

# Skull - neurocranium

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LECTURE 4

DENTISTRY, AUTUMN 2015

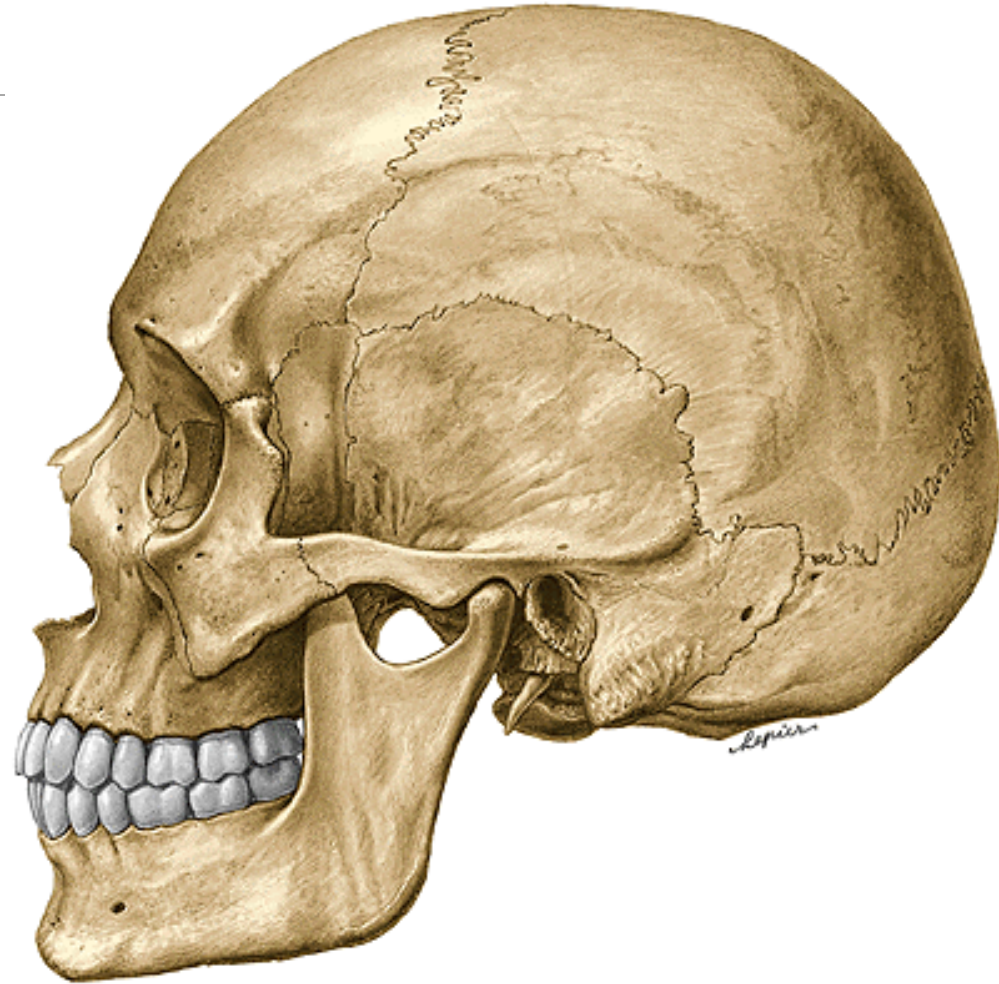
RNDr. Michaela Račanská, Ph.D.



Neurocranium et splanchnocranium



Frontal view



Lateral view

# Skull (22)

## neurocranium x splanchnocranium

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Desmocranium (intramembranous formation)

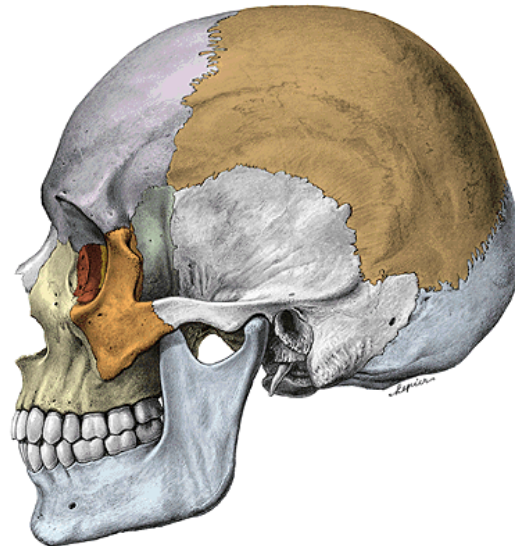
8

protective case around the brain and the sense organ

Chondrocranium (endochondral ossification)

14

Contains the initial portions of the gastrointestinal and respiratory tracts, facial skeleton



# Neurocranium (calvarium et basis cranii)

os frontale (frontal bone)

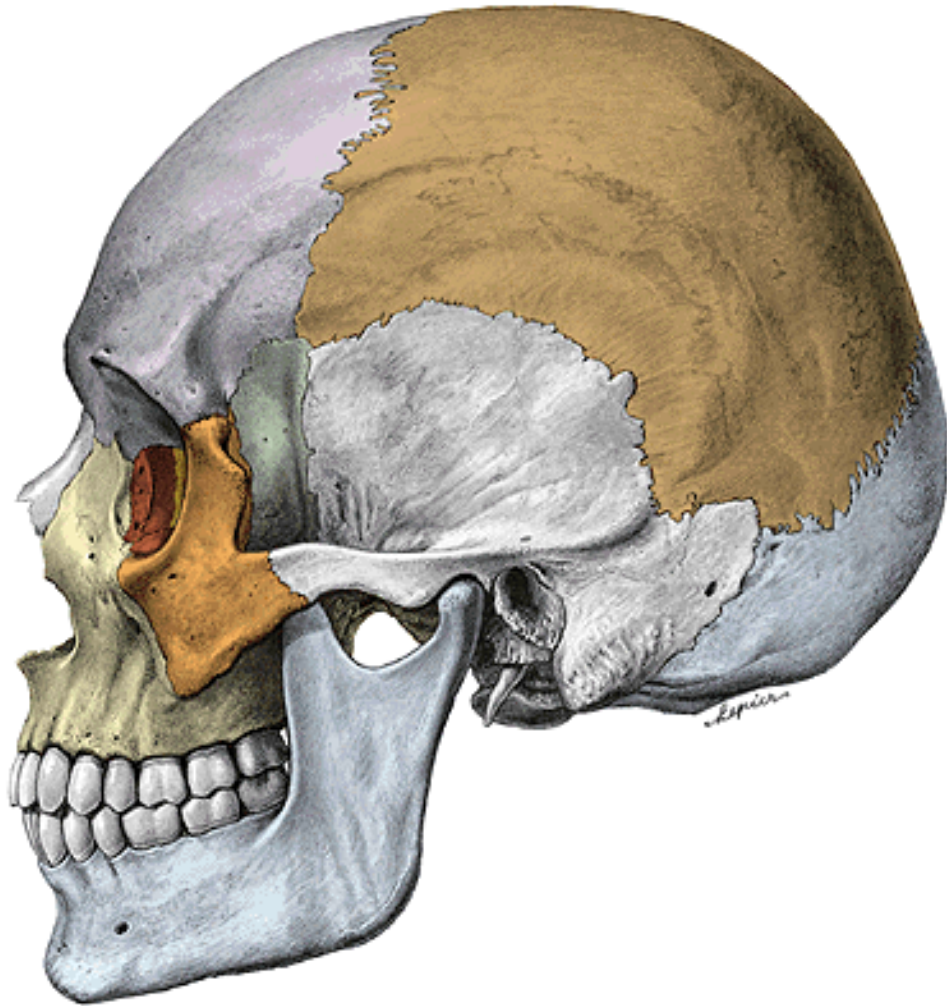
ossa parietalia (parietal bone)

os occipitale (occipital bone)

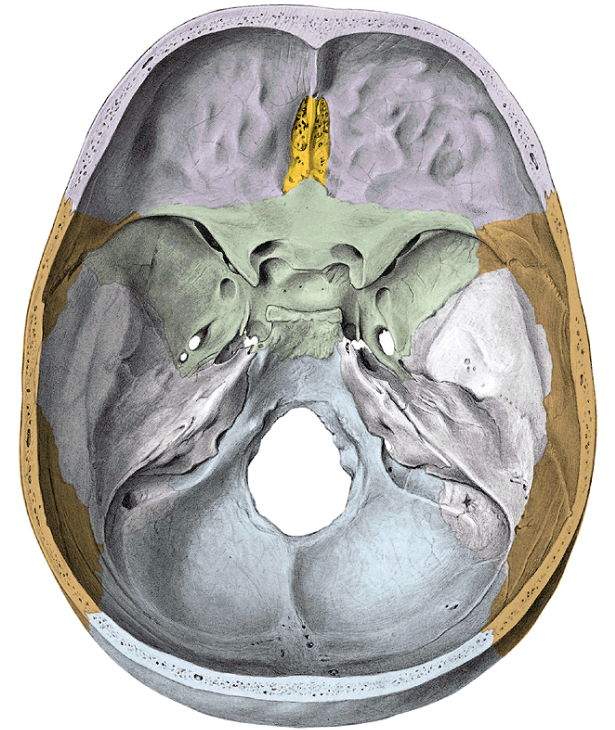
os sphenoidale (sphenoid)

ossa temporalia (temporal bone)

**Os ethmoidale** (ethmoid)



8



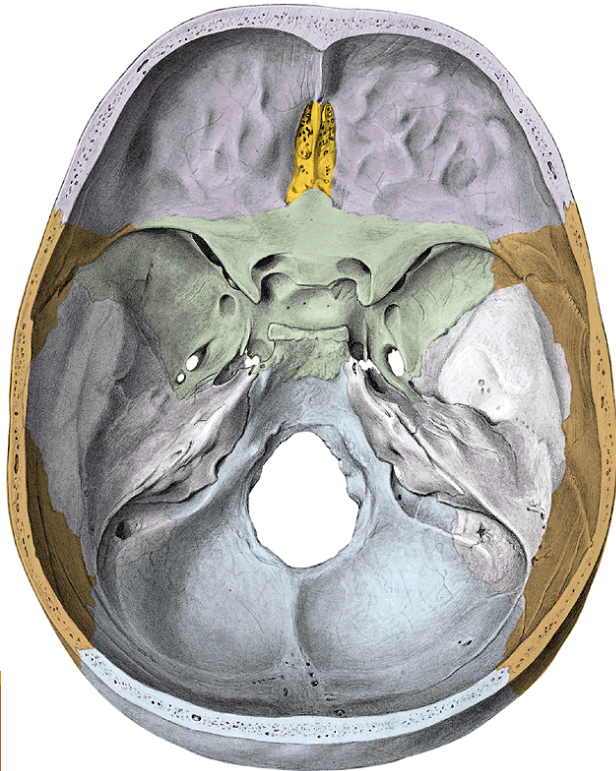
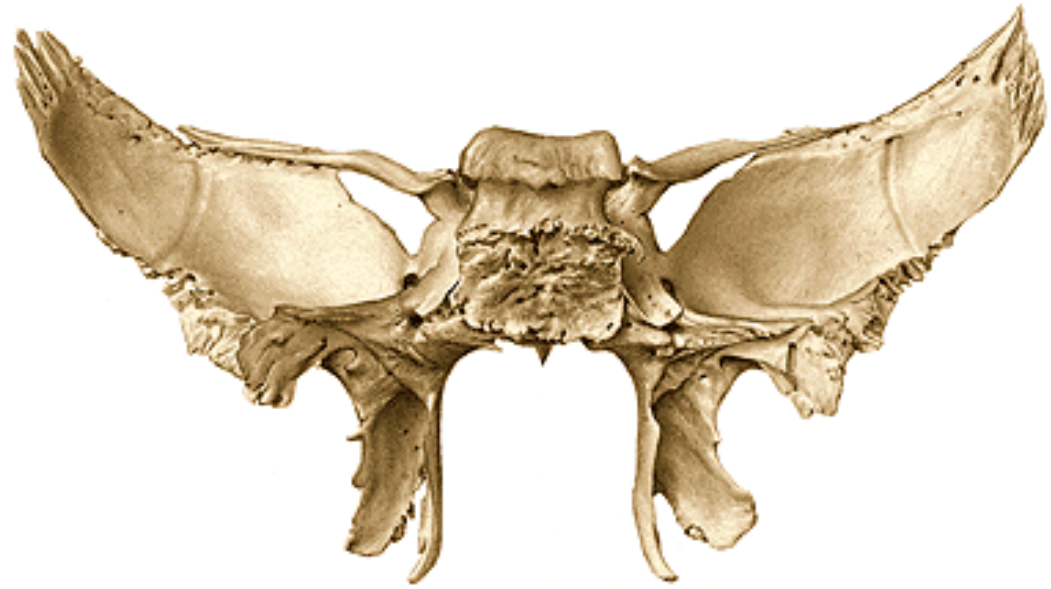
# Os sphenoidale (sphenoid)

corpus ossis sphenoidalis

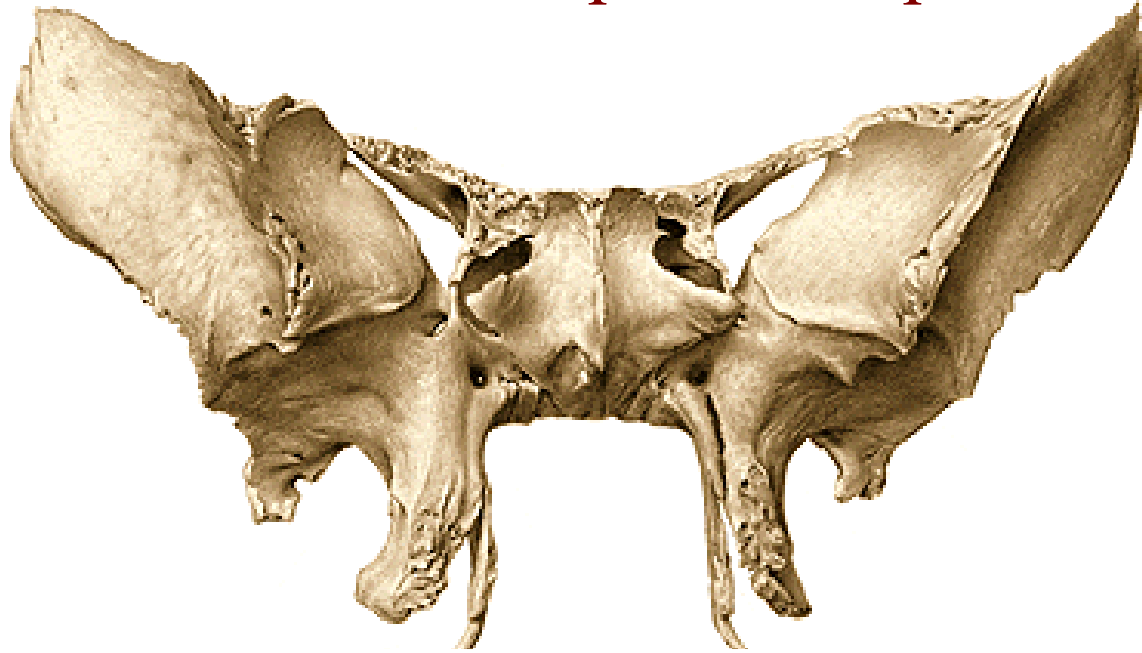
alae minores

alae majores

processus pterygoidei



# Corpus ossis sphenoidalis (body)



## Ventral wall:

sinus sphenoidalis

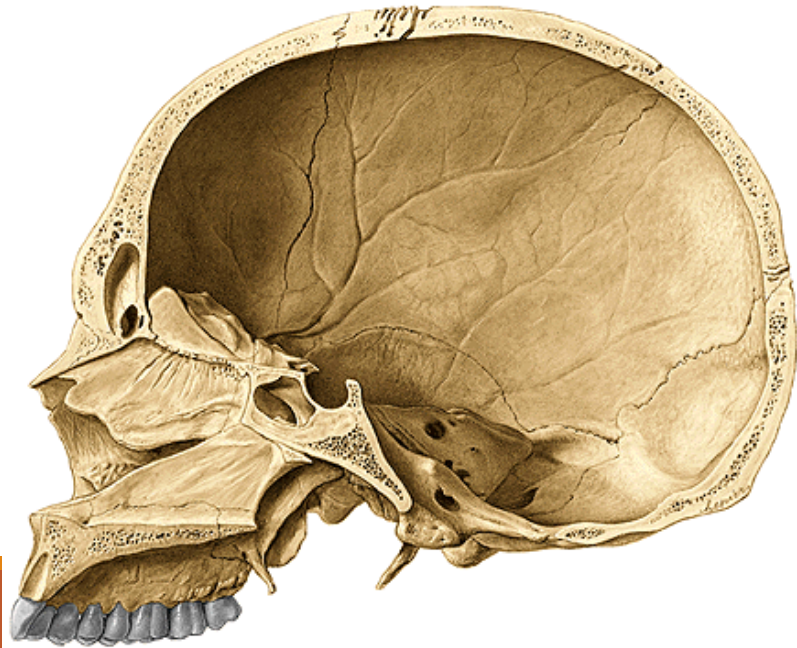
septum sinuum sphenoidalium

apertura sinus sphenoidalis

conchae sphenoidales

crista sphenoidalis

rostrum sphenoidale



# Corpus ossis sphenoidalis

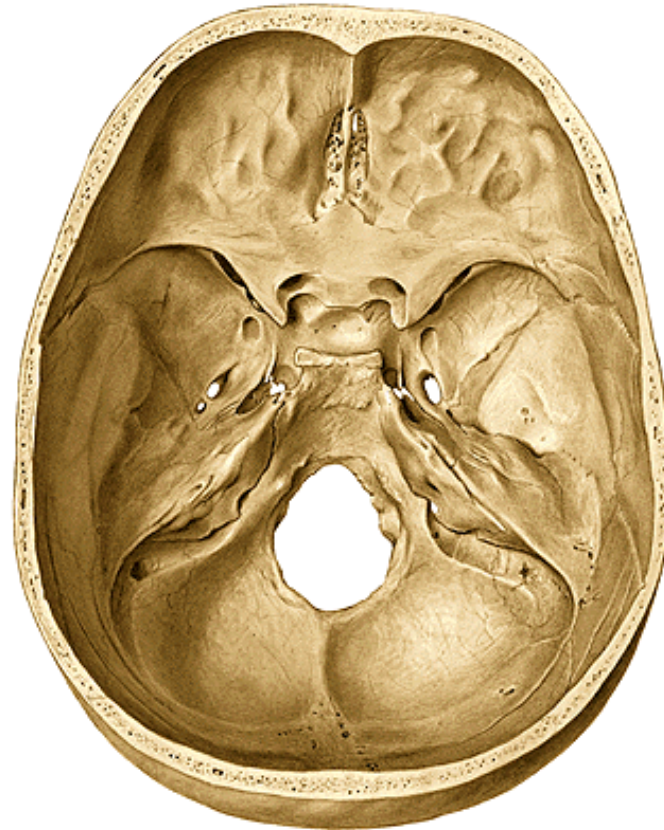
sella turcica

fossa hypophysialis

dorsum sellae (processus clinoidei posteriores)

sulcus caroticus

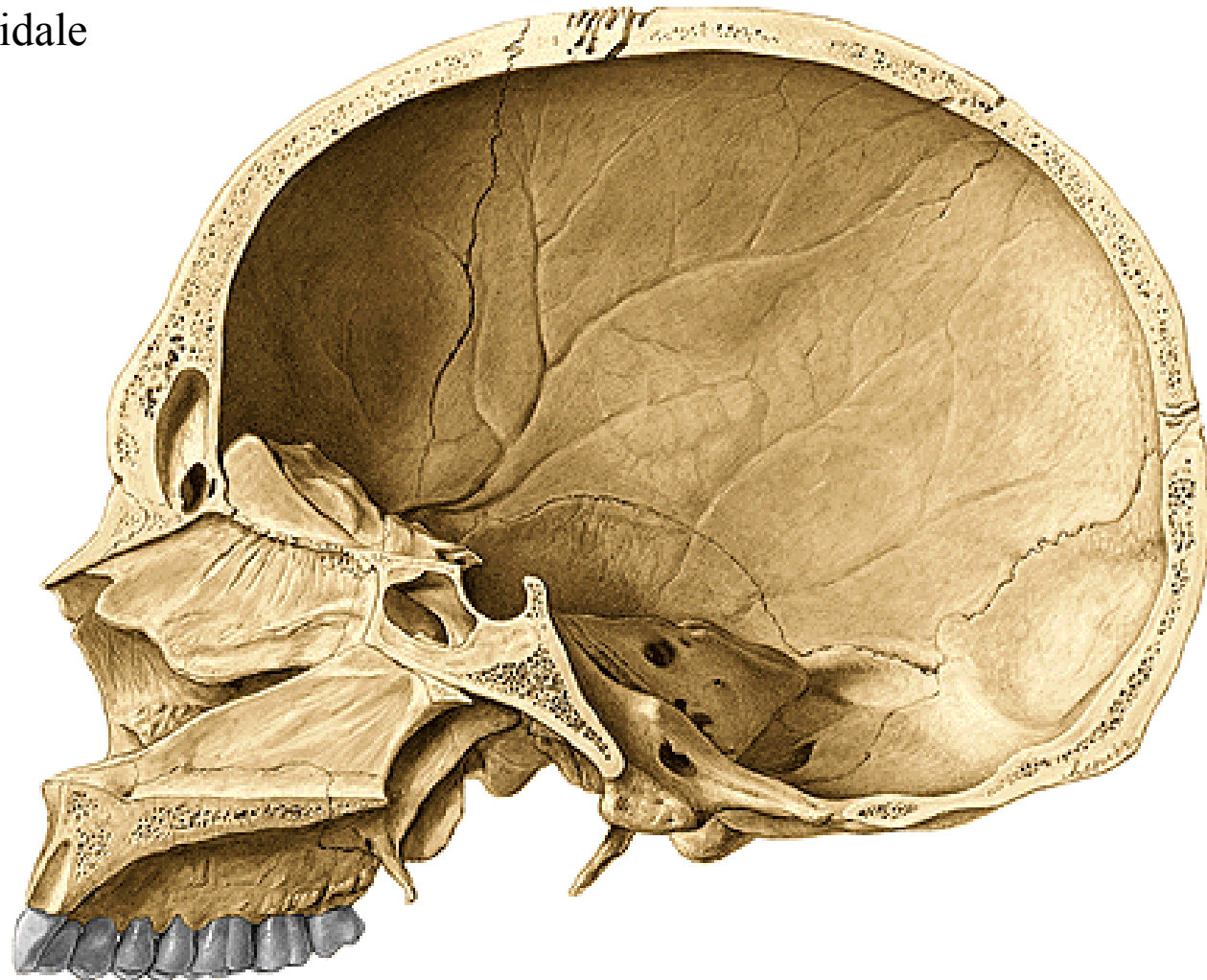
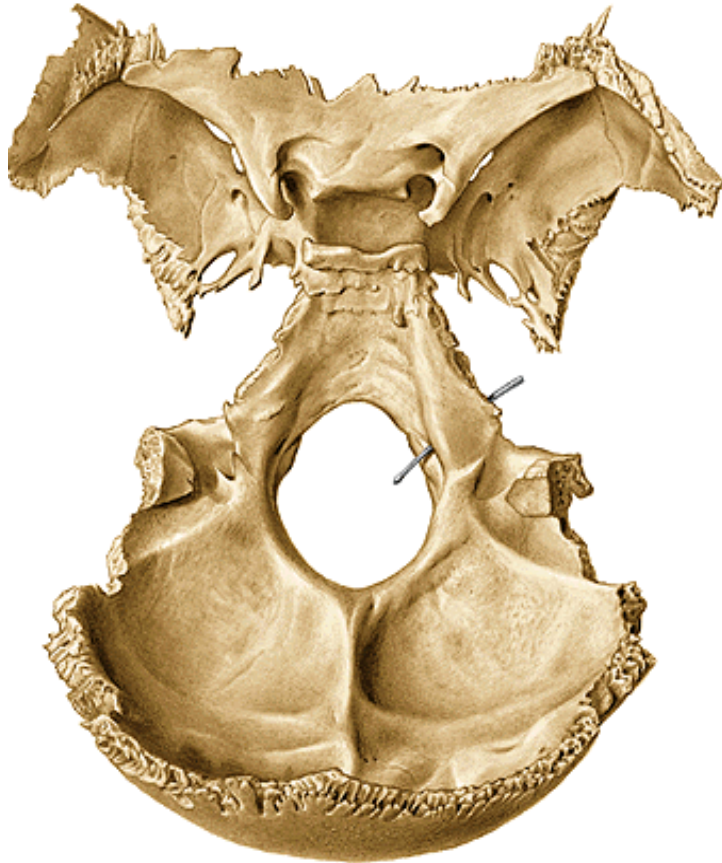
lingula sphenoidalis



# Corpus ossis sphenoidalis

synostosis sphenoccipitalis - clivus  
(synchondrosis sphenoccipitalis)

rostrum sphenoidale



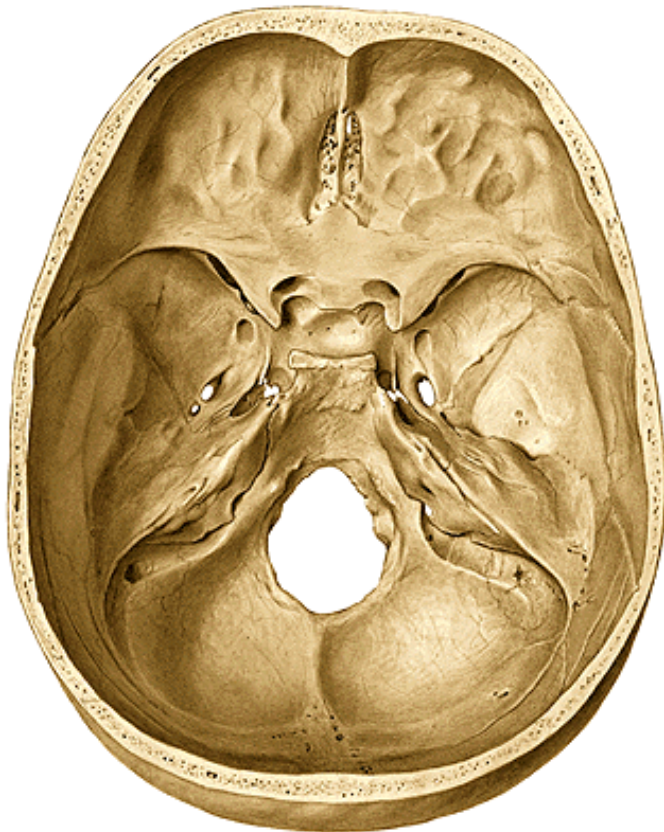


# Alae minores ossis sphenoidalis

processus clinoidi anteriores (fissura orbitalis superior)

canalis opticus

sulcus praechiasmaticus



# Alae majores ossis sphenoidalis

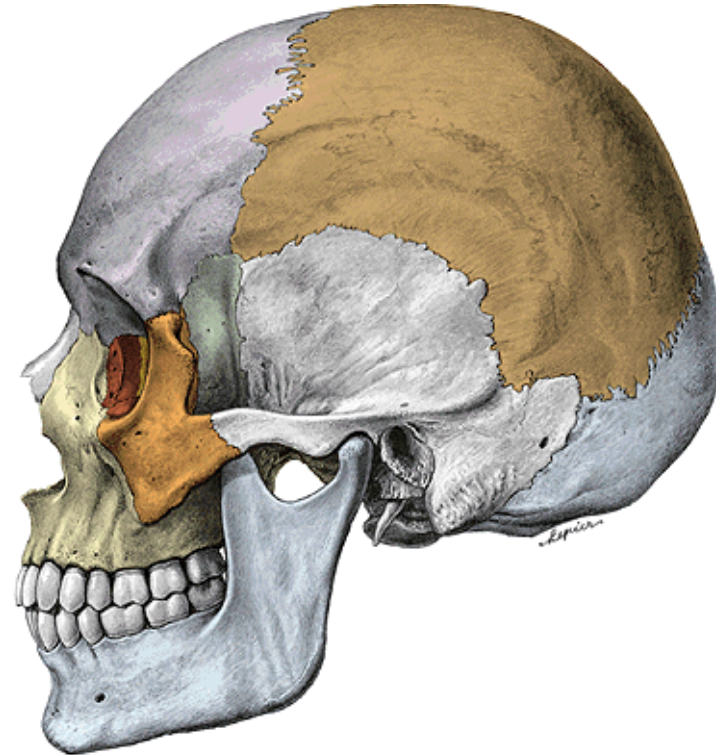
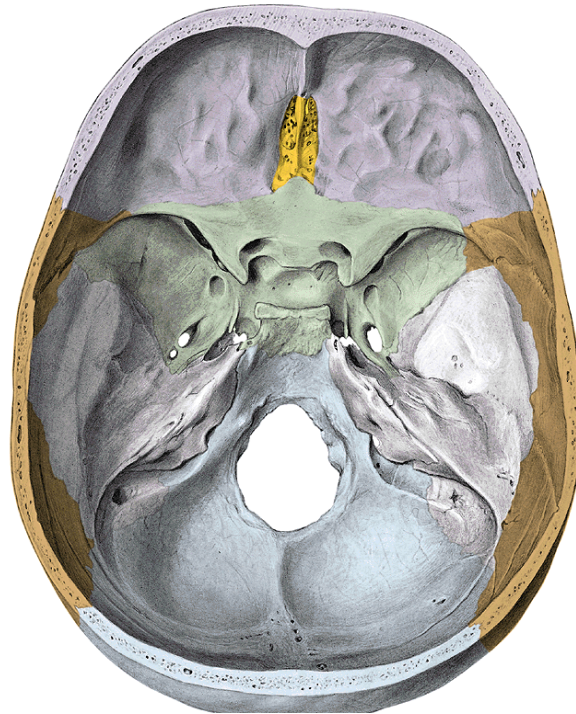
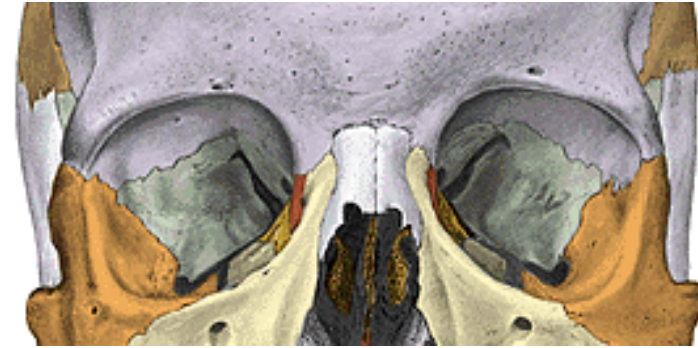
Facies cerebralis

Facies orbitalis

Facies temporalis (crista infratemporalis)

Facies infratemporalis

Facies maxillaris



# Facies cerebralis alae majoris

Foramen rotundum

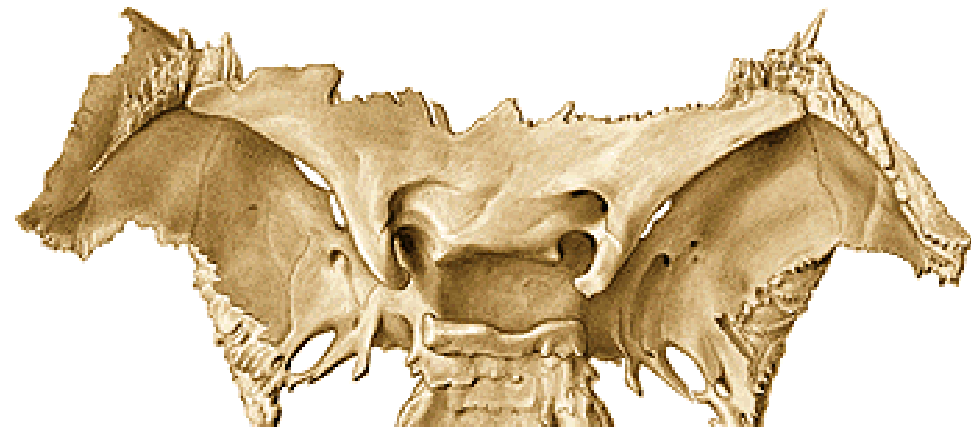
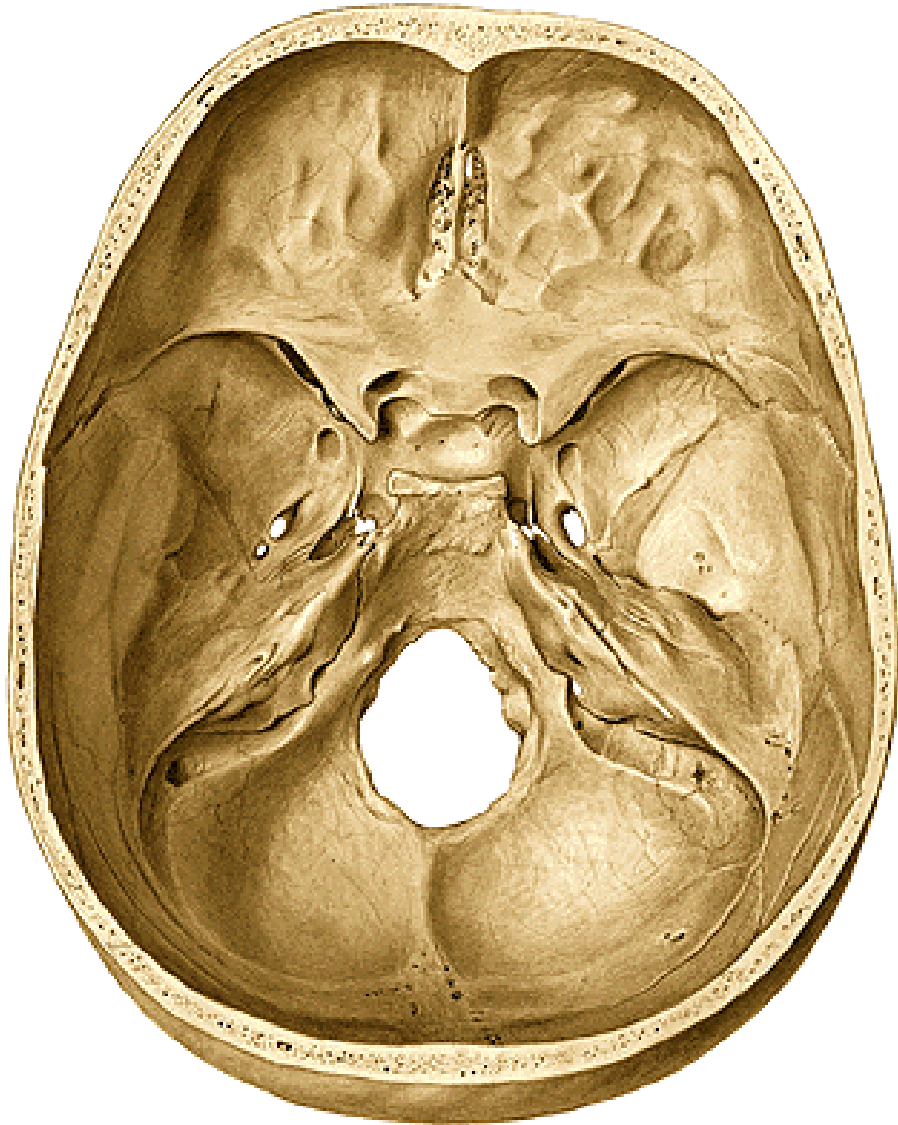
Foramen ovale

Foramen spinosum

Fissura orbitalis superior

Fissura sphenopetrosa

Foramen lacerum (fibrocartilago basilaris)



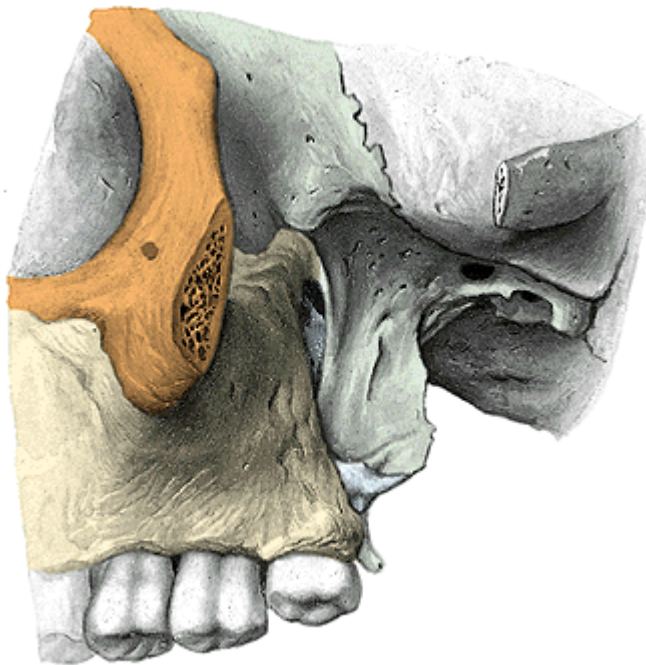
# Facies temporalis at infratemporalis alae majoris

Foramen ovale

Foramen spinosum

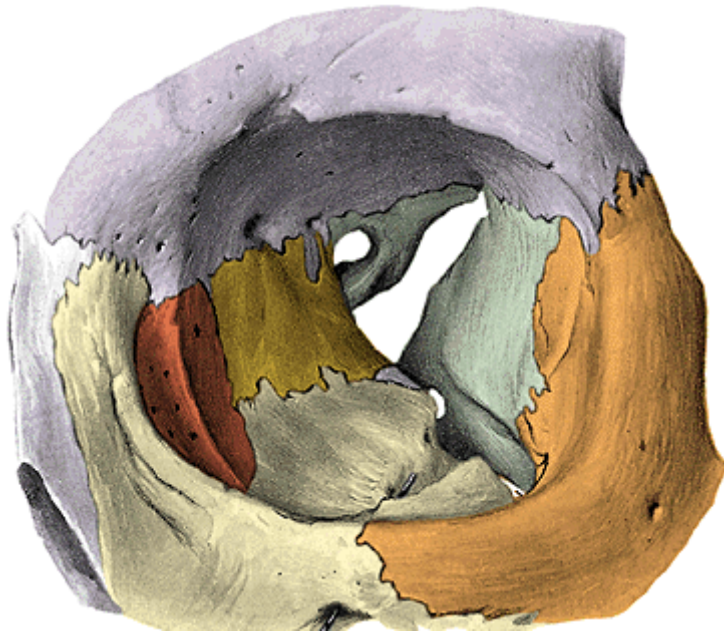
Spina ossis sphenoidalis

crista infratemporalis



## Facies orbitalis alae majoris

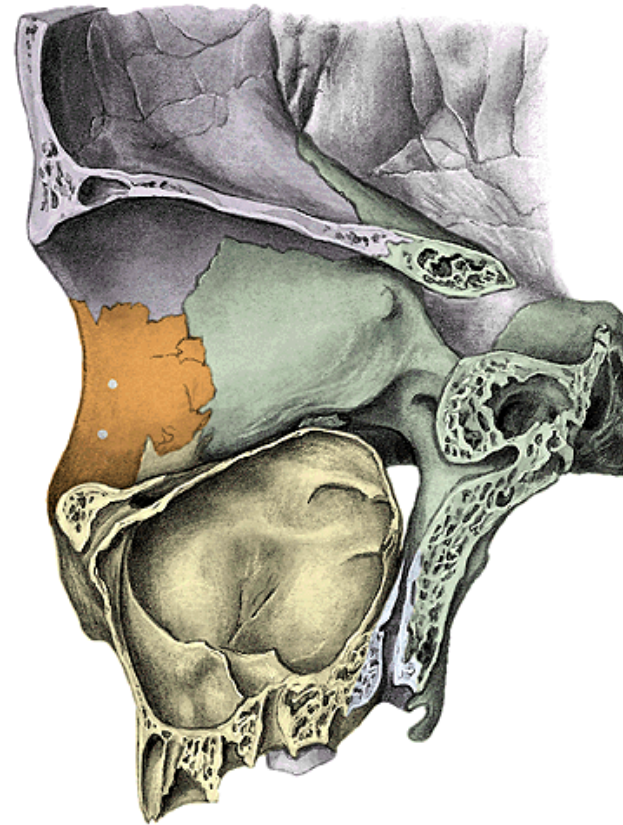
fissura orbitalis superior et inferior



## Facies maxillaris alae majoris

foramen rotundum

fossa pterygopalatina



# Processus pterygoideus ossis sphenoidalis

lamina medialis processus pterygoidei (hamulus pterygoideus)

lamina lateralis processus pterygoidei

fossa pterygoidea

fossa scaphoidea

incisura pterygoidea

canalis pterygoideus



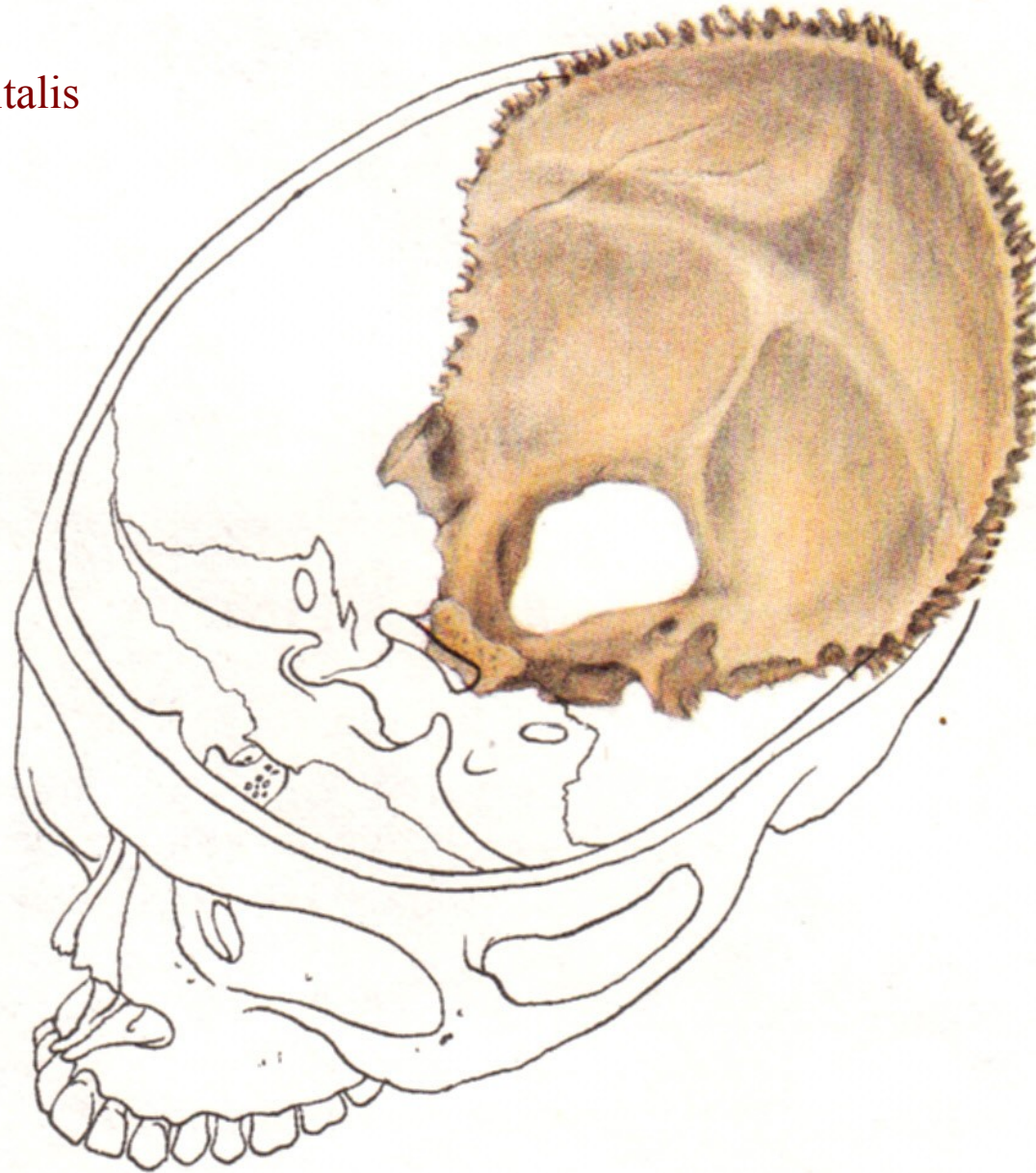
# Os occipitale

Partes laterales ossis occipitalis

Pars basilaris

Squama occipitalis

Foramen magnum



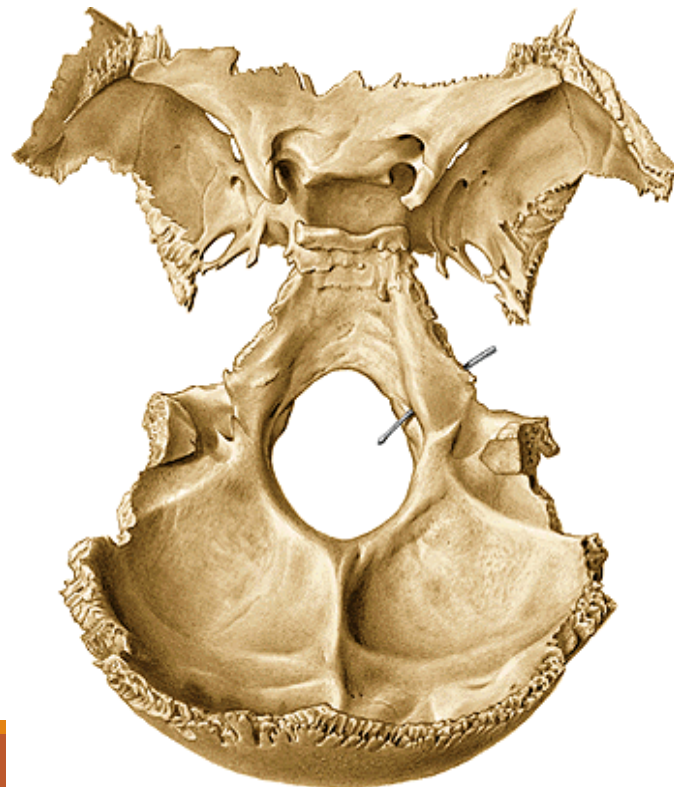
# Pars basilaris ossis occipitalis

synostosis (synchondrosis) sphenoccipitalis

clivus

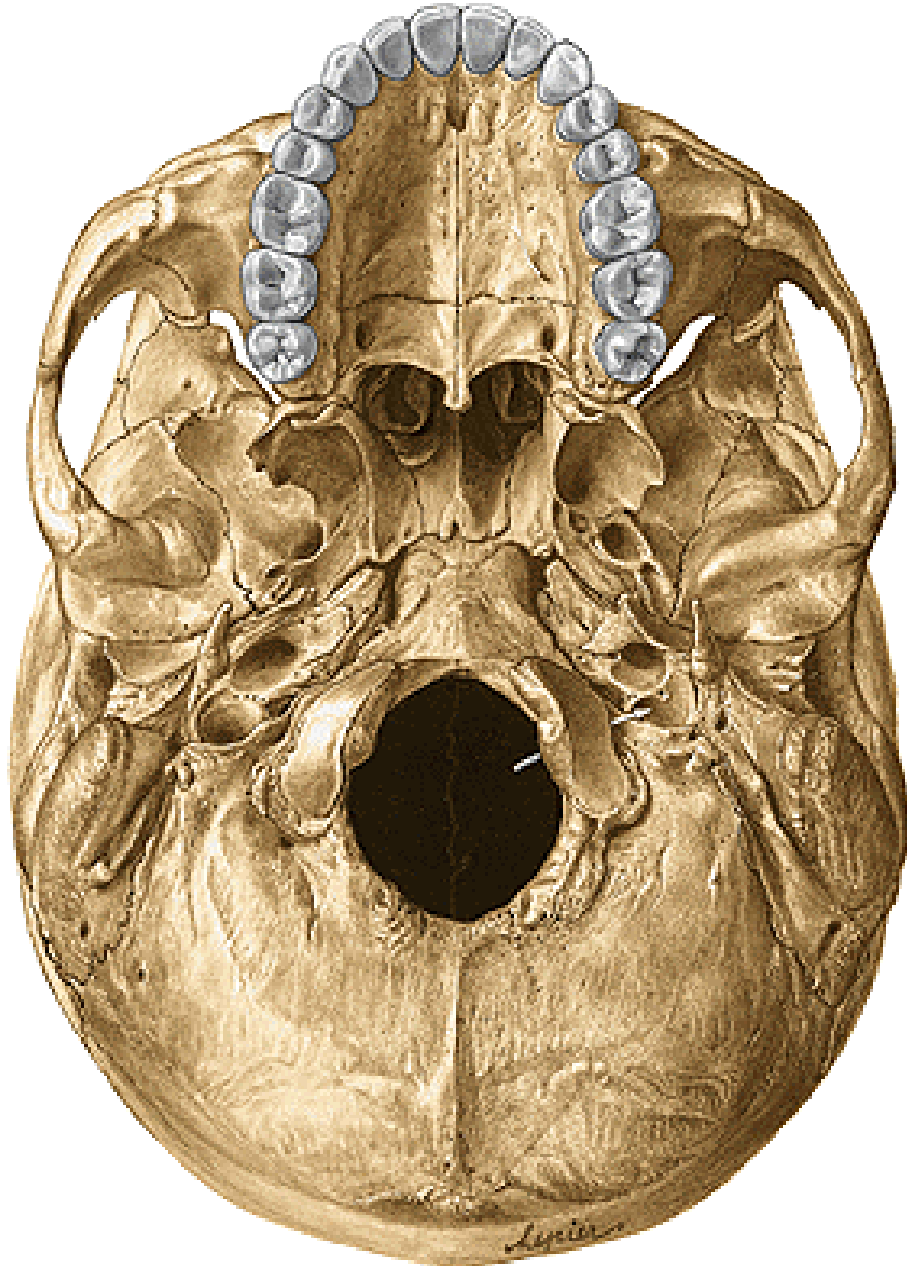
tuberculum pharyngeum

fissura petrooccipitalis





# Partes laterales ossis occipitalis



condyli occipitales

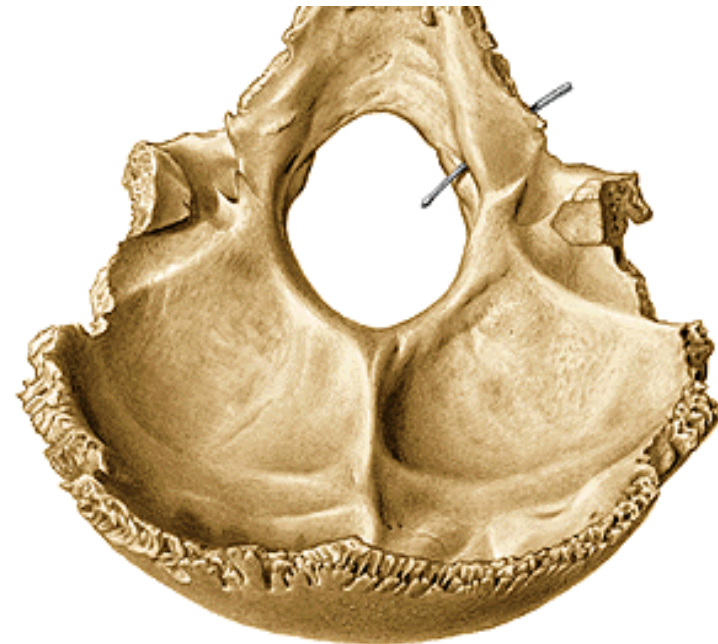
canalis hypoglossalis

fossa condylaris

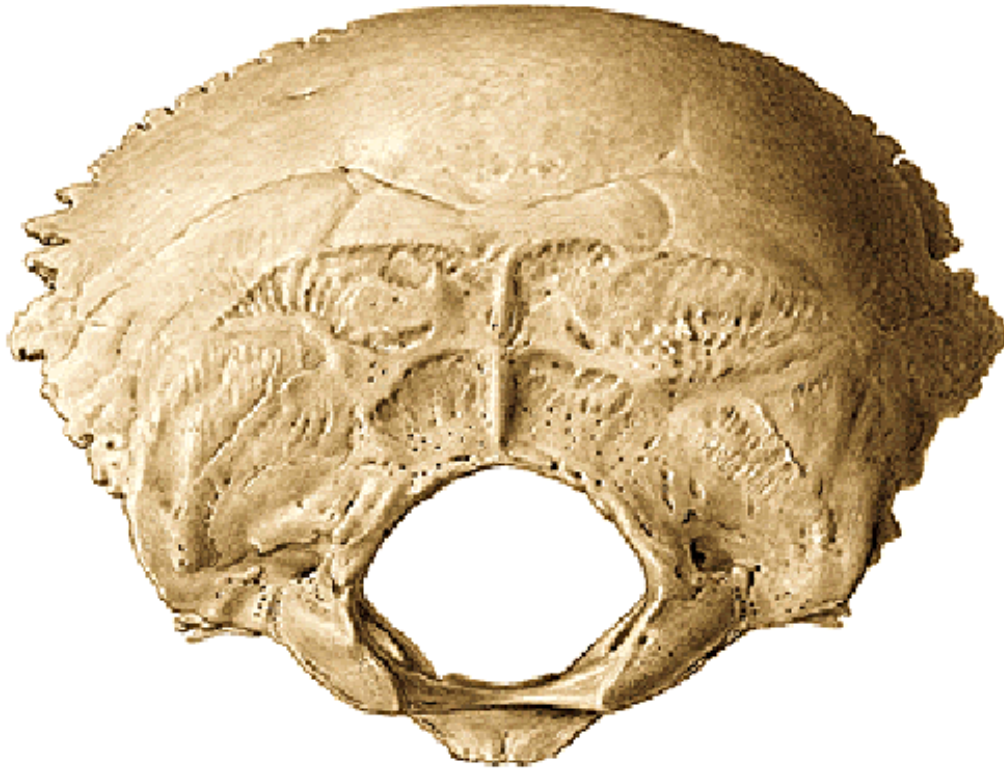
canalis condylaris

processus jugularis

incisura jugularis



## Squama ossis occipitalis (exocranial surface)



protuberantia occipitalis externa

crista occipitalis externa

linea nuchae suprema

linea nuchae superior

linea nuchae inferior

# Squama ossis occipitalis (intracranial surface)



protuberantia occipitalis interna

eminentia cruciformis

sulcus sinus sagittalis superioris

sulcus sinus transversi

sulcus sinus sigmoidei

crista occipitalis interna

fossae cerebrales

fossae cerebellares

# Ossa parietalia

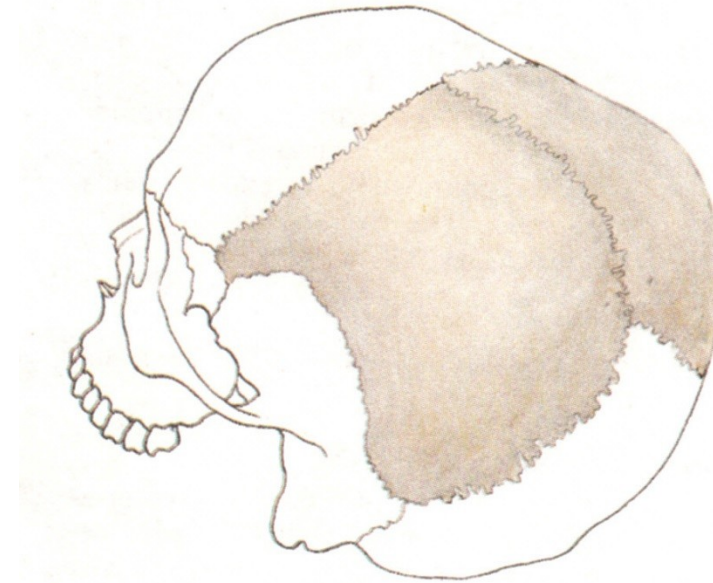


sutura coronalis

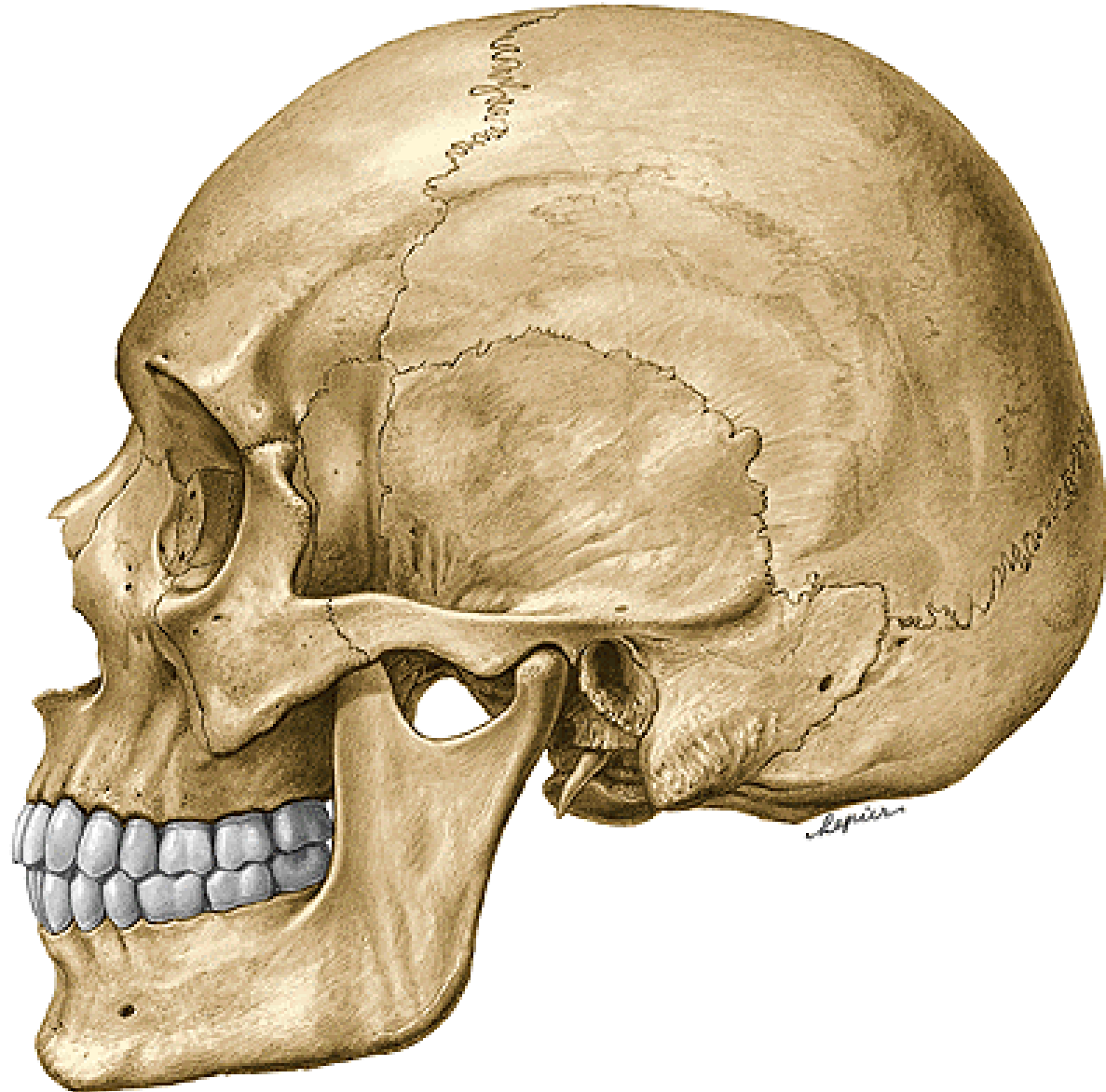
sutura sagittalis

sutura lambdoidea

suturae squamosae



# Ossa parietalia



tuber parietale

linea temporalis superior

linea temporalis inferior

foramina parietalia



angulus frontalis

angulus sphenoidalis

angulus occipitalis

angulus mastoideus



sulci arteriae meningae mediae

sulcus sinus sagittalis superioris

foveolae granulares

sulcus sinus sigmoidei

# Os temporale

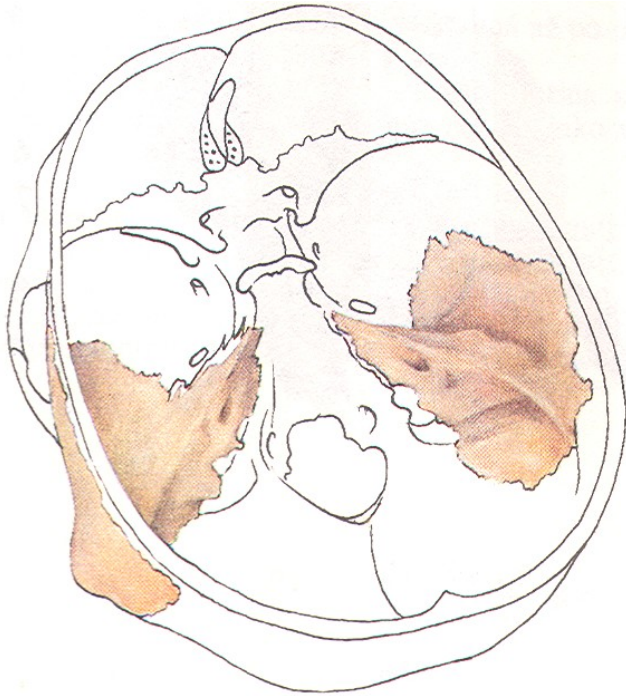
Pars squamosa

Pars petrosa (pyramis)

Pars mastoidea

Pars tympanica

Processus styloideus (pars hyoidea)



# Pars squamosa ossis temporalis



processus zygomaticus

linea temporalis inferior

crista supramastoidea

spina suprameatum

fossa mandibularis

tuberculum articulare



sulci arteriosi

juga cerebraalia

impressiones gyrorum



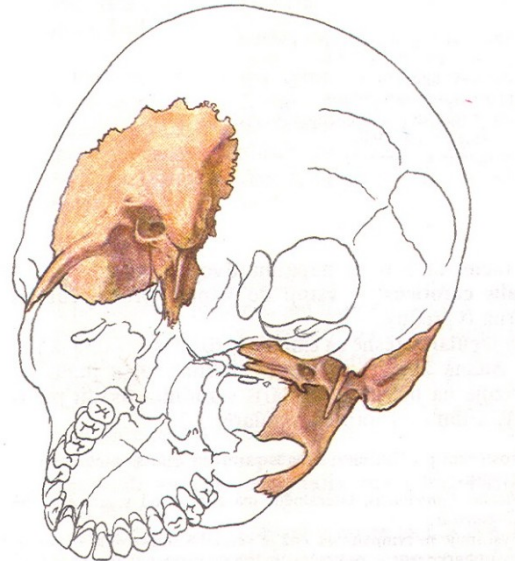
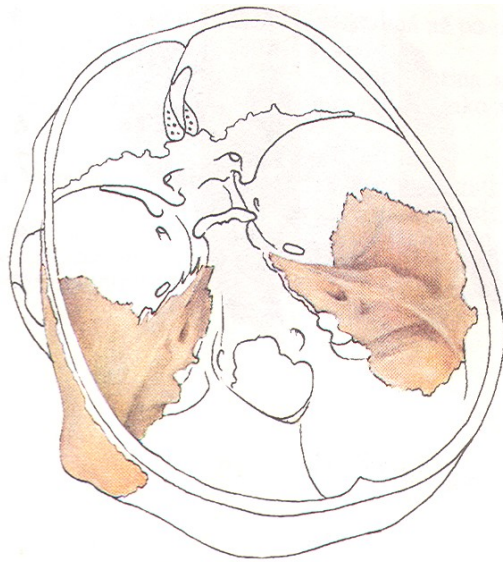
# Pars petrosa (pyramis)

Facies anterior (cerebralis) pyramidis

Facies posterior

Facies inferior

Facies ventrobasalis (sensory-hearing organ)



# Facies anterior pyramidis

foramen lacerum

apex pyramidis

impressio trigemini

canalis musculotubarius

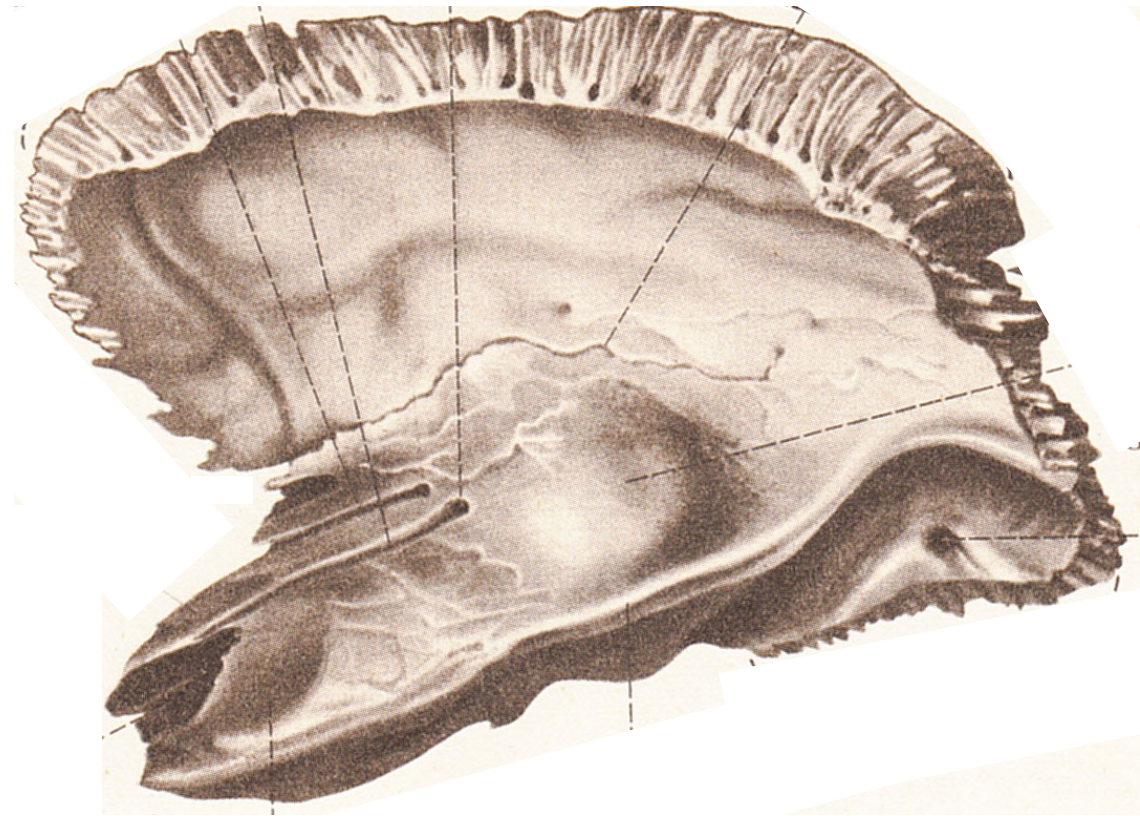
apertura interna canalis carotici

eminentia arcuata

tegmen tympani

hiatus canalis nervi petrosi majoris et minoris

sulcus nervi petrosi majoris et minoris



## Facies posterior pyramidis

margo superior - crista pyramidis

sulcus sinus petrosi superioris et inferioris

porus acusticus internus

meatus acusticus internus

fundus meatus acustici interni  
(introitus canalis nervi facialis)

fossa subarcuata

apertura externa aquaeductus vestibuli

incisura jugularis (foramen jugulare)

apertura externa canaliculi cochleae

sulcus sinus sigmoidei



# Facies inferior pyramidis

apertura externa canalis carotici

fossa jugularis

canaliculus mastoideus

apertura externa canaliculi tympanici  
(fossula petrosa)

## Processus styloideus

Foramen stylomastoideum



# Pars mastoidea ossis temporalis

processus mastoideus

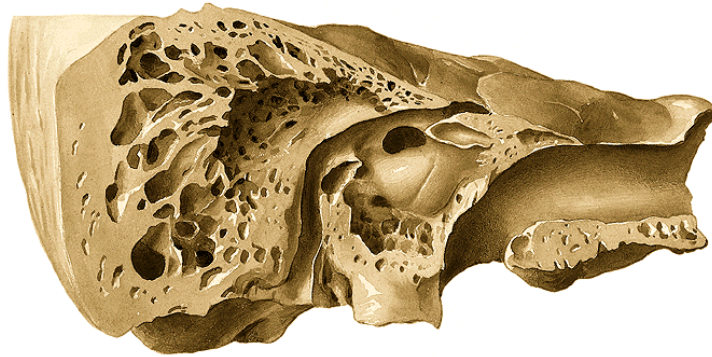
cellulae mastoideae

sulcus sinus sigmoidei

foramen mastoideum

incisura mastoidea

sulcus arteriae occipitalis



# Pars tympanica ossis temporalis

porus acusticus externus

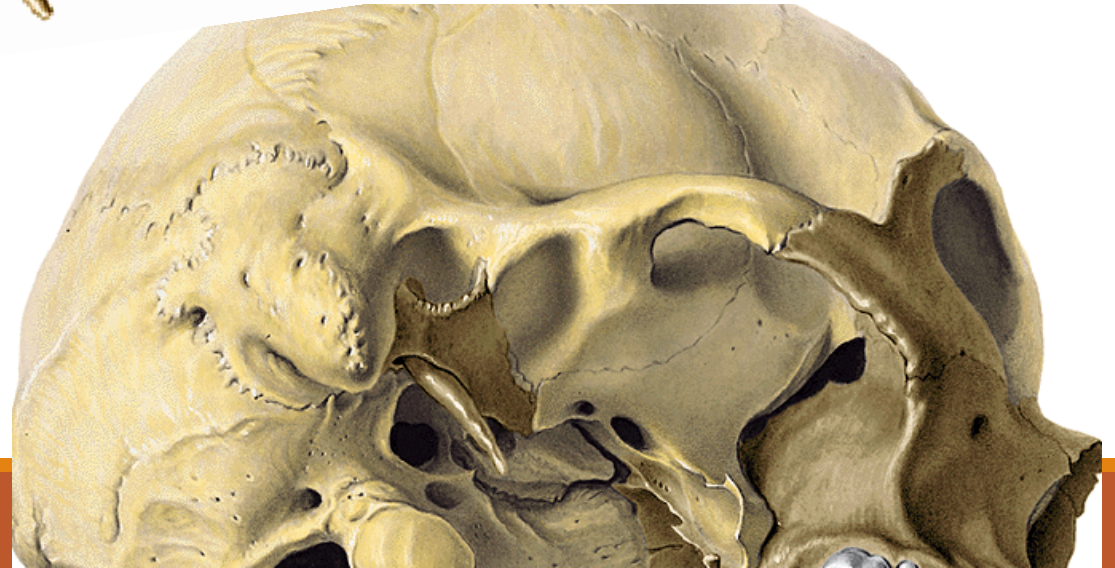
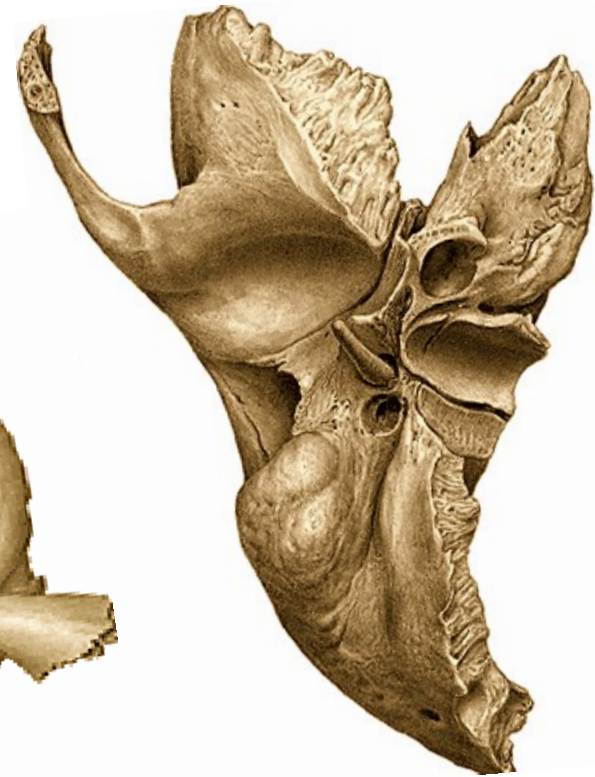
meatus acusticus externus

fissura tympanomastoidea

fissura petrotympanica

sulcus tympanicus

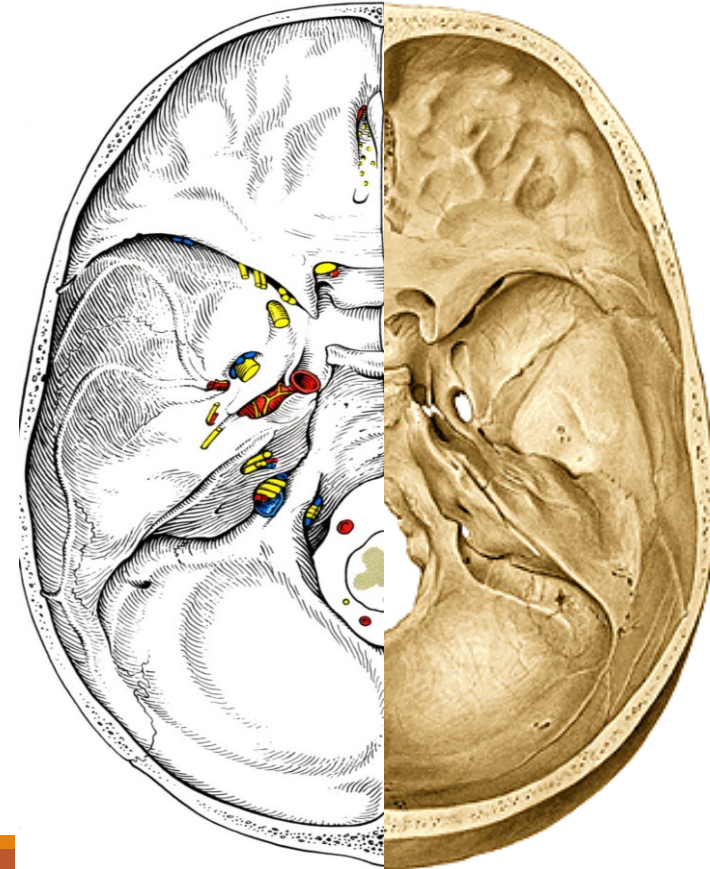
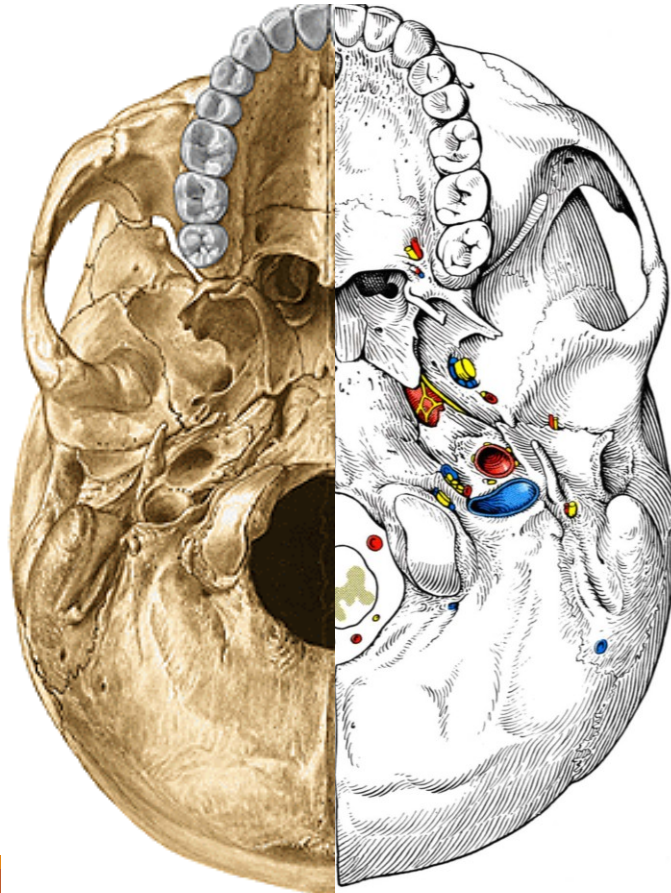
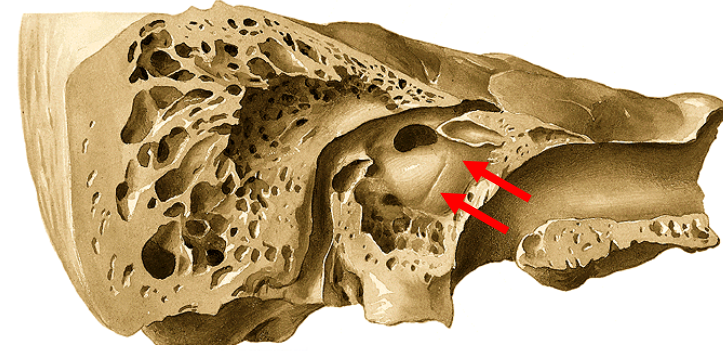
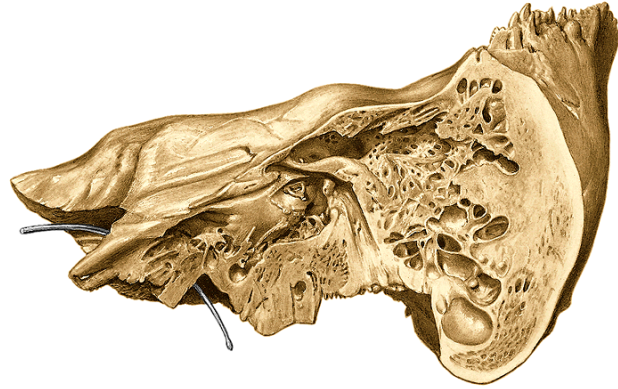
incisura tympanica



# Canals in temporal bone

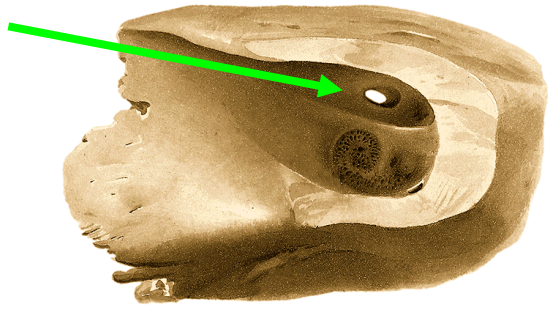
1. canalis caroticus
2. canaliculi caroticotympanici
3. canalis nervi facialis
4. canalis musculotubarius
5. canaliculus chordae tympani
6. canaliculus tympanicus
7. canaliculus cochleae
8. canaliculus vestibuli
9. canaliculus mastoideus

# Canalis caroticus, canaliculi caroticotympanici

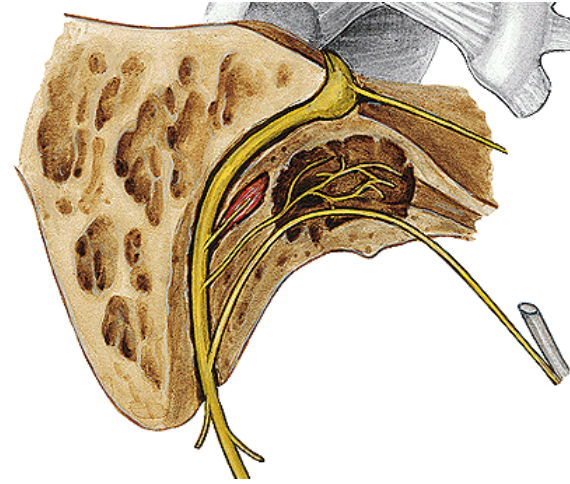




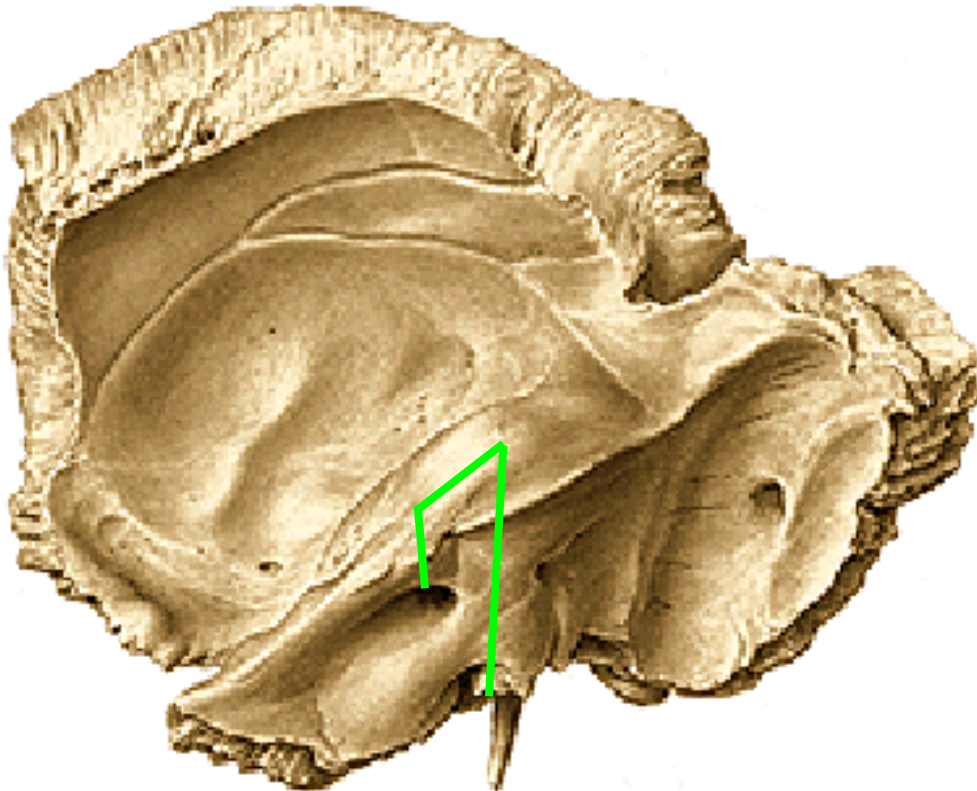
# Canalis nervi facialis, canaliculus chordae tympani



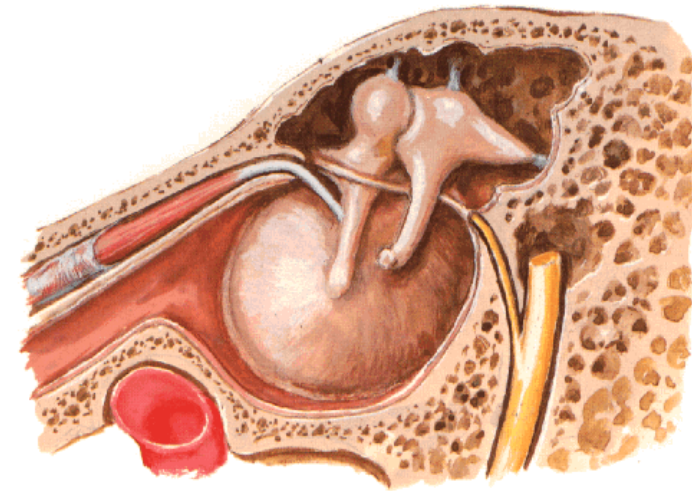
introitus canalis nervi facialis



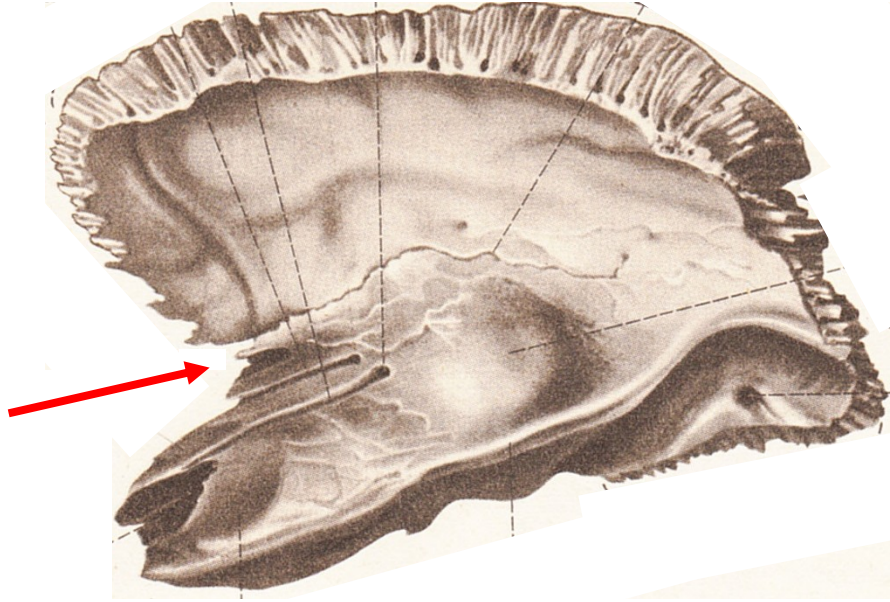
fissura petrotympanica



foramen stylomastoideum

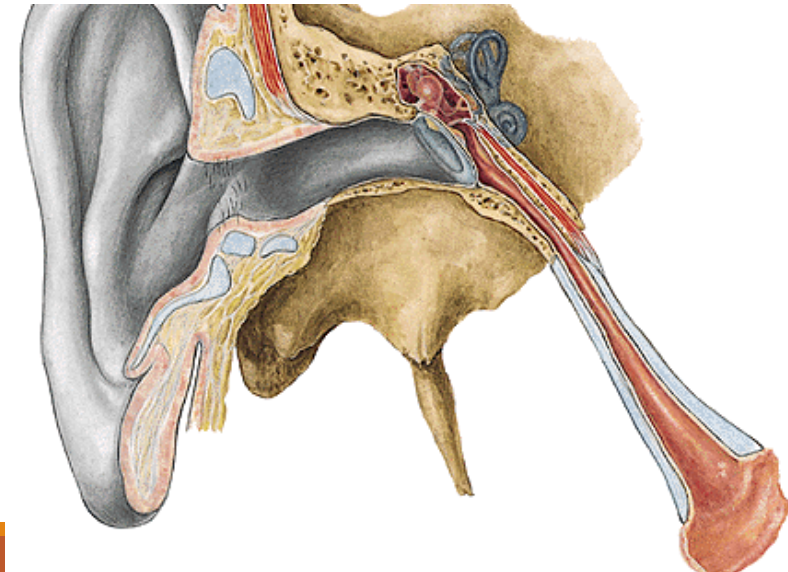
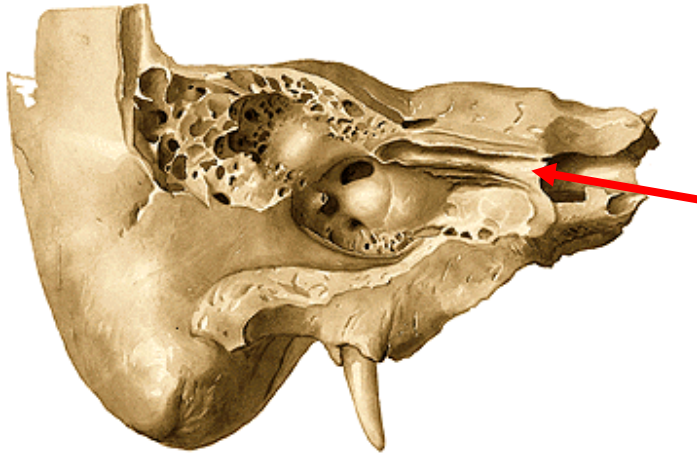
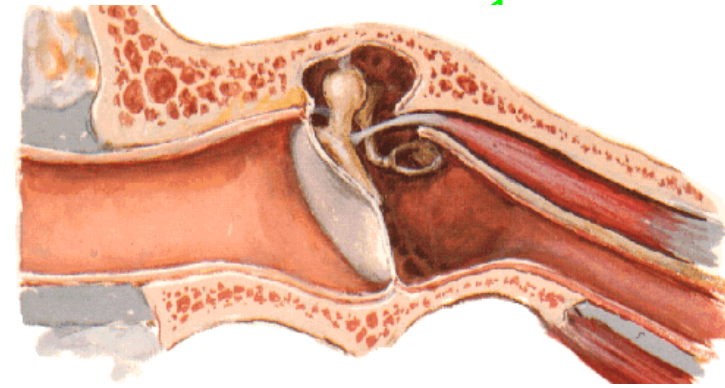


# Canalis musculotubarius

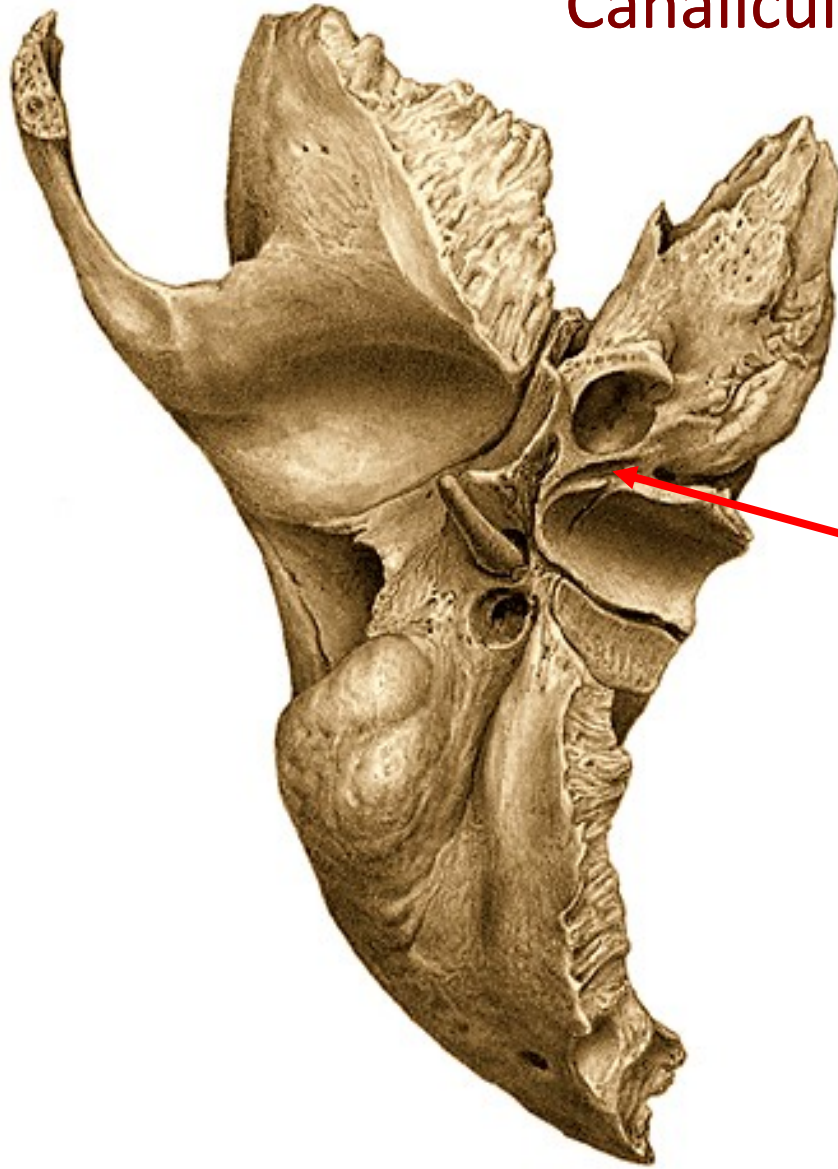


semicanalis muscoli tensoris tympani

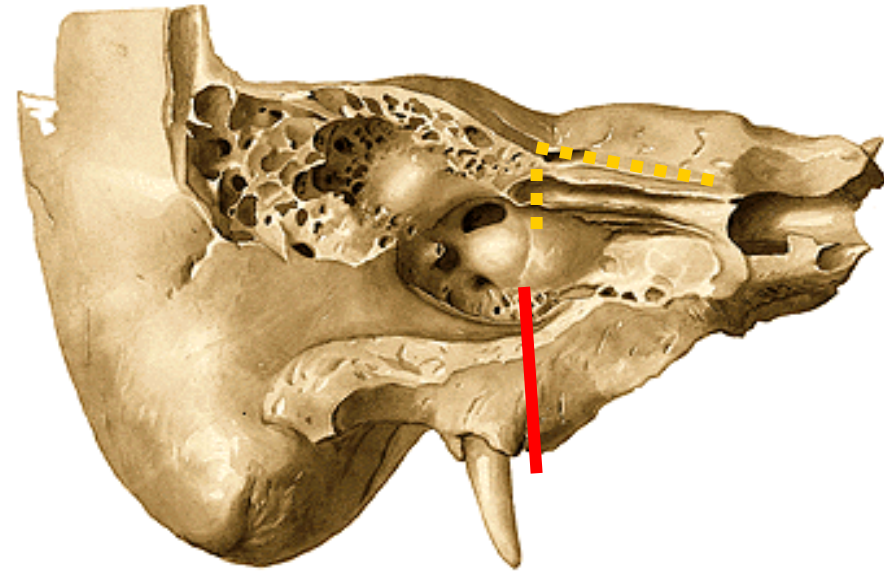
semicanalis tubae auditivae



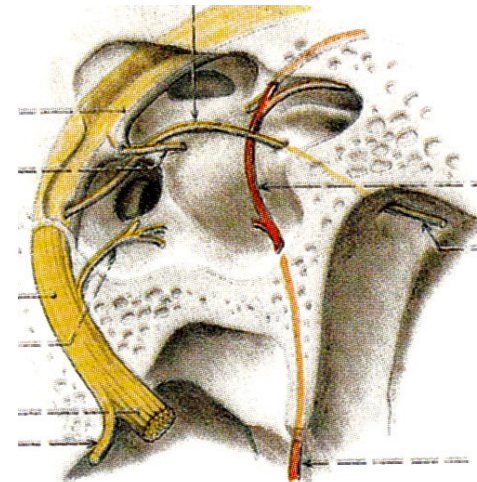
# Canaliculus tympanicus



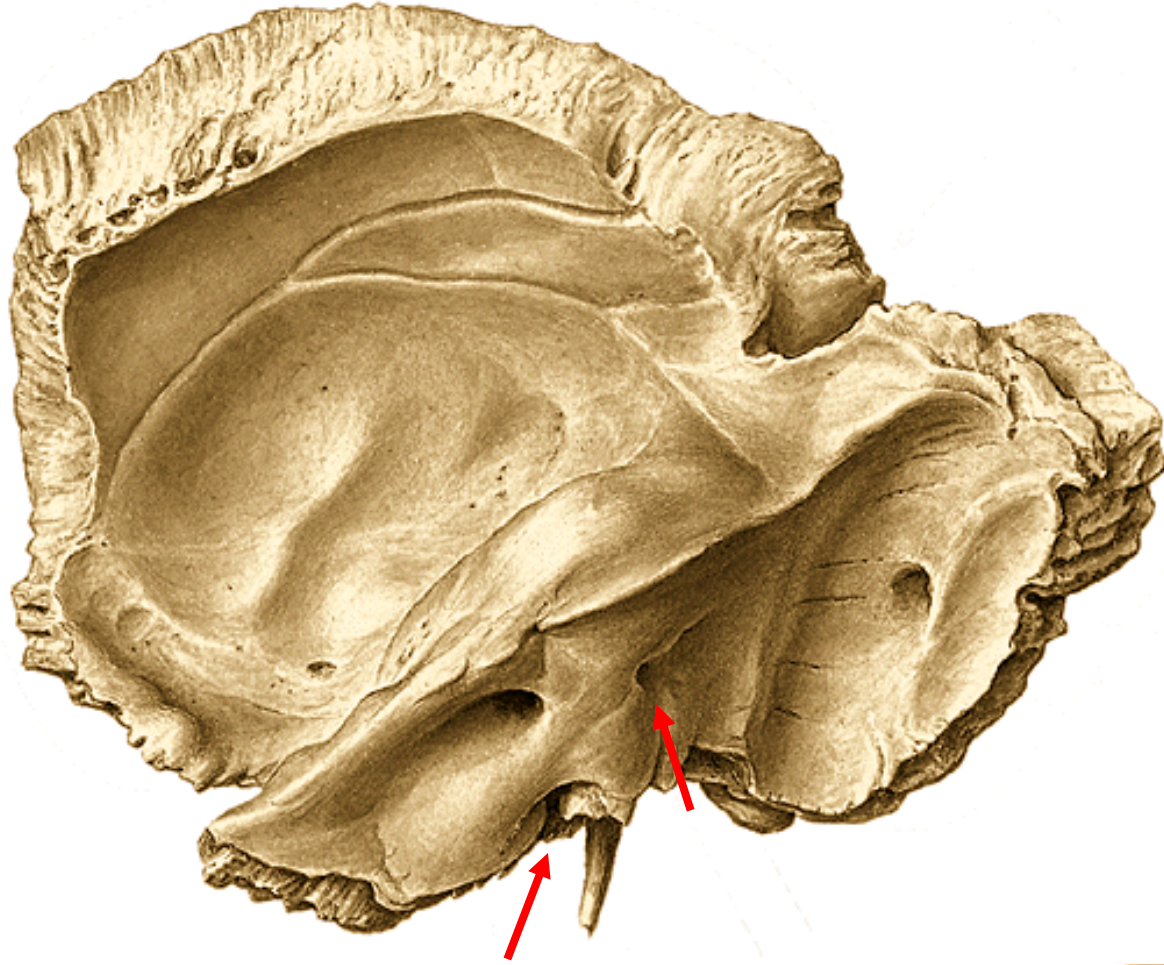
apertura externa canaliculi tympanici



apertura interna canaliculi tympanici



# Canaliculus cochleae, canaliculus vestibuli

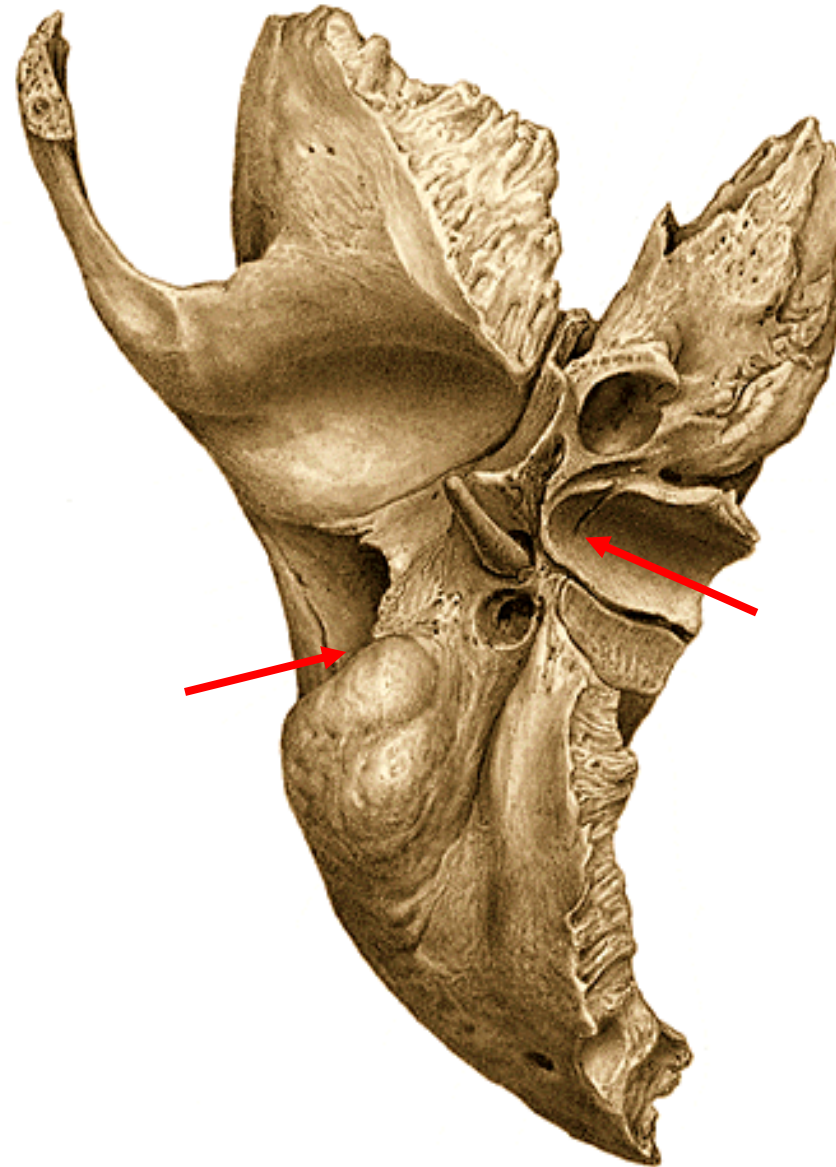


# Canaliculus mastoideus

fossa jugularis

fissura tympanomastoidea

(nervus auricularis nervi vagi)

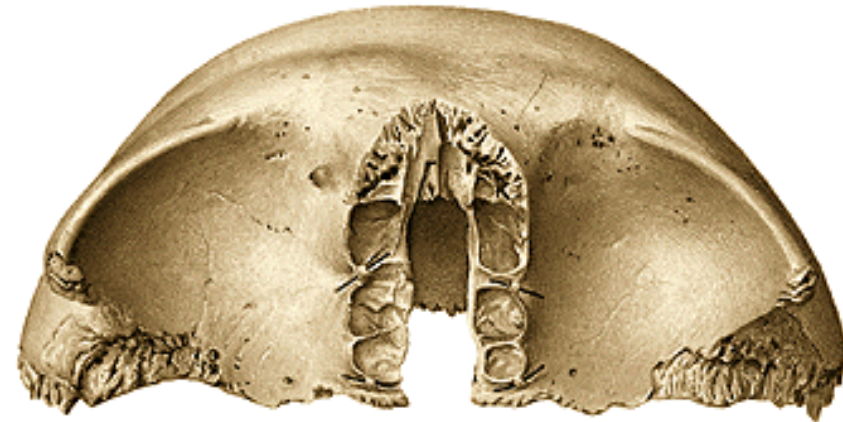
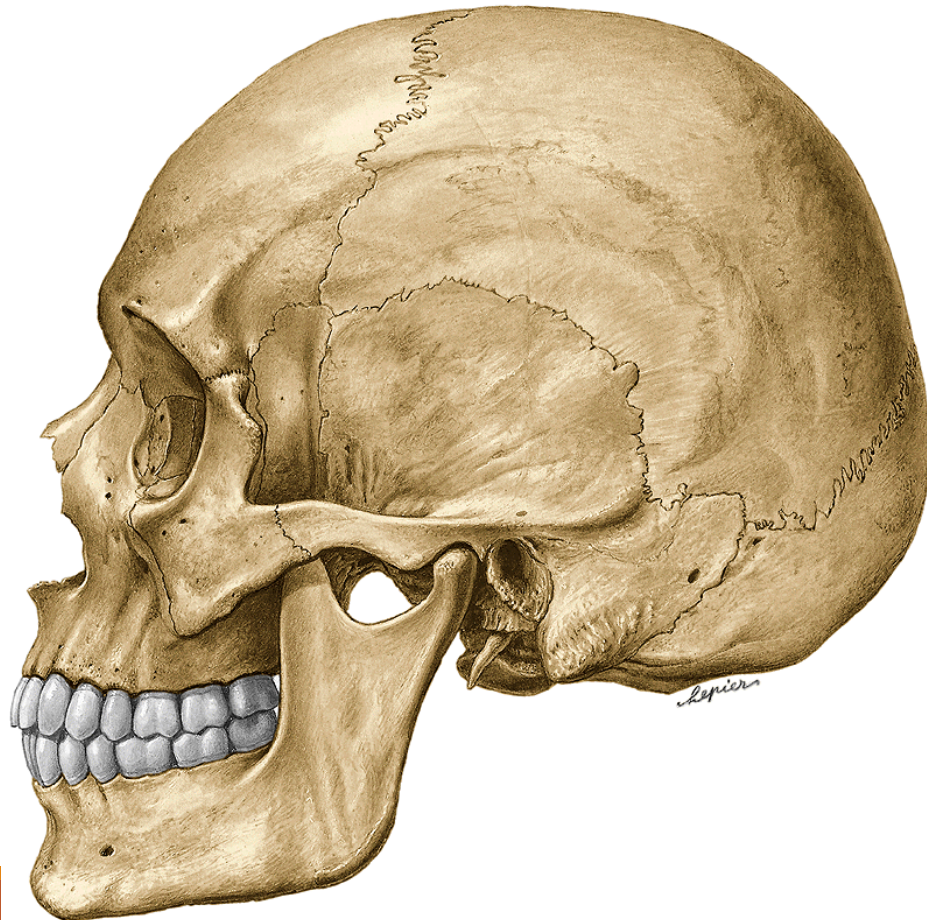


# Os frontale

Squama ossis frontalis

Partes orbitales

Pars nasalis ossis frontalis



# Squama ossis frontalis (facies anterior)

sutura coronalis

tubera frontalia

arcus superciliares

glabella

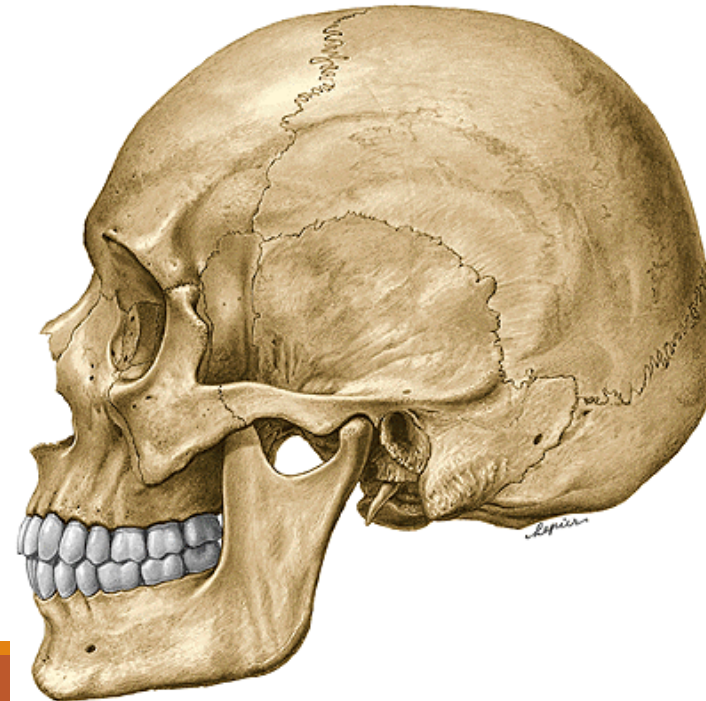
margo supraorbitalis

incisura frontalis (foramen frontale)

incisura supraorbitalis

processus zygomaticus

linea temporalis superior



# Squama ossis frontalis

crista frontalis

sulcus sinus sagittalis superioris

impressiones digitatae/gyrorum

juga cerebralia

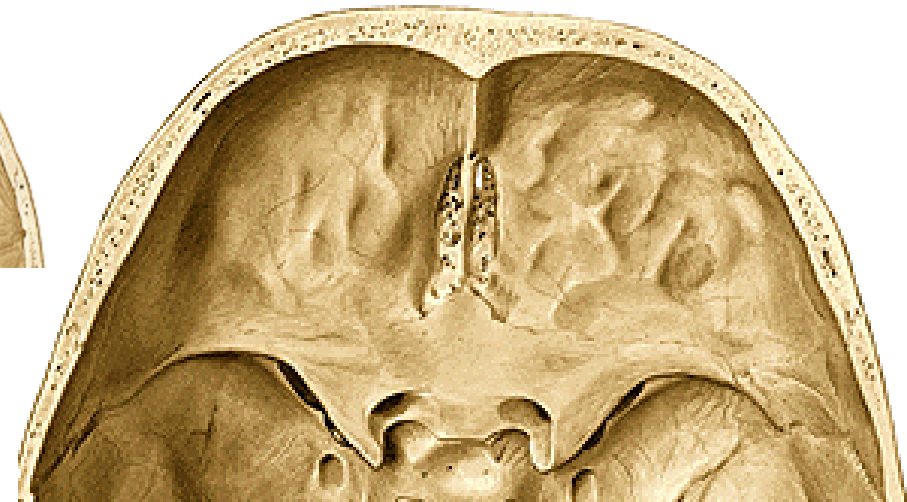
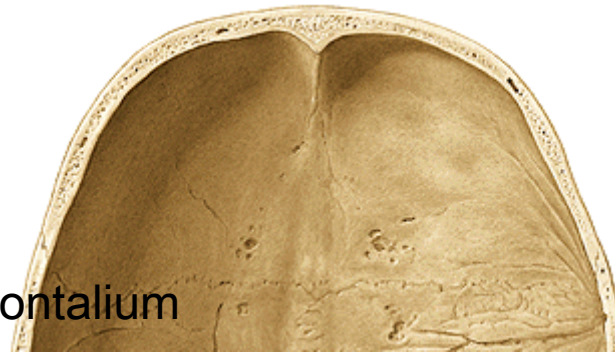
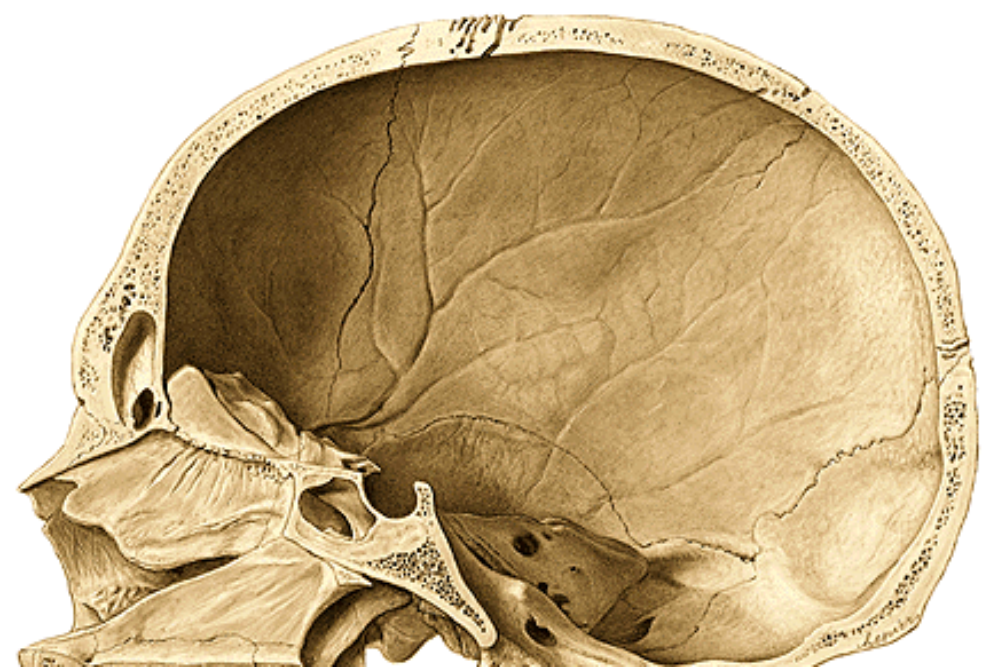
foramen caecum

sulci arteriosi

sinus frontalis

septum sinuum frontaliu

apertura sinuum frontaliu





## Partes orbitales et pars nasalis ossis frontalis

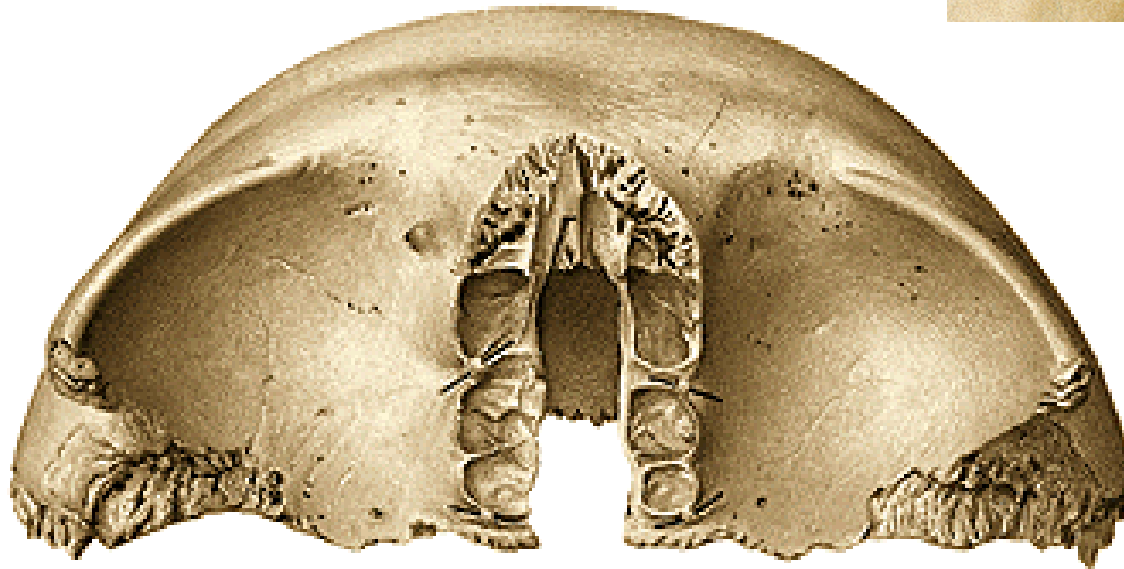
fossa glandulae lacrimalis

spina (fovea) trochlearis

foramen ethmoidale anterius

foramen ethmoidale posterius

incisura ethmoidalis

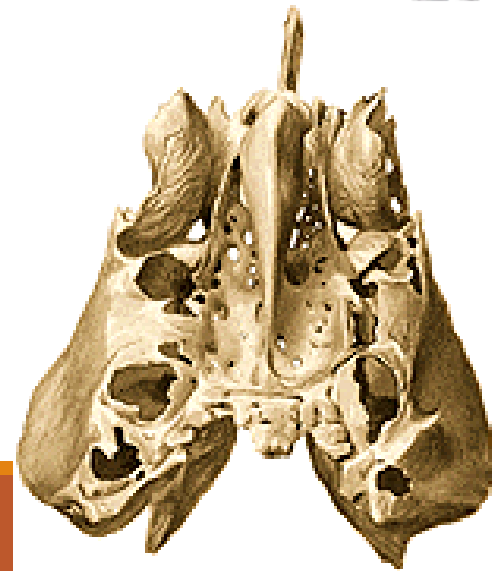
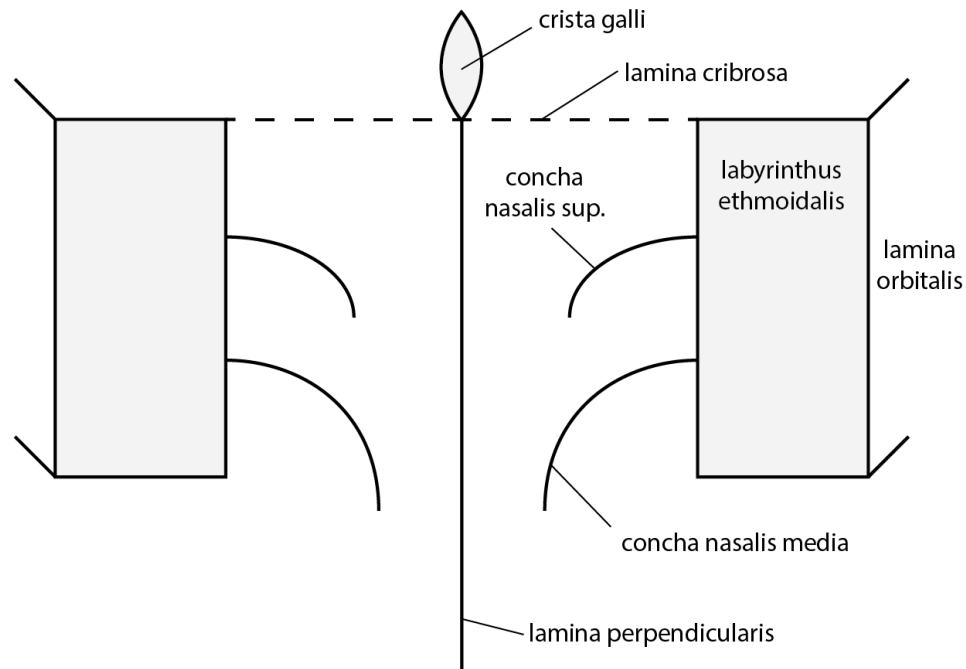
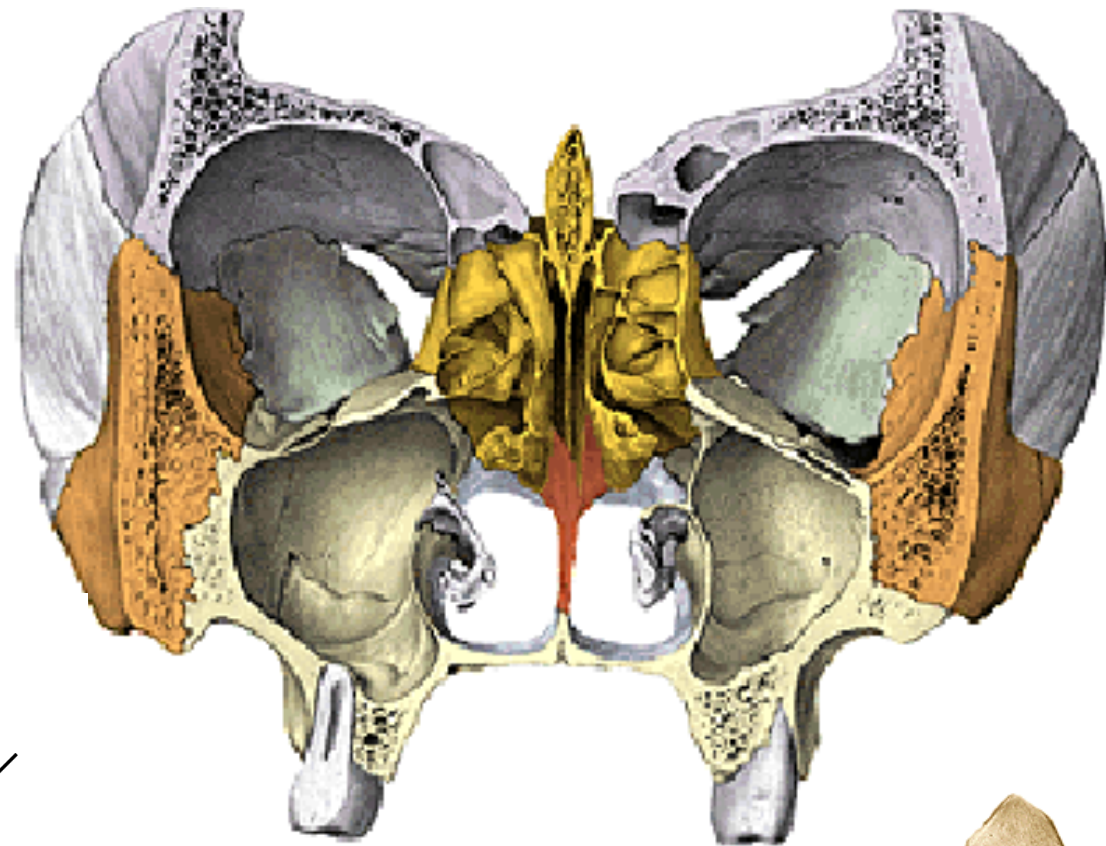


# Os ethmoidale

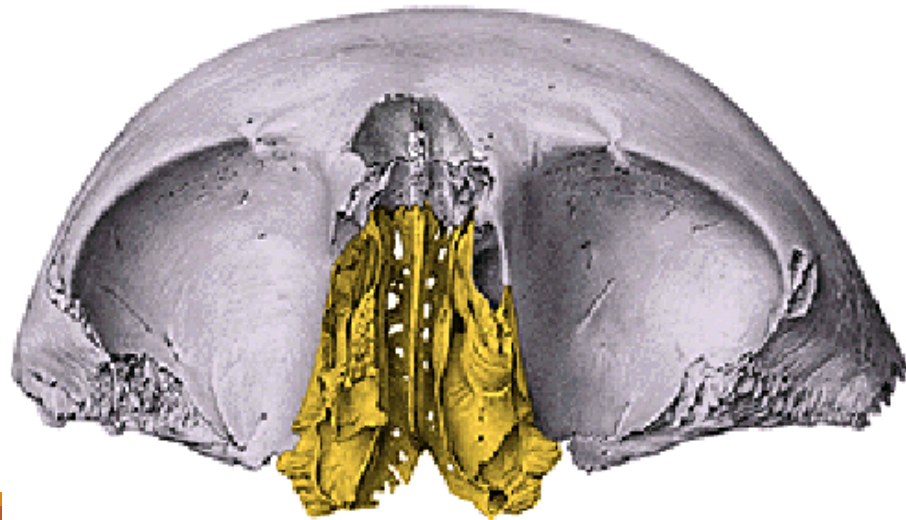
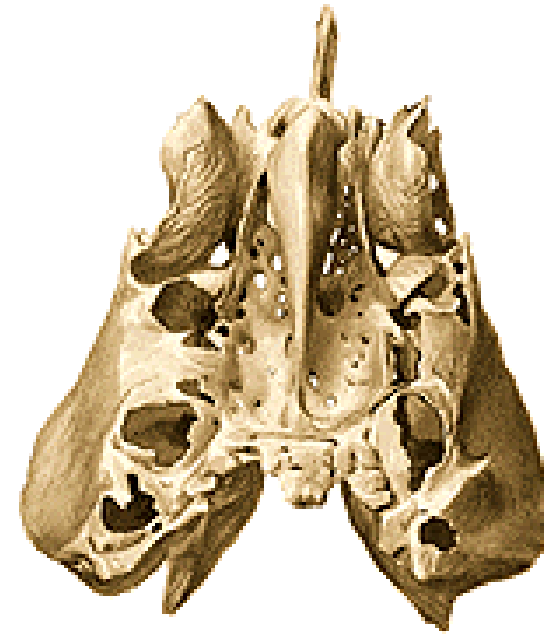
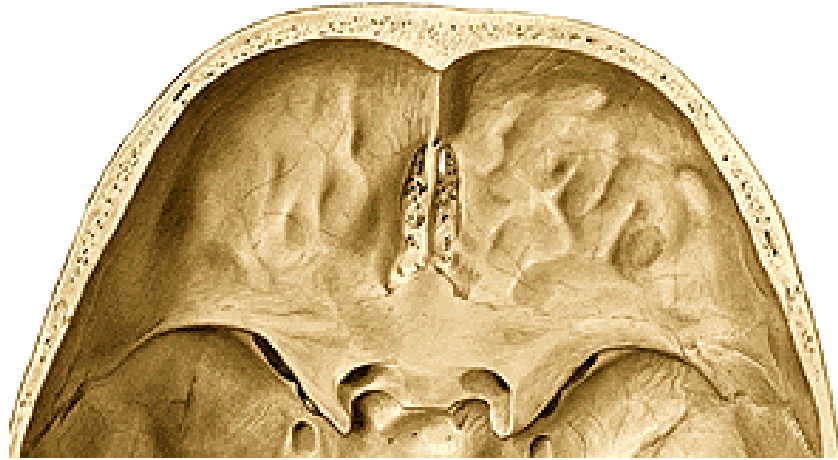
lamina cribrosa

lamina perpendicularis

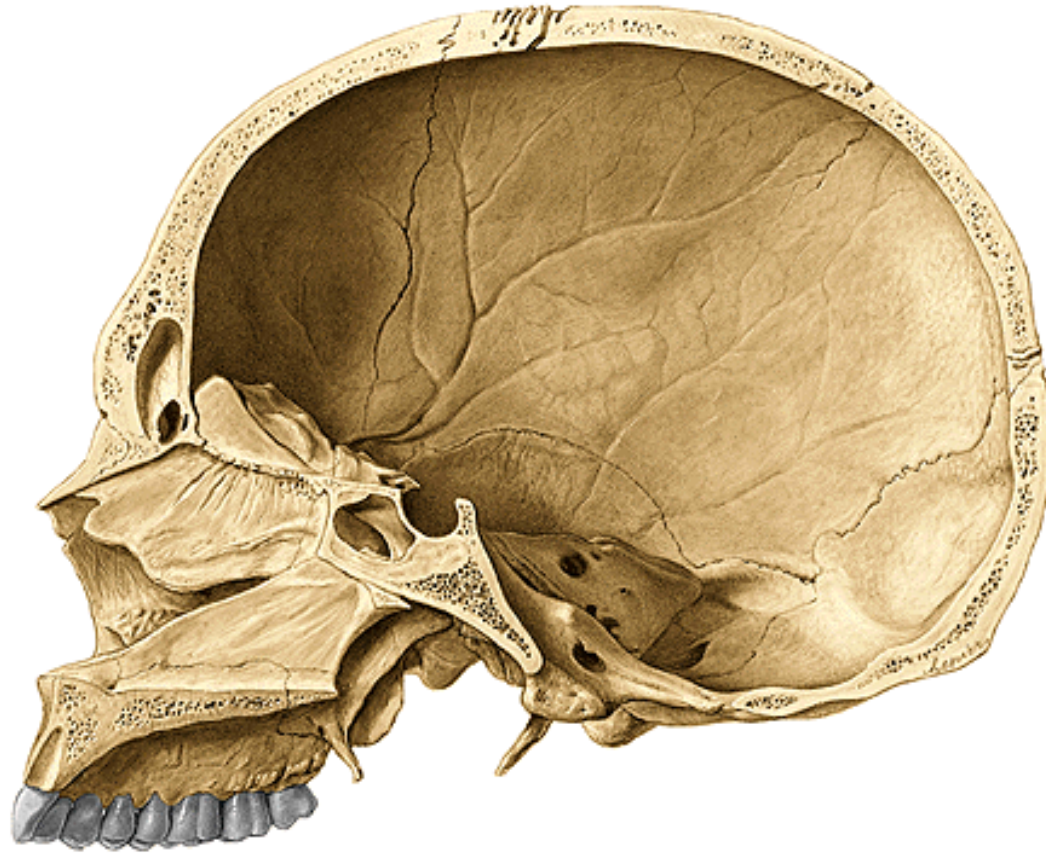
labirynthi ethmoidales



# Lamina cribrosa ossis ethmoidalis

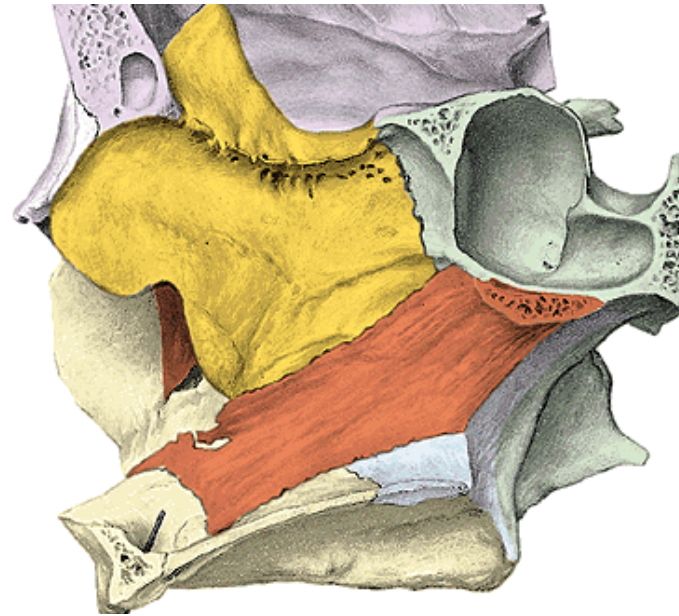


# Lamina perpendicularis ossis ethmoidalis

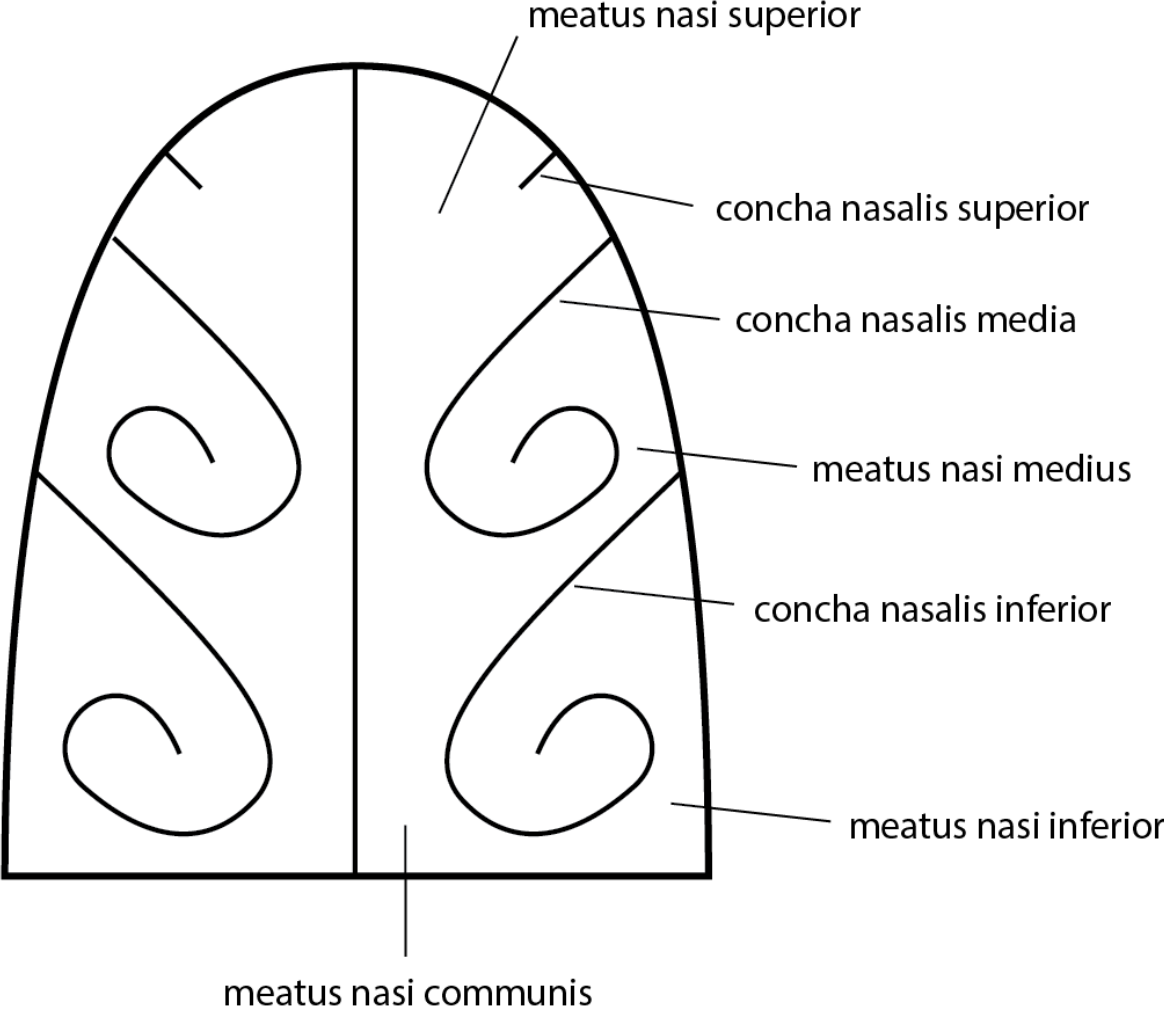


Crista galli

Septum nasi osseum



# Cavum nasi



# Labyrinthi ethmoidales

Cellulae ethmoidales  
(anteriores, medii, posteriores)

Lamina orbitalis

Foramen ethmoidale anterius

Foramen ethmoidale posterius

Concha nasalis superior et media

Processus uncinatus

Bulla ethmoidalis

