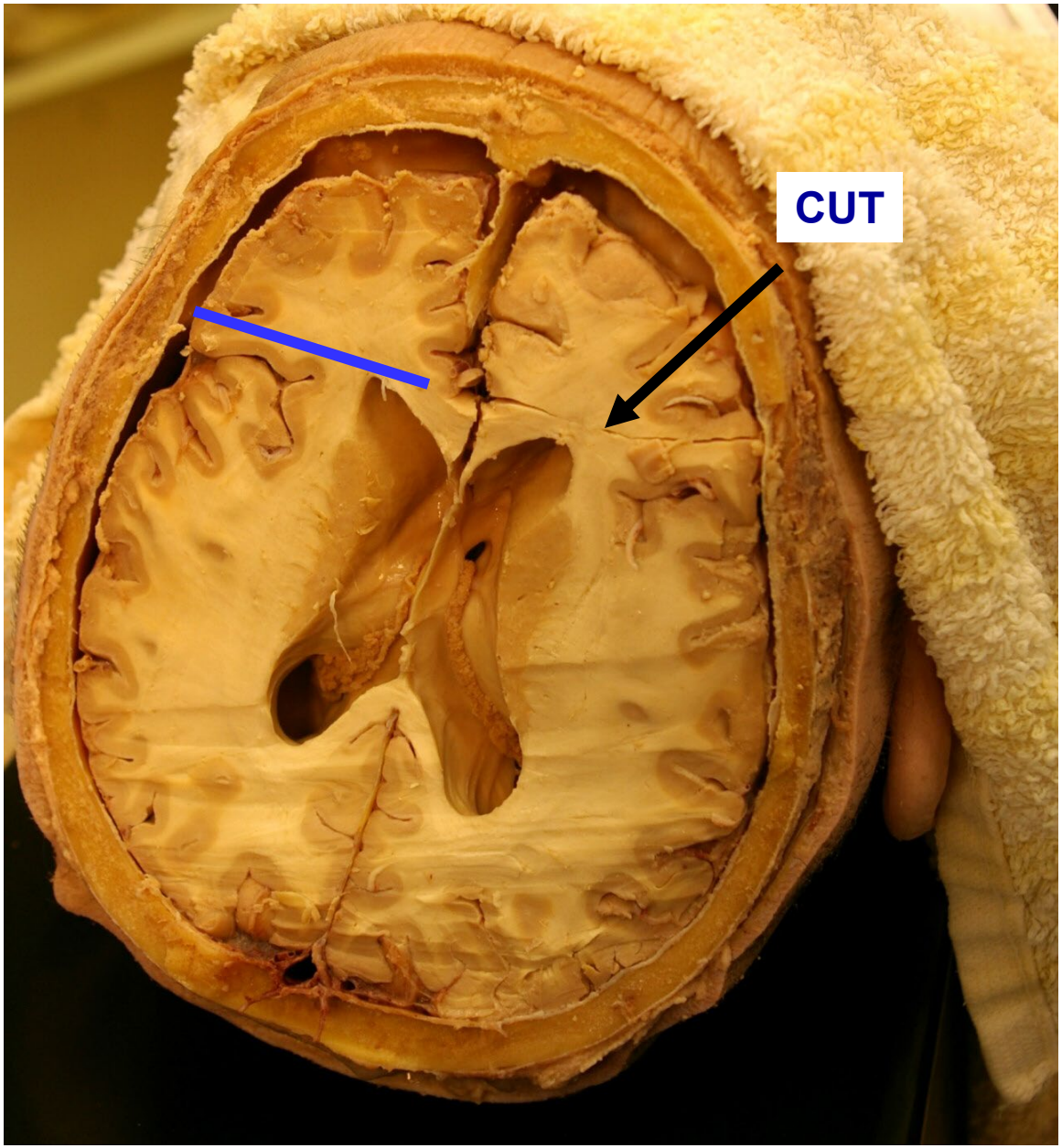
DISSECTION SEQUENCE: EXPOSE BRAINSTEM IN CRANIAL CAVITY

- SUPPORT HEAD WITH PLASTIC BLOCKS (IN CENTER ISLAND)
- ELEVATE SO YOU CAN EASILY LOOK IN CRANIAL CAVITY

DISSECTION: EXPOSE BRAINSTEM IN CRANIAL CAVITY

FIRST CUT:

1) LIFT UP FRONTAL LOBE GENTLY (FRONTAL POLE) AND SEE OLFACTORY BULB BELOW
2) TRY TO PUSH DOWN AND RETAIN BULB IN CRANIAL CAVITY
3) THEN CUT ACROSS FRONTAL POLE ANTERIOR TO GENU OF CORPUS CALLOSUM (ALL THE WAY THROUGH)

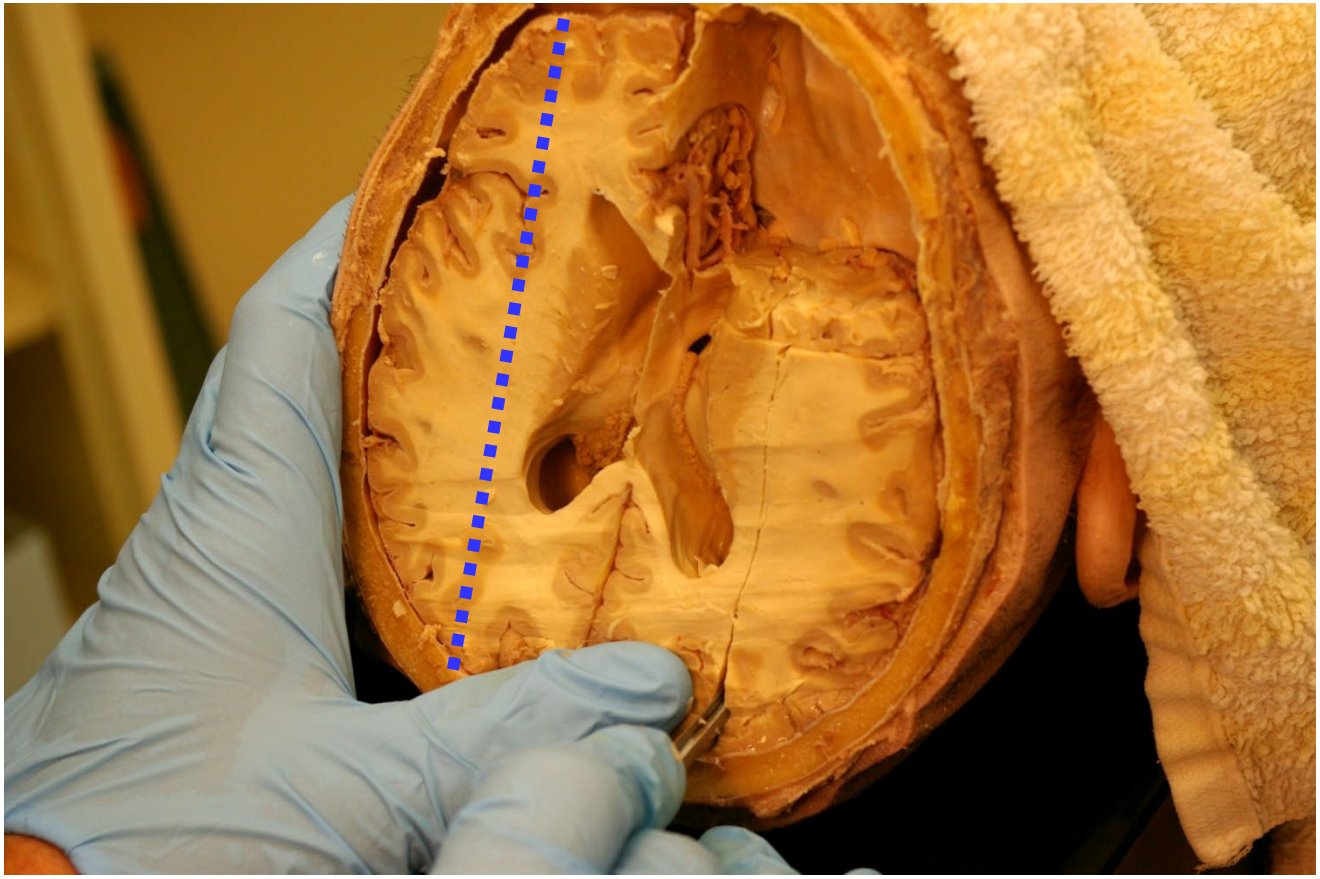


DISSECTION: EXPOSE BRAINSTEM IN CRANIAL CAVITY

FRONTAL CORTEX IS THEN GENTLY REMOVED BY HAND

DISSECTION: EXPOSE BRAINSTEM IN CRANIAL CAVITY

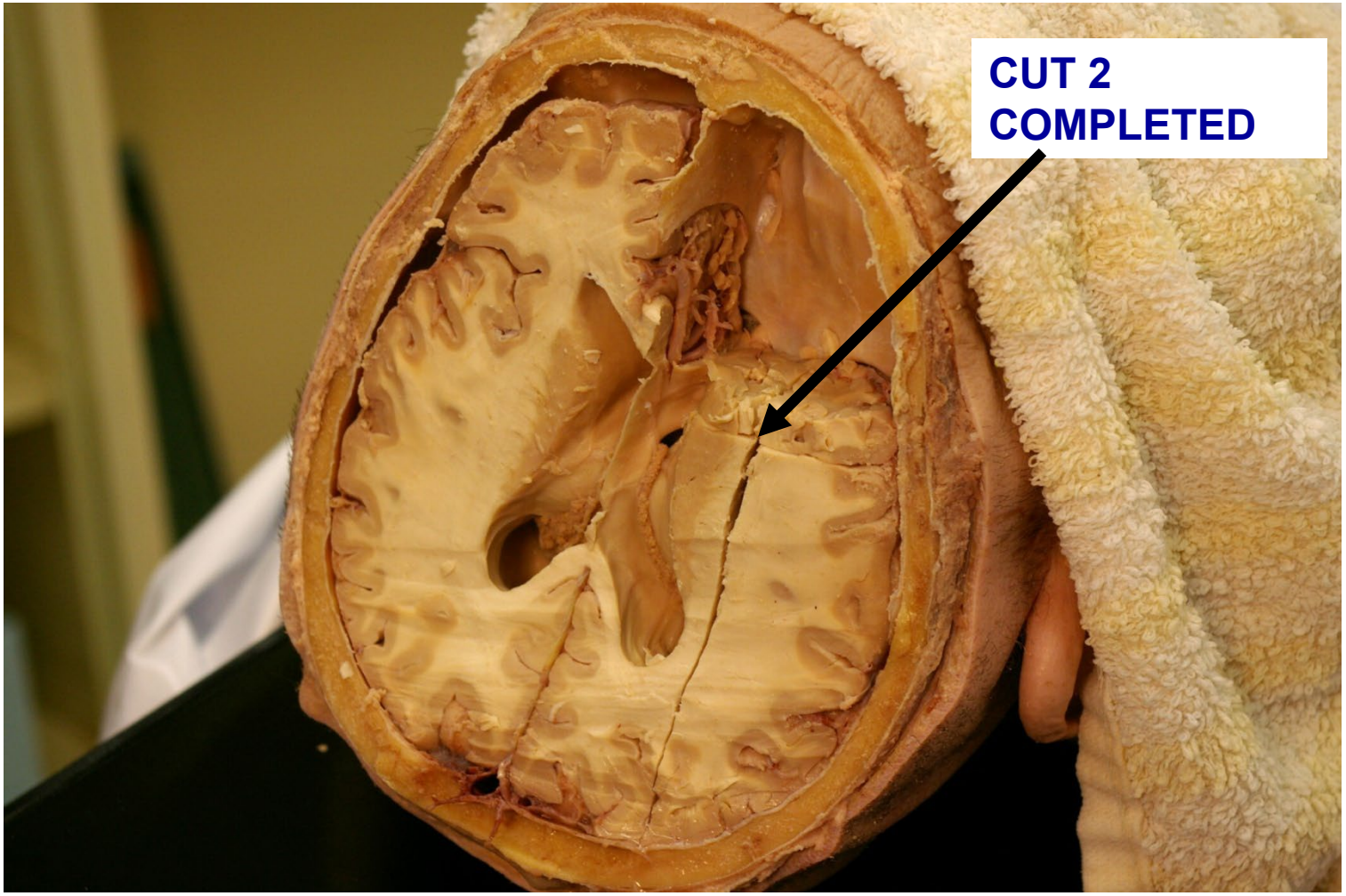
PLANE OF CUT 2



SECOND CUT:

1) CUT THROUGH TEMPORAL AND OCCIPITAL LOBES IN PARASAGITTAL PLANE
2) PUSH DOWN SCALPEL UNTIL MEET RESISTANCE OF BONE OR TENTORIUM CEREBELLI

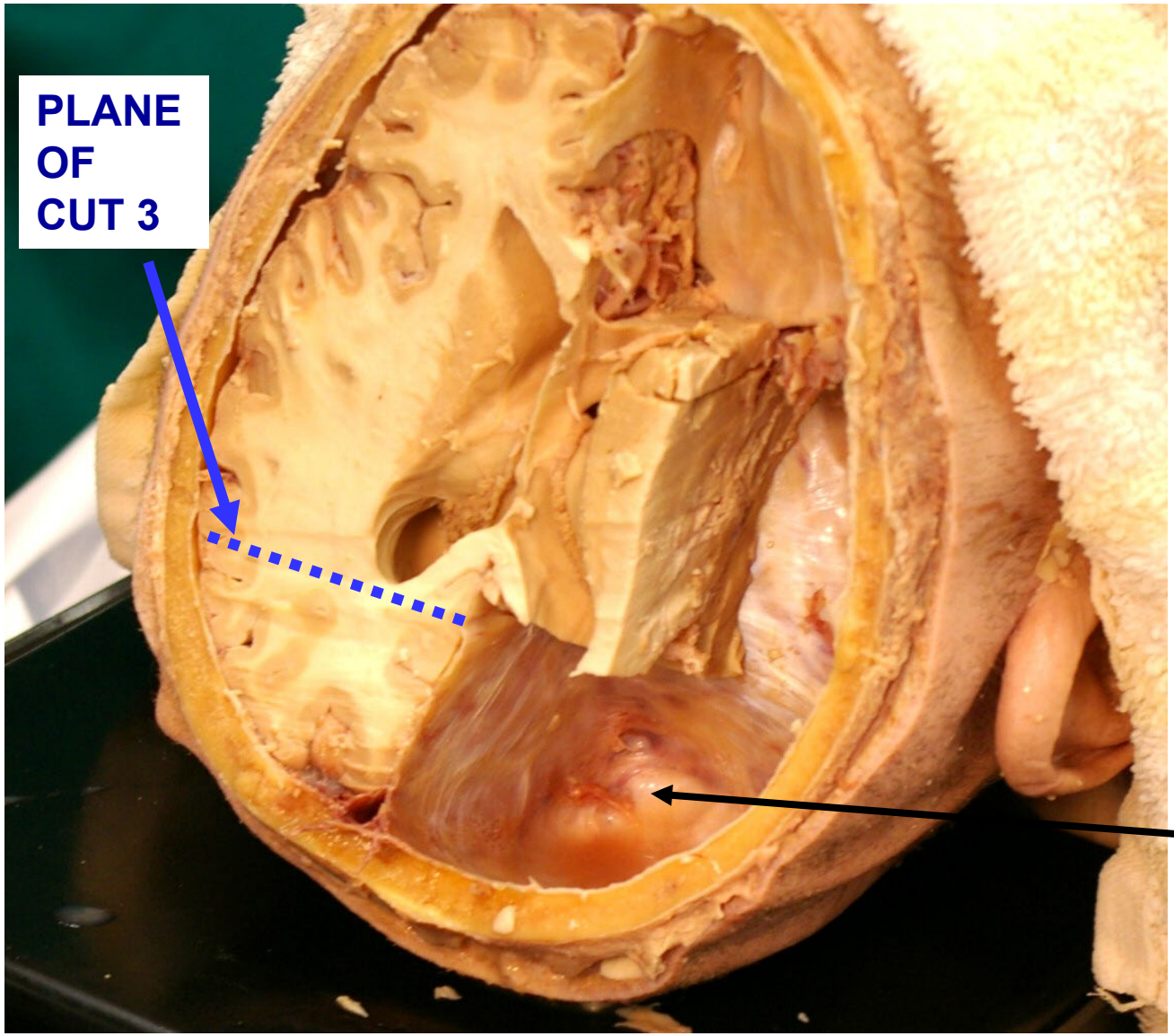
DISSECTION: EXPOSE BRAINSTEM IN CRANIAL CAVITY



DISSECTION: EXPOSE BRAINSTEM IN CRANIAL CAVITY

CUT SECTION OF TEMPORAL AND OCCIPITAL LOBES THEN REMOVED BY HAND

DISSECTION: EXPOSE BRAINSTEM IN CRANIAL CAVITY



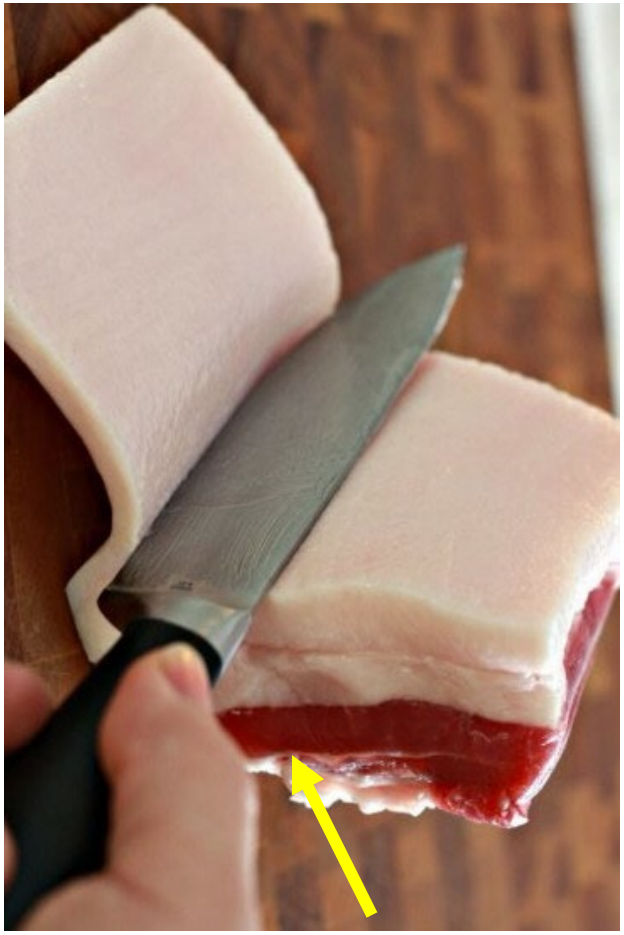
THIRD CUT:

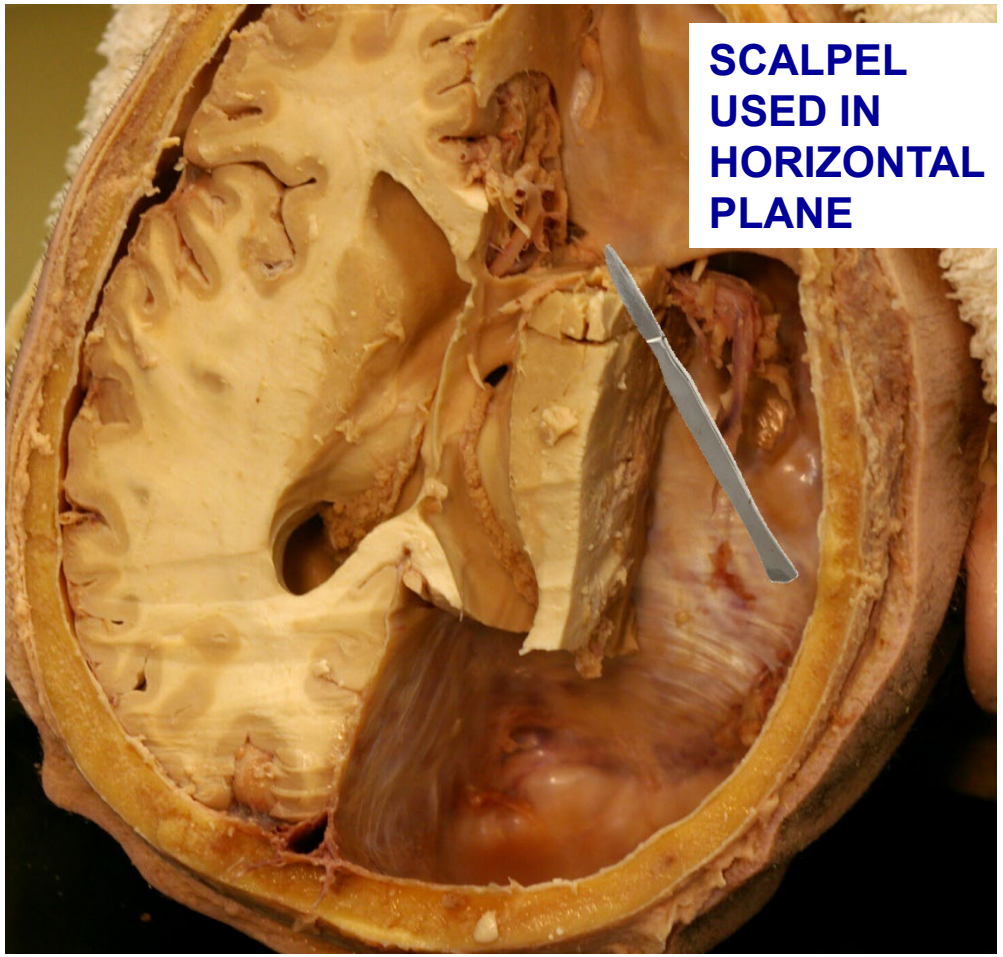
1) CUT THROUGH OCCIPITAL LOBE IN CORONAL PLANE
2) CAREFULLY REMOVED REMAINING PART OF OCCIPITAL LOBE BY HAND

see Tentorium cerebelli overlying cerebellum

DISSECTION: EXPOSE BRAINSTEM IN CRANIAL CAVITY

NEXT CUTS: Use scalpel to cut thalamus and basal ganglia in horizontal plane; remove progressively as sections (carefully cut down to level of optic nerve, int. carotid a.)

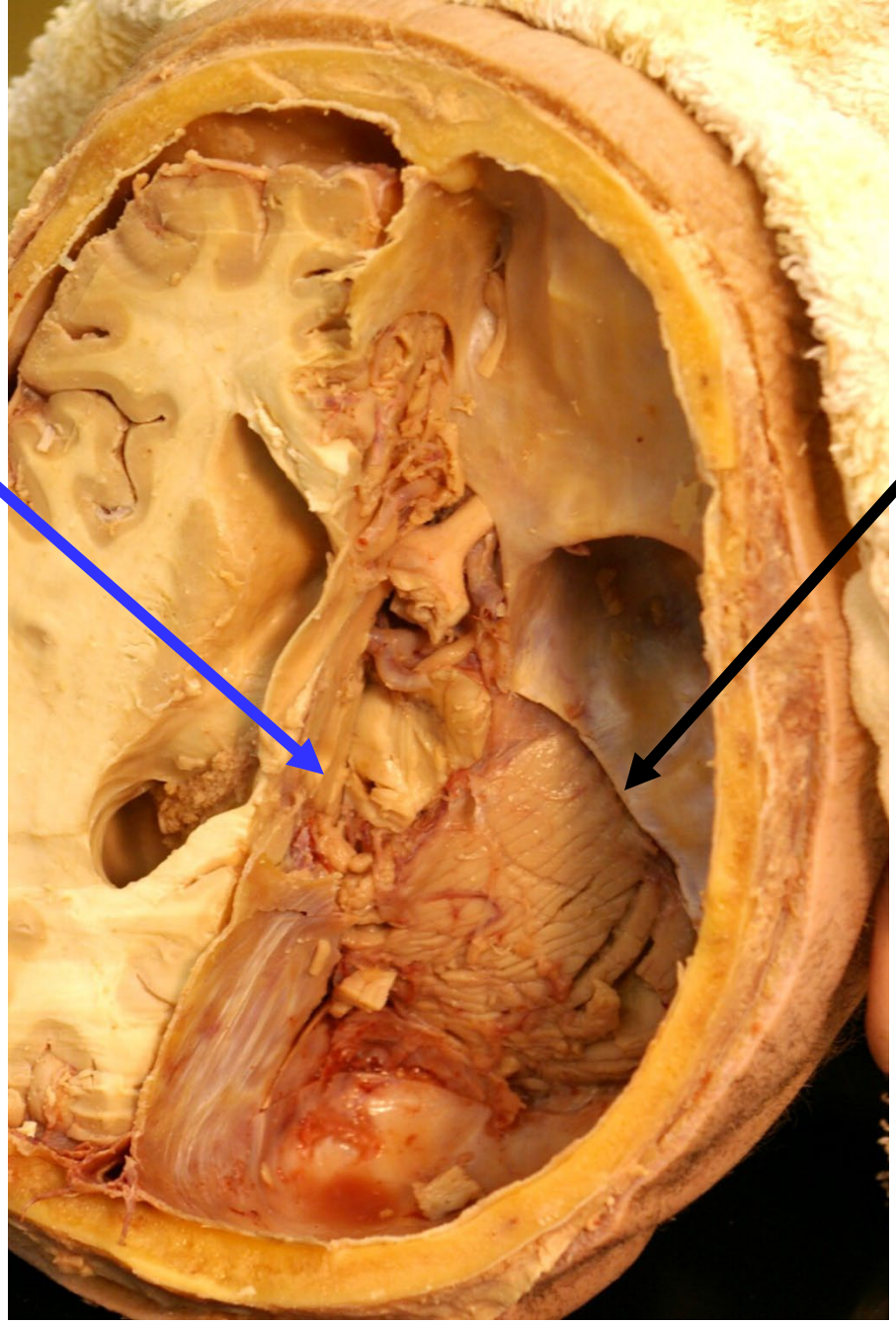




KNIFE CUTTING SECTIONS IN HORIZONTAL PLANE

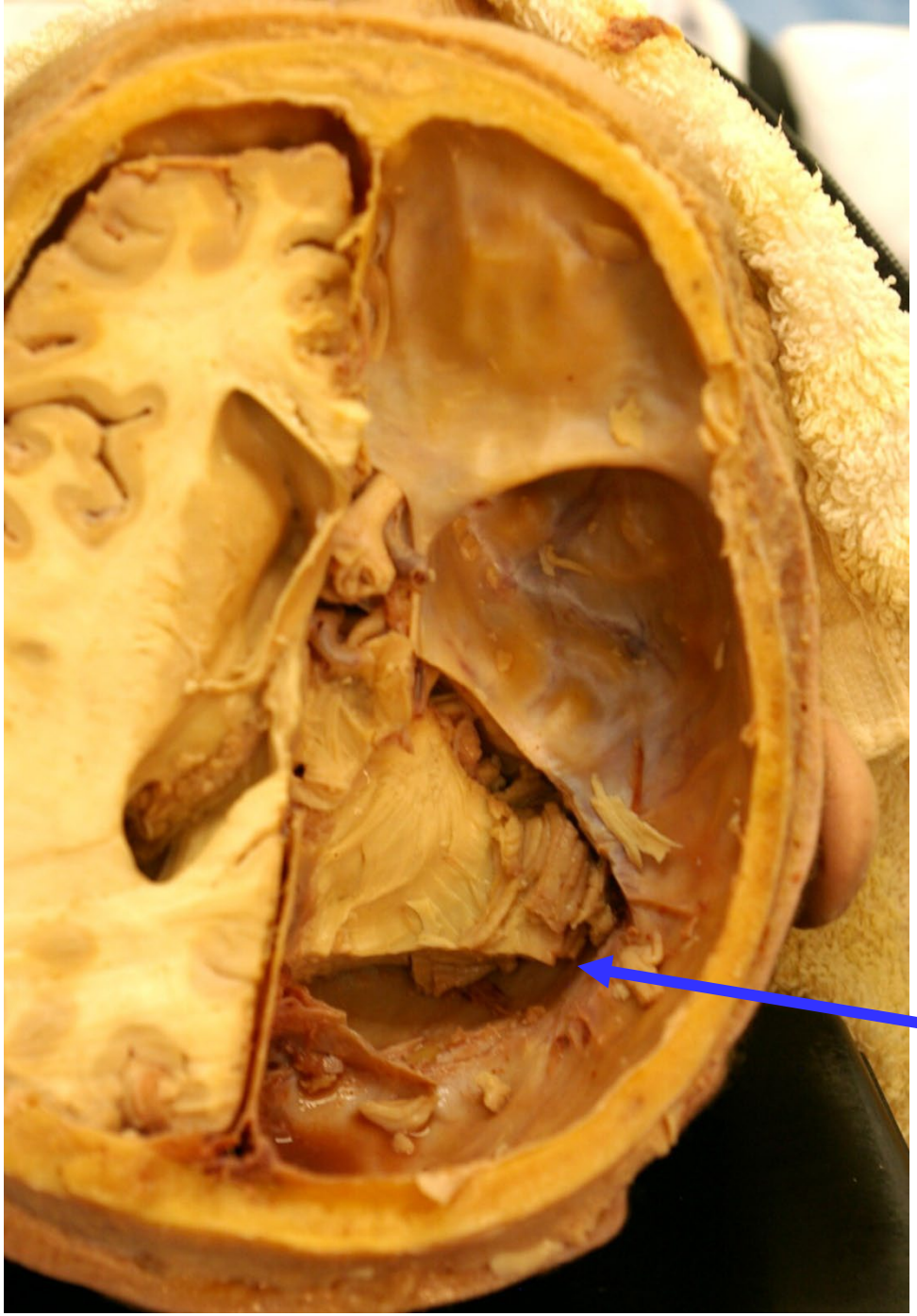
BRAINSTEM CUT TO MIDBRAIN, OPTIC CHIASM;

RETAIN INTERNAL CAROTID ARTERY AND CUT BRANCHES



NEXT CUT: INCISE MARGIN OF TENTORIUM CEREBELLI AT TEMPORAL BONE AND EXTEND POSTERIORLY THROUGH TRANSVERSE SINUS

REMOVE TENTORIUM AND EXPOSE CEREBELLUM



NEXT CUT:
POSTERIOR PART OF CEREBELLUM IS CUT IN A CORONAL PLANE AND REMOVED

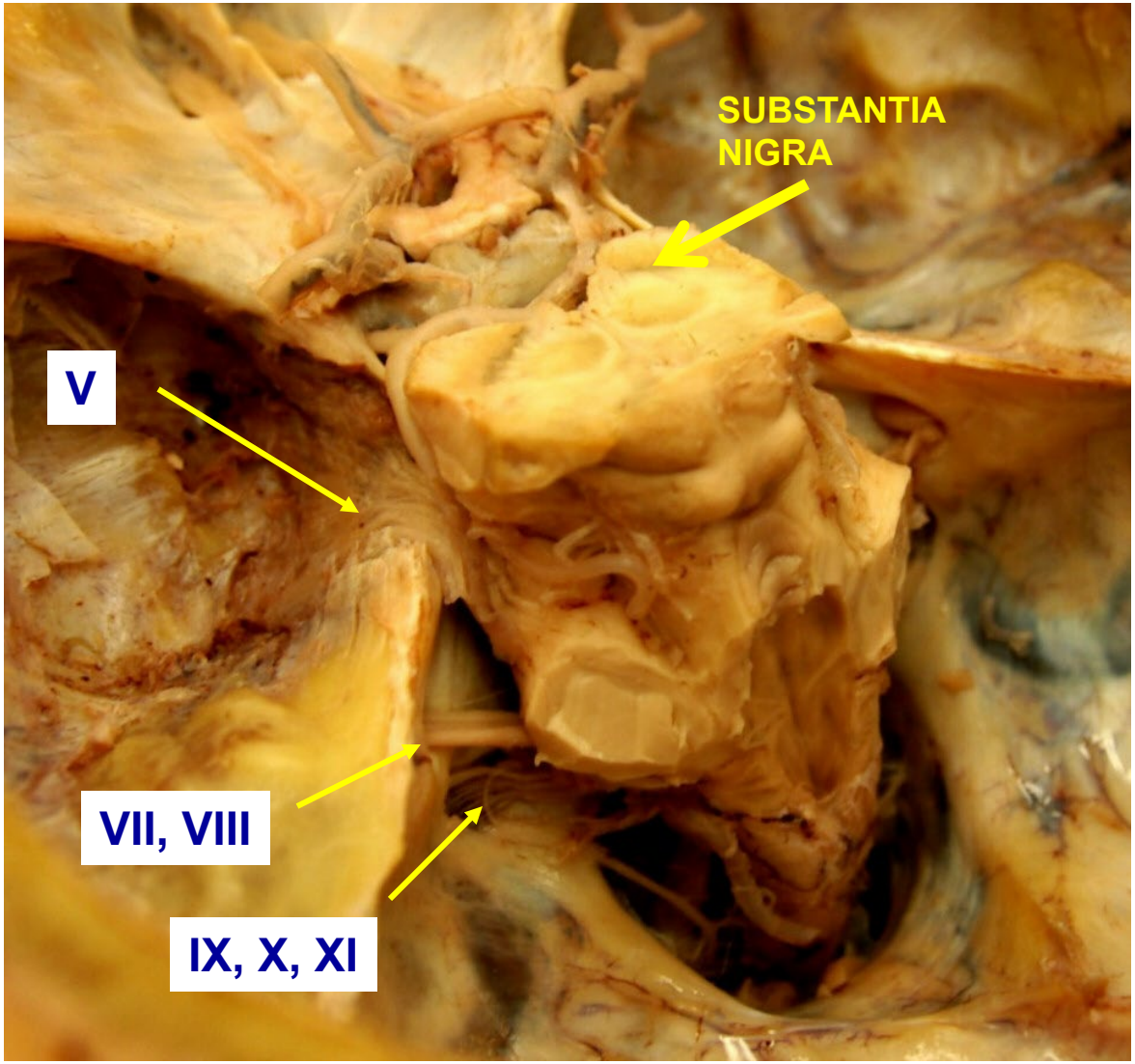
REMAINING PART OF CEREBELLUM IS CAREFULLY REMOVED AND CUT AT PEDUNCLES

CUT

CAREFULLY EXPOSE CRANIAL NERVES FROM SURROUNDING PIA MATER

TRIM REMAINING TENTORIUM IF NECESSARY

FINAL RESULT: BRAINSTEM IN SITU IN CRANIAL CAVITY

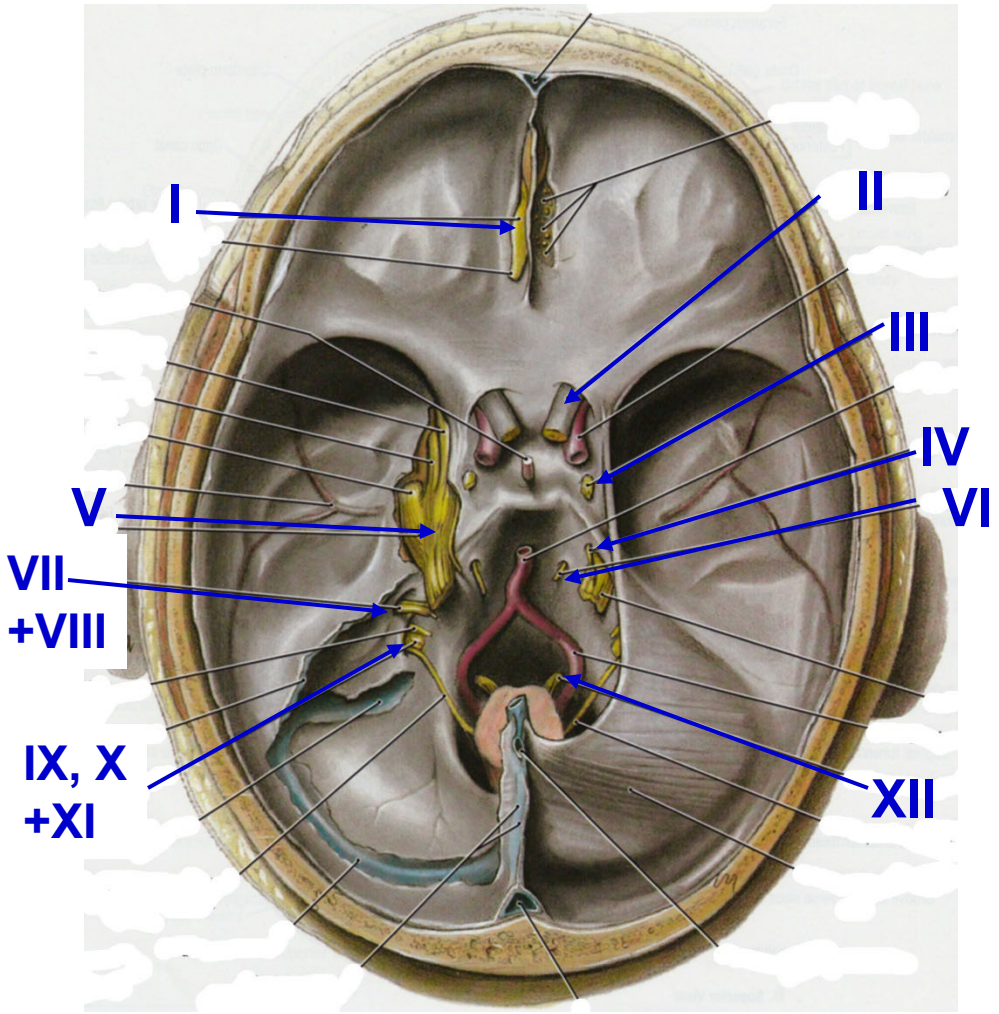


DO DISSECTION ON BOTH SIDES

WHEN COMPLETE CAN SEE CN I-XII, BRANCHES OF INTERNAL CAROTID AND BASILAR ARTERIES

CAN CAREFULLY REMOVE DURA MATER FROM MIDDLE CRANIAL FOSSA TO EXPOSE V1, V2, V3 AND TRIGEMINAL GANGLION

LEARN NAMES AND NUMBERS OF CRANIAL NERVES



I. OLFACTORY - sense of smell
II. OPTIC - vision
III. OCULOMOTOR - eye movement
IV. TROCHLEAR - eye movement
V. TRIGEMINAL - touch, general sensation to skin, oral cavity, nasal cavity + more
VI. ABDUCENS - eye movement
VII. FACIAL - muscles of facial expression + lots more
VIII. VESTIBULO-COCHLEAR - hearing and balance
IX. GLOSSOPHARYNGEAL - sensory to pharynx +more
X. VAGUS - larynx, pharynx + rest of body
XI. ACCESSORY - sternocleidomastoid, trapezius
XII. HYPOGLOSSAL - muscles of tongue

DISSECTION CHECKLIST BRAIN DISSECTION

ORIENT BEFORE DISSECTION: SEE
_____LATERAL VENTRICLE
_____CHOROID PLEXUS

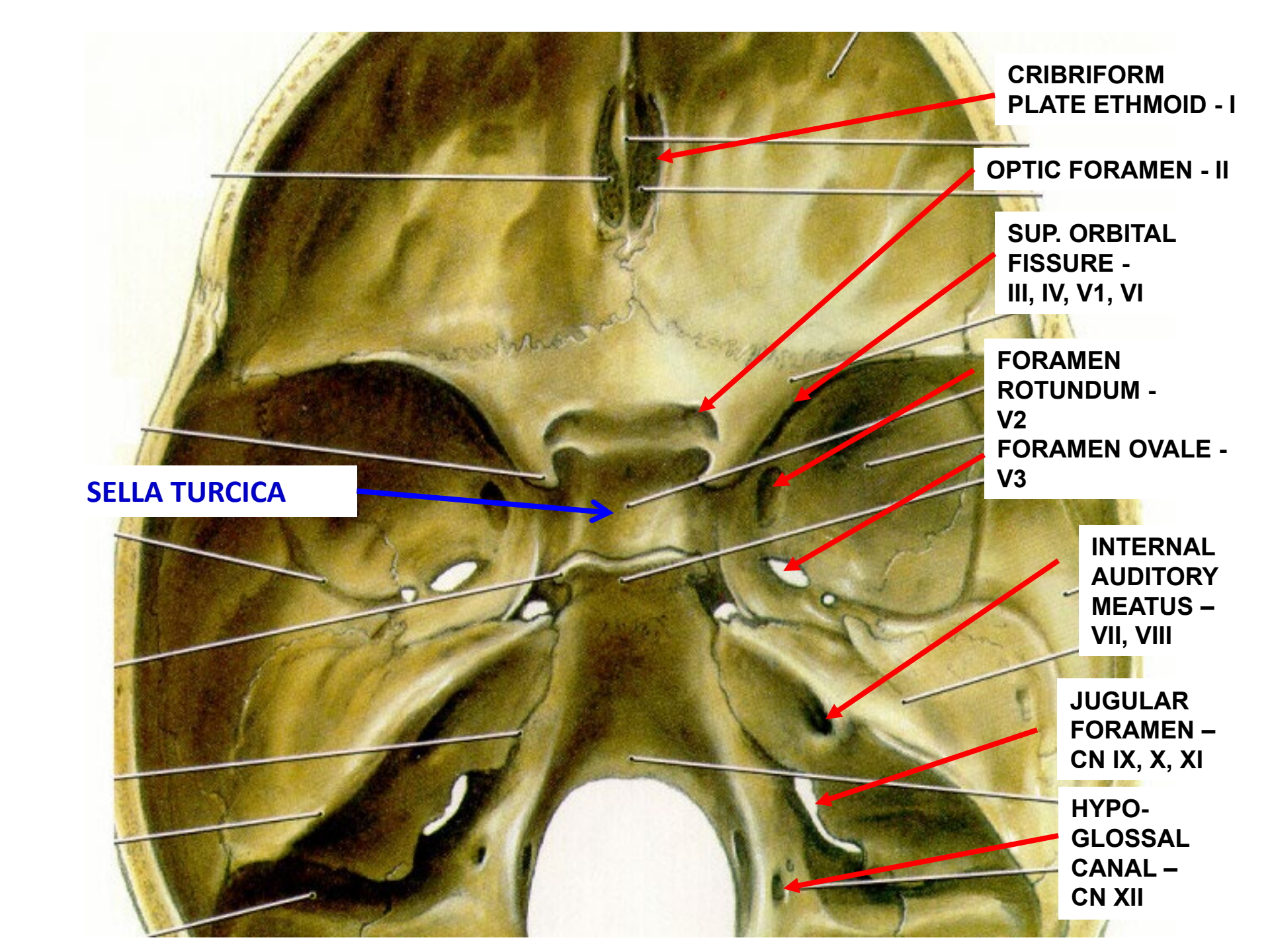
MENINGES
_____ARACHNOID GRANULATIONS
_____SUPERIOR SAGITTAL SINUS
_____FALX CEREBRI

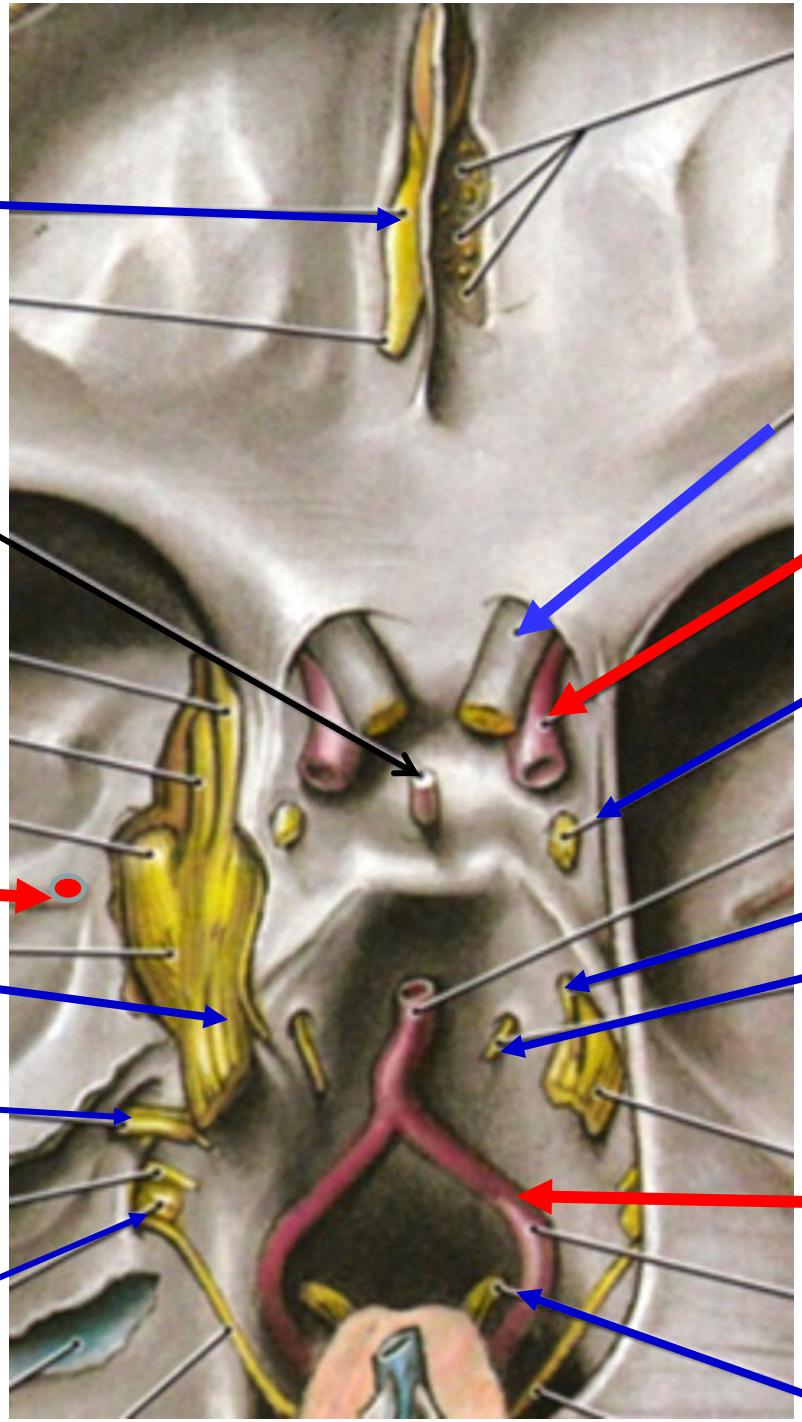
VEINS
_____BRIDGING VEINS

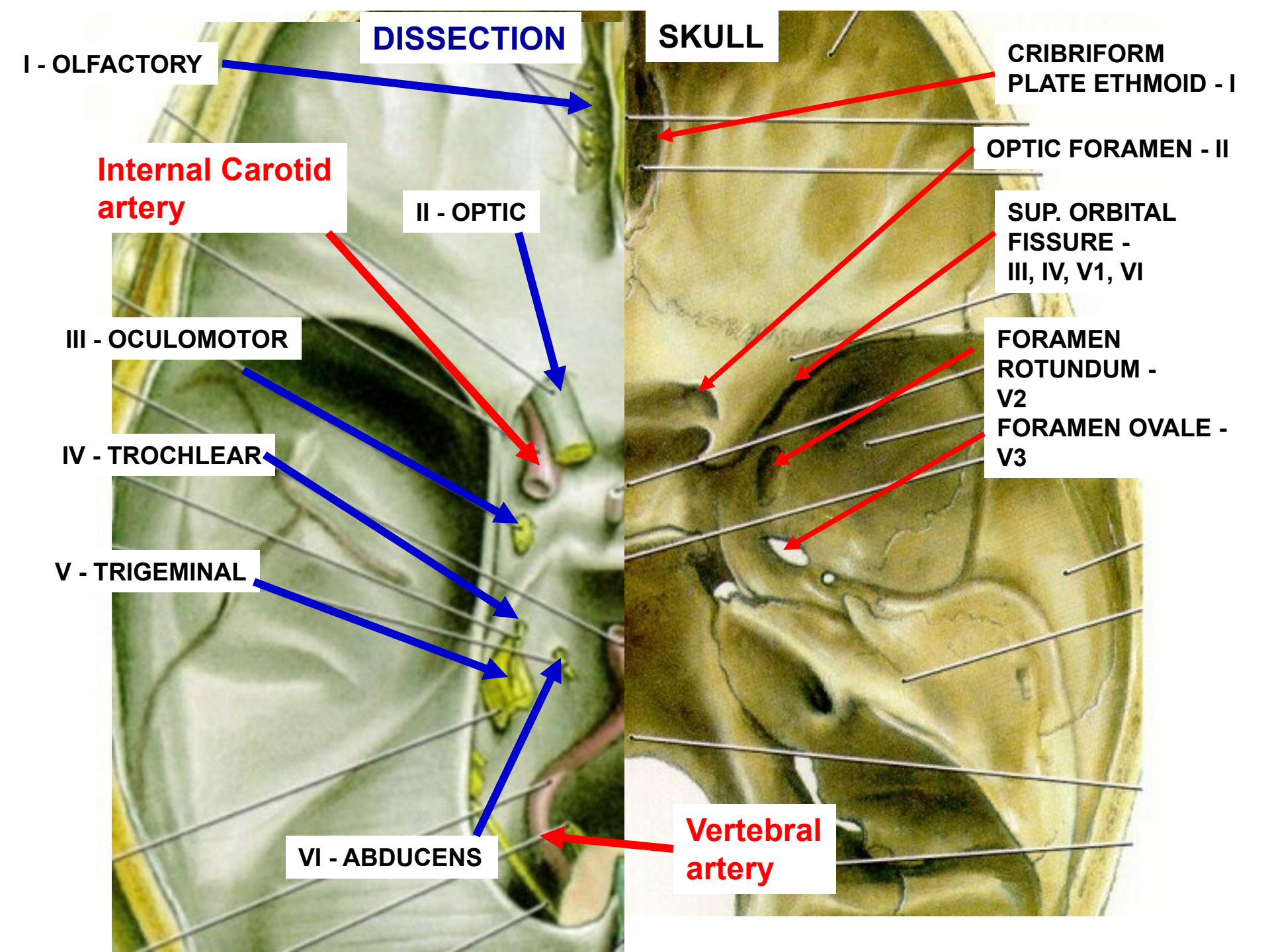
NERVES -
_____OLFACTORY BULB CN I
_____OPTIC NERVE AND OPTIC CHIASM CN II
_____OCULOMOTOR NERVE CN III
_____TROCHLEAR NERVE CN IV
_____TRIGEMINAL NERVE CN V
_____ABDUCENS NERVE CN VI
_____FACIAL AND VESTIBULOCOCHLEAR NERVES CN VII AND VIII
_____GLOSSOPHARYNGEAL, VAGUS AND ACCESSORY NERVES CN IX, X, XI
_____HYPOGLOSSAL NERVE CN XII

ARTERIES -
_____INTERNAL CAROTID ARTERY
_____BASILAR ARTERY

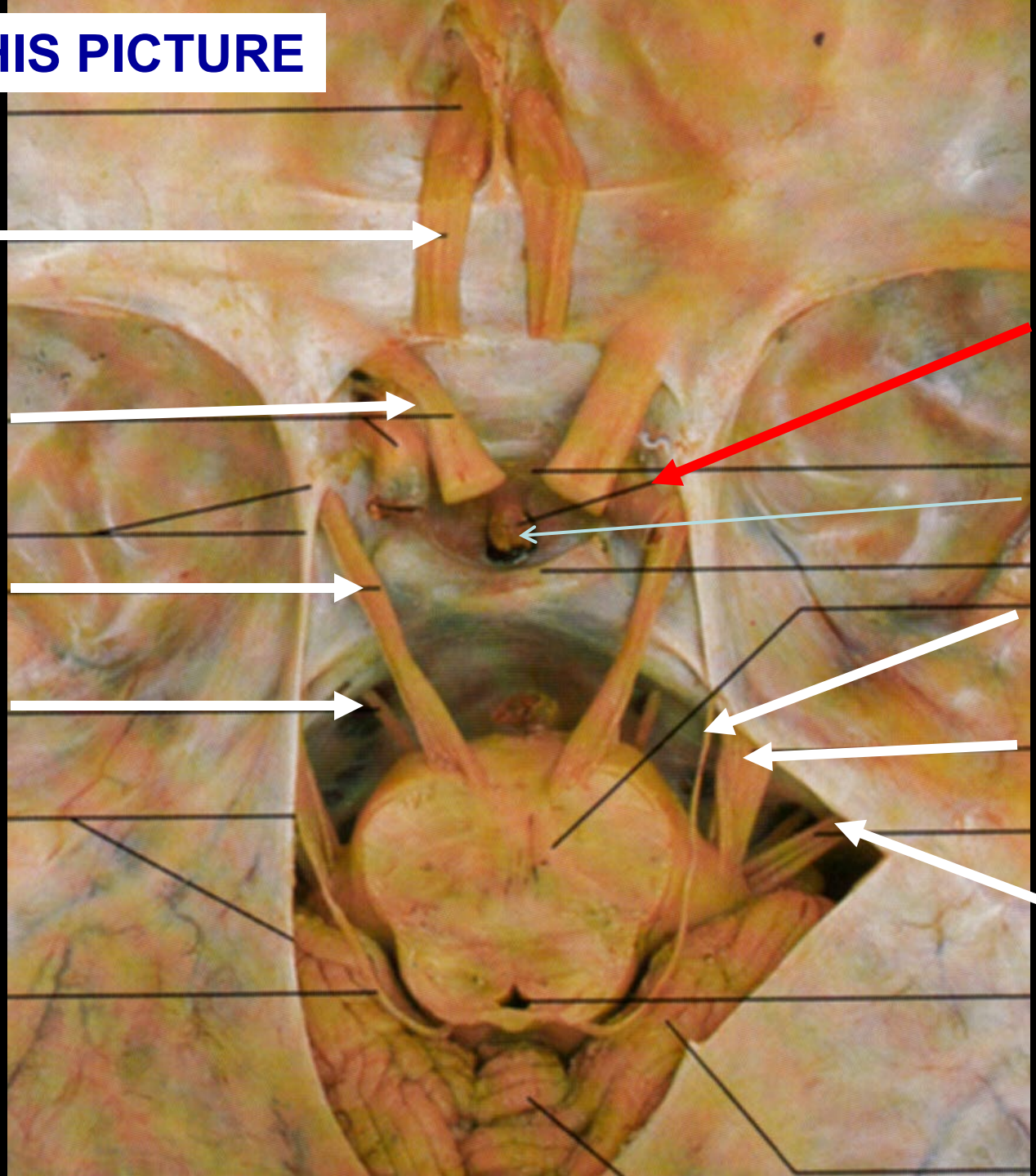
VENOUS SINUSES -
_____SUPERIOR SAGITTAL SINUS
_____TRANSVERSE SINUS


CRIBRIFORM PLATE ETHMOID - I
OPTIC FORAMEN - II
SUP. ORBITAL FISSURE - III, IV, V1, VI
FORAMEN ROTUNDUM - V2
FORAMEN OVALE - V3
SELLA TURCICA
INTERNAL AUDITORY MEATUS – VII, VIII
JUGULAR FORAMEN – CN IX, X, XI
HYPO-GLOSSAL CANAL – CN XII


BRAINSTEM
PROSECTIONS
IDENTIFY
I
II
PITUITARY
STALK
INTERNAL CAROTID A.
V1
V2
V3
III
MIDDLE
MENINGEAL A.
IV
V
VI
VII
+VIII
VERTEBRAL A.
IX, X
+XI
XII


DISSECTION
SKULL
I - OLFACTORY
CRIBRIFORM PLATE ETHMOID - I
Internal Carotid artery
II - OPTIC
OPTIC FORAMEN - II
SUP. ORBITAL FISSURE - III, IV, V1, VI
III - OCULOMOTOR
FORAMEN ROTUNDUM - V2
FORAMEN OVALE - V3
IV - TROCHLEAR
V - TRIGEMINAL
VI - ABDUCENS
Vertebral artery

STUDY THIS PICTURE



STUDY THIS PICTURE