

OSTEOLOGI AXIALE I



OSSA CRANII-1

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SKELETON AXIALIS



SKELETON AXIALIS

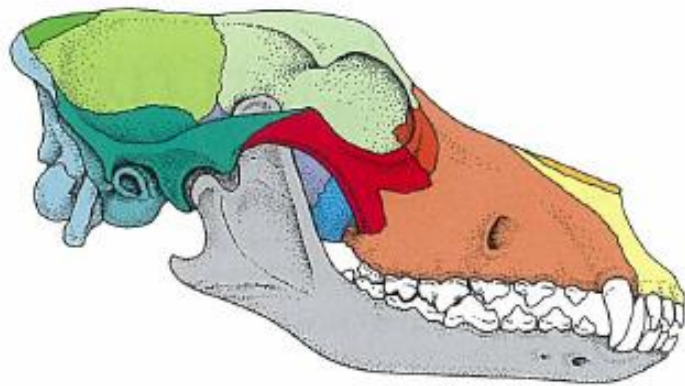
Ossa Craniofascialis

Columna Vertebrae

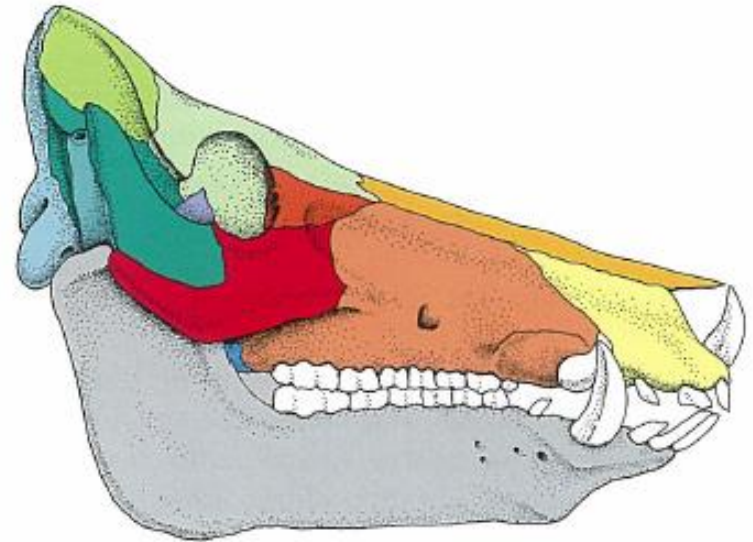
Ossa Cranii

Ossa Fasciei





A



B

Incisive
 Nasal
 Maxilla
 Lacrimal

Zygomatic
 Frontal
 Parietal
 Interparietal

Temporal, squamous part
 Temporal, petrous part
 Occipital
 Mandible

Palatine
 Sphenoid
 Pterygoid

Fig. 1-1. Bones of the skull and mandible of the dog (A) and pig (B), (schematic, lateral aspect) (Ellenberger and Baum, 1943).



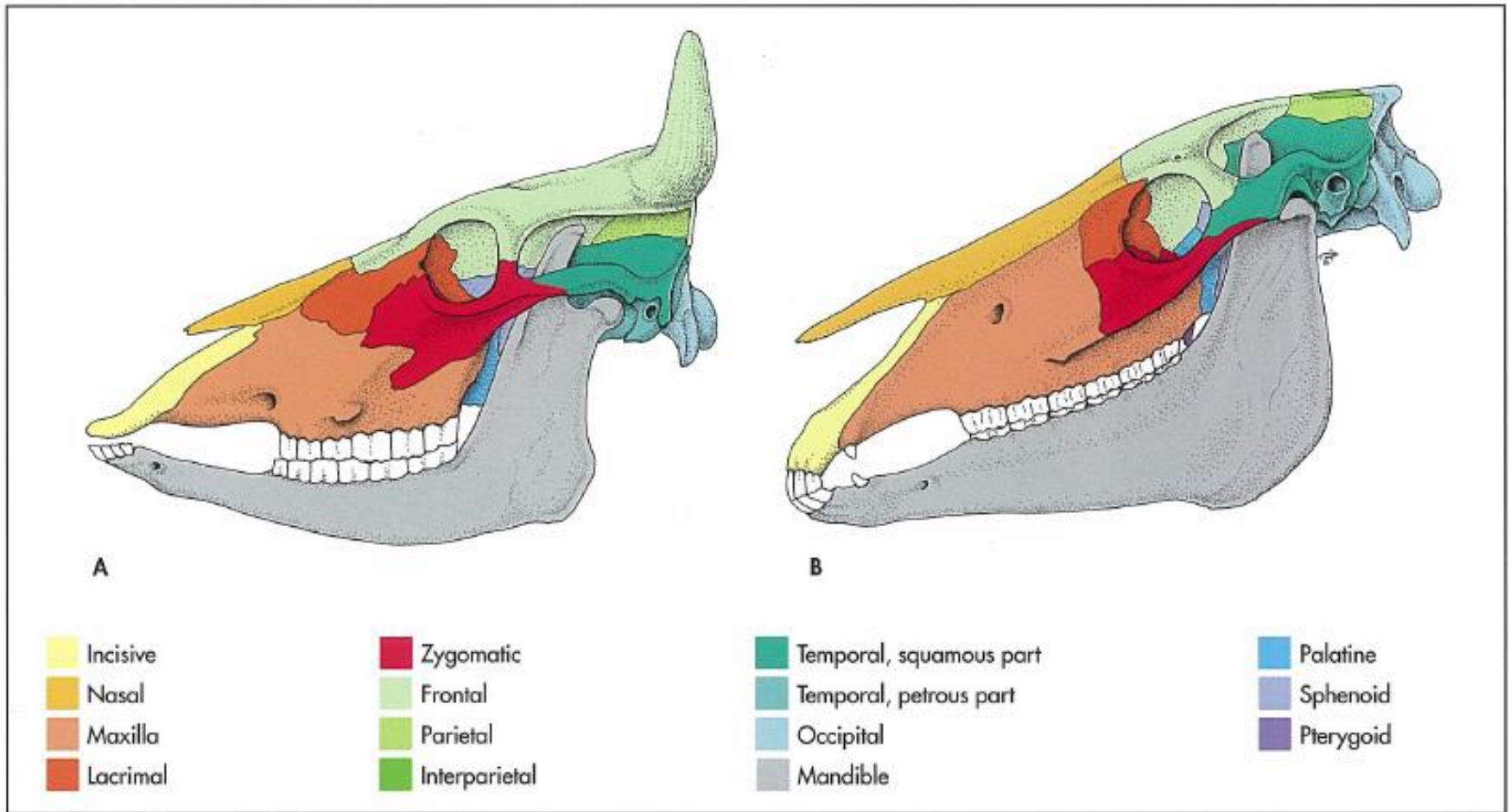


Fig. 1-2. Bones of the skull and mandible of the ox (A) and horse (B), (schematic, lateral aspect) (Ellenberger and Baum, 1943).



OSSA CRANII (NEUROCRANII)



Os. Occipitale

Os. Sphenoidale

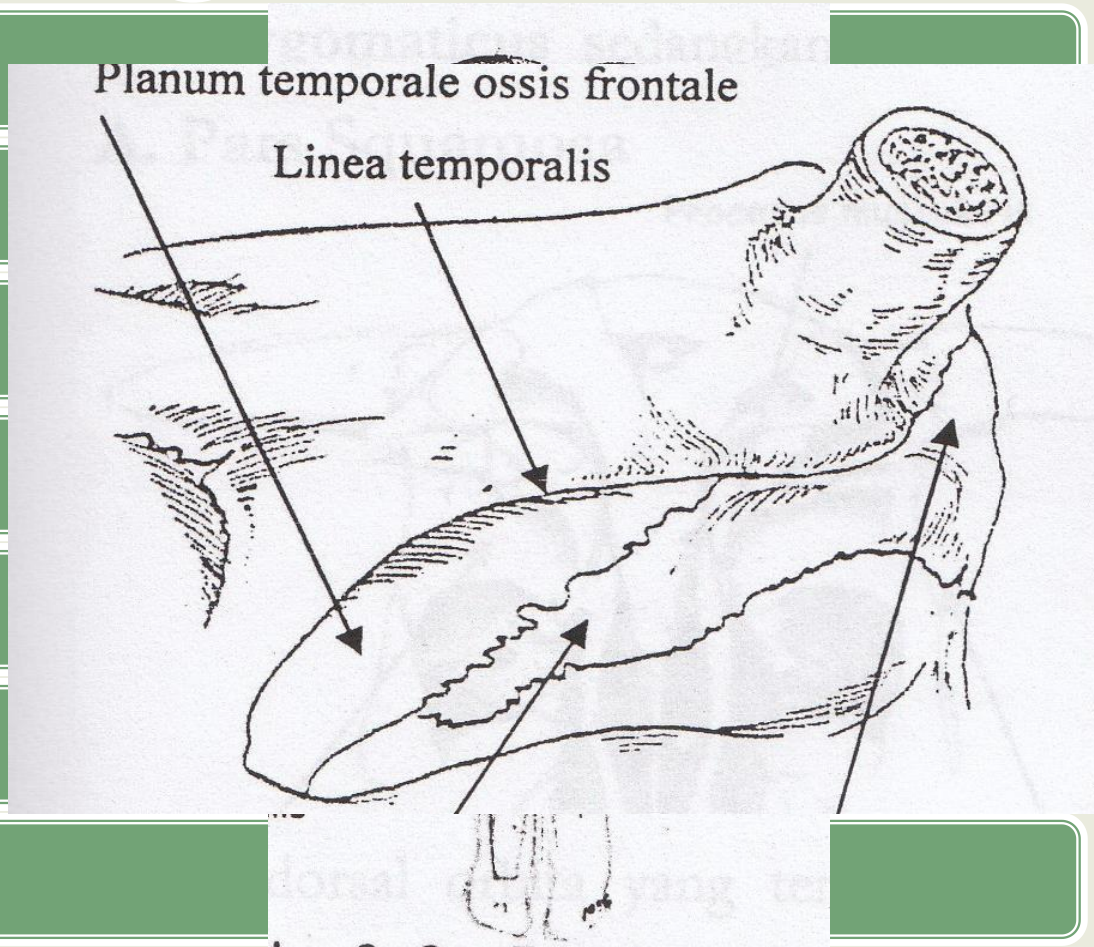
Os. Ethmoidale

Os. Interparietale

Os. Frontale (ganda)

Os. Parietale (ganda)

Os. Temporale (ganda)



OS. OCCIPITALE



> *Dinding caudal ossa cranii*

Terbagi:

- a. Pars basilaris/muscularis → tuberculum basilaris/muskularis: pertautan *otot leher*.
 - Kuda → *foramen laterum (lateral)*
- a. Pars lateralis → *foramen magnum* sebagai tempat keluarnya medulla spinalis dan *condylus occipitalis* yang merupakan sendi untuk os atlas serta *processus jugularis*
- b. Squama occipitalis → dinding belakang kuduk (nuchalis) di dorsal foramen magnum
 - Kuda → *protuberantia occipitalis externa (ligamentum nuchae)*



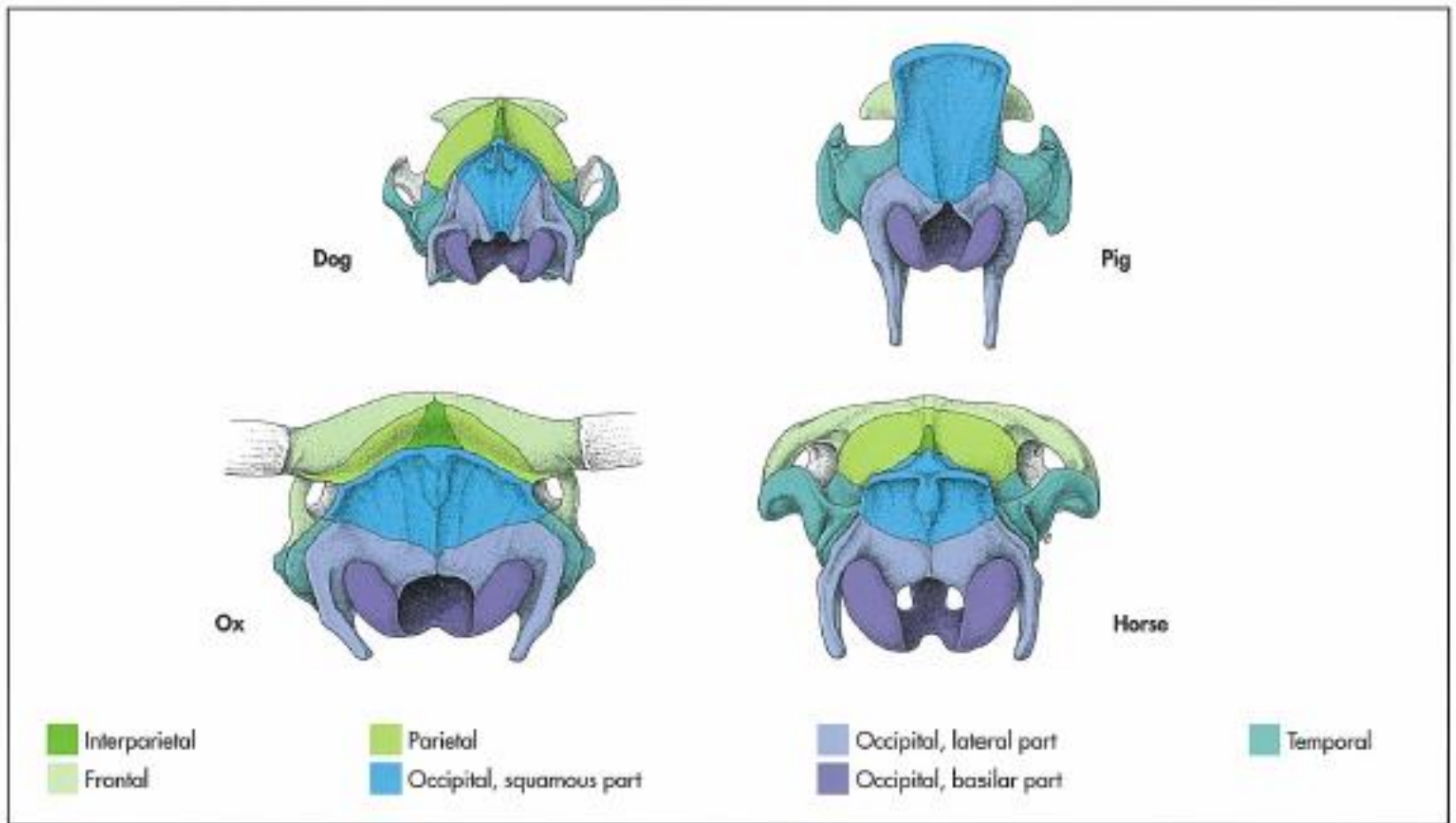
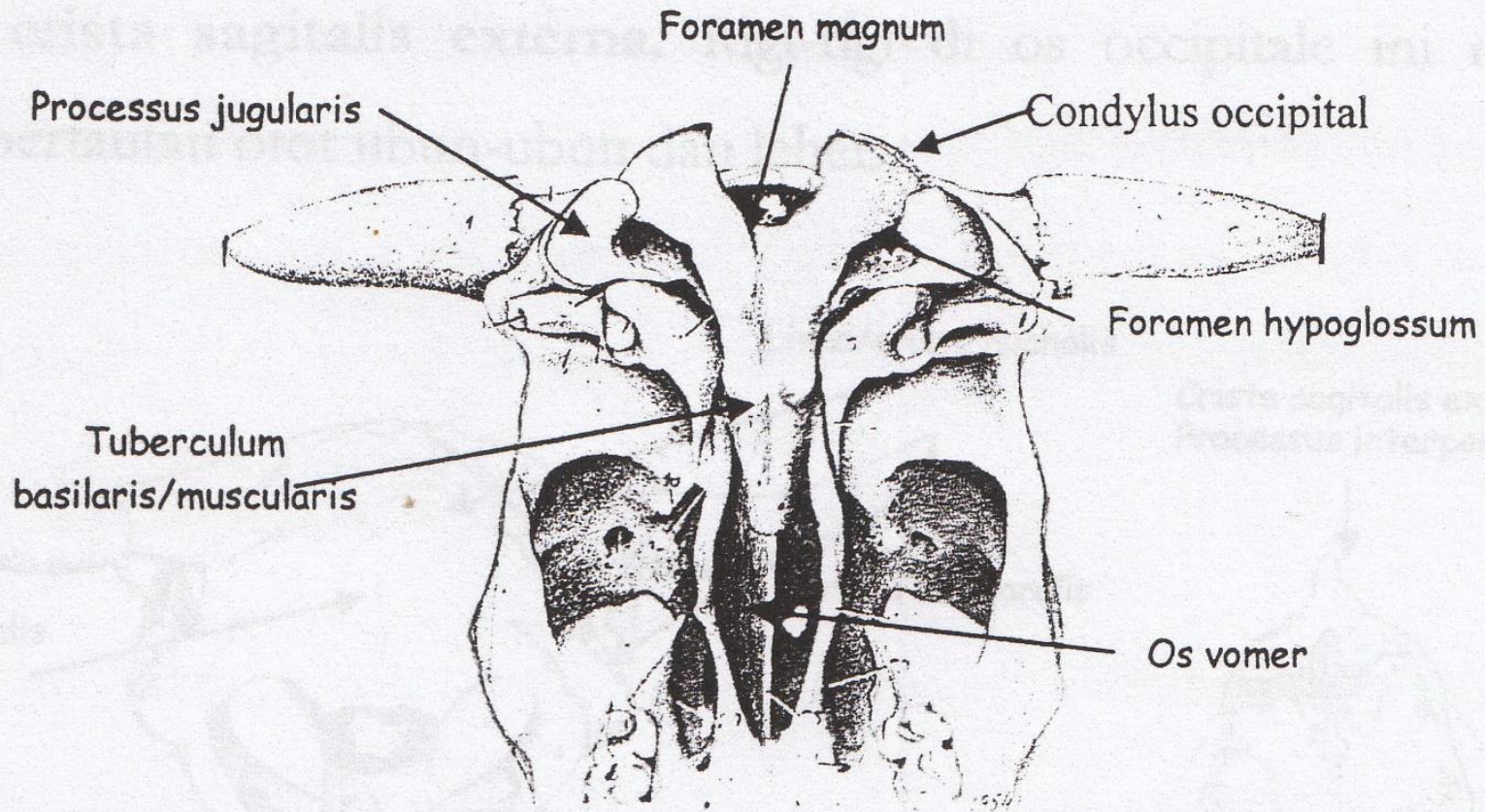


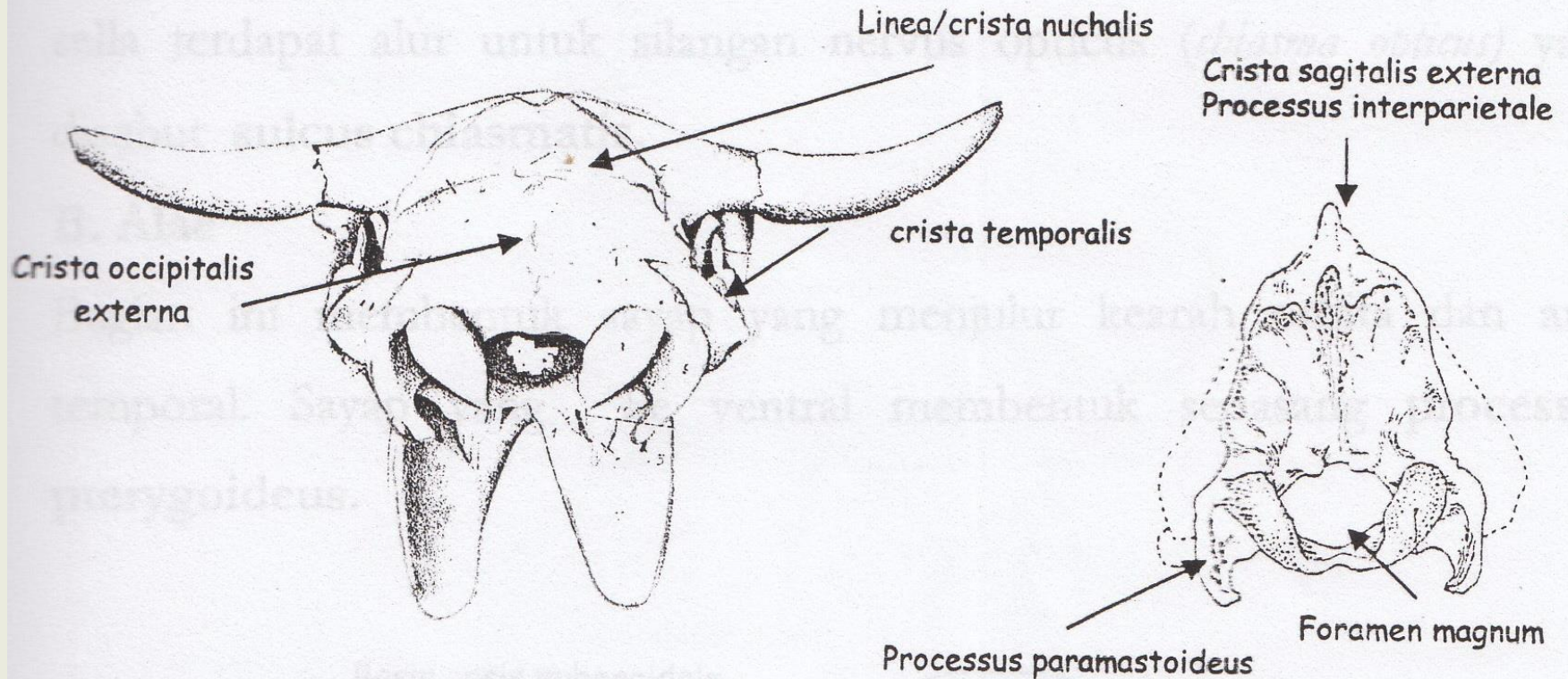
Fig. 1-7. Nuchal aspect of the canine, porcine, bovine and equine skull (schematic) (Ellenberger and Baum, 1943).



GAMBAR OS OCCIPITAL (VENTRAL)

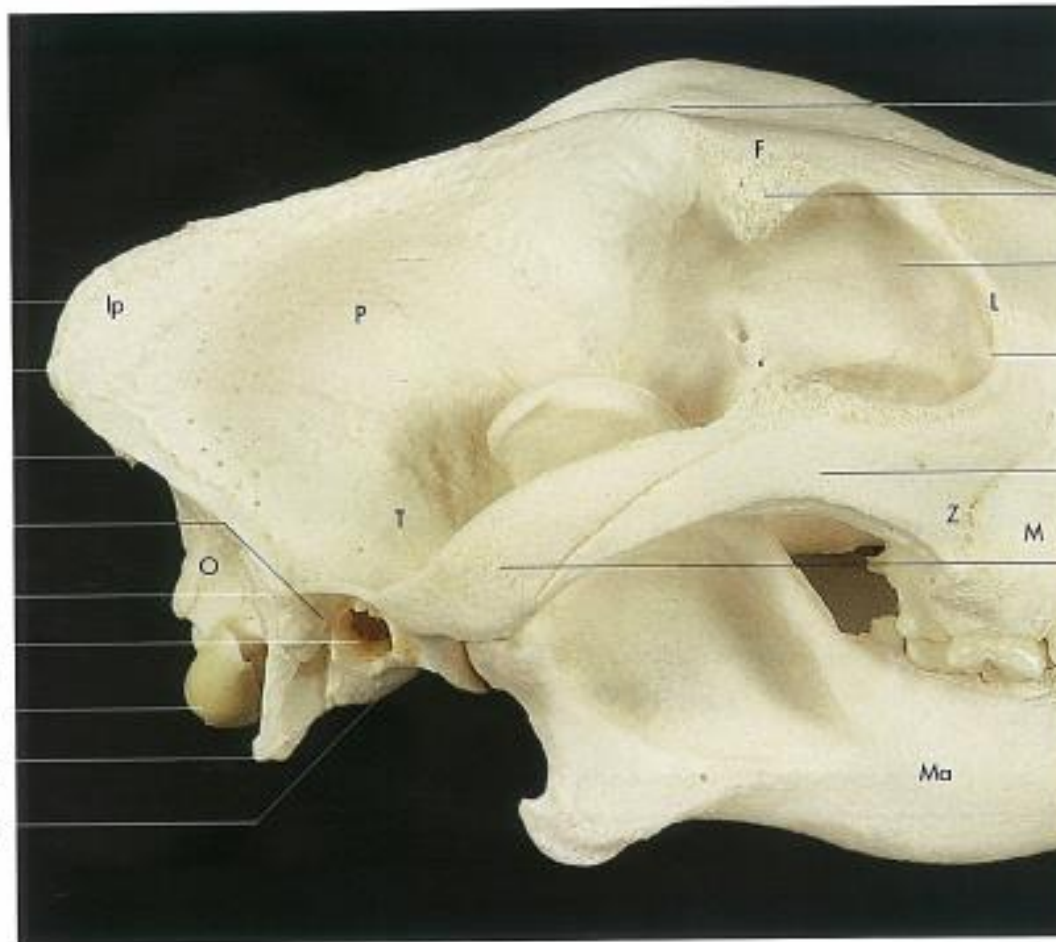


GAMBAR OS OCCIPITAL (CAUDAL)



- F Frontal
- Ip Interparietal
- L Lacrimal
- M Maxilla
- Ma Mandible
- O Occipital
- P Parietal
- S Sphenoidal
- T Temporal
- Z Zygomatic

- External sagittal crest
- External occipital protuberance
- Nuchal crest
- Stylomastoid foramen
- Mastoid process
- External acoustic meatus
- Occipital condyle
- Paracondylar process
- Tympanic bulla



- Temporal line
- Zygomatic process of the frontal bone
- Orbit
- Fossa for lacrimal sac
- Temporal process of the zygomatic bone
- Zygomatic process of the temporal bone

Fig. 1-3. Cranial part of a canine skull (lateral aspect).



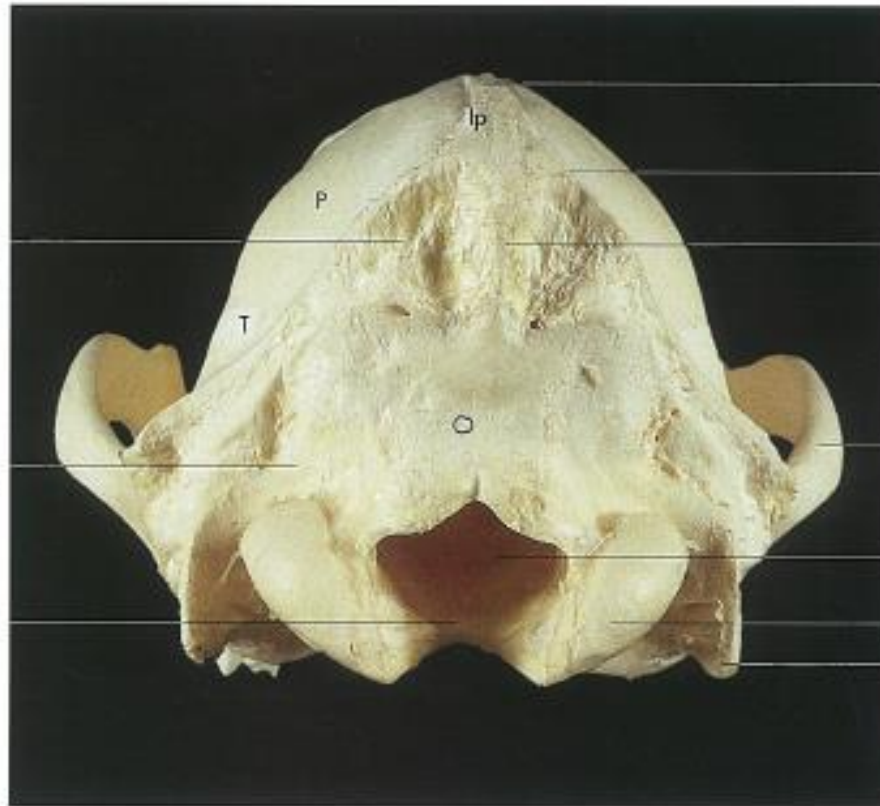
lp
O
P
T

Interparietal
Occipital
Parietal
Temporal

Squamous part
of the occipital bone

Lateral part
of the occipital bone

Basilar part
of the occipital bone



External sagittal crest

Nuchal crest

External occipital
protuberance

Zygomatic arch

Foramen magnum

Occipital condyle

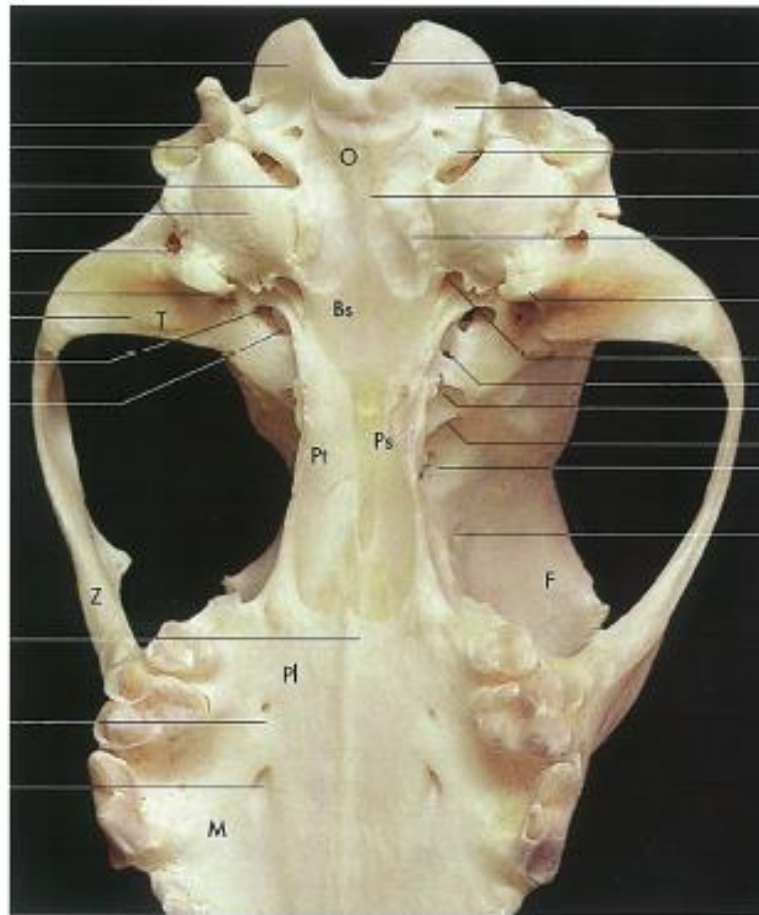
Paracondylar process

Fig. 1-8. Nuchal aspect of a canine skull.



Occipital condyle
 Paracondyloid process
 Mastoid process
 Jugular foramen
 Tympanic bulla
 Retroarticular foramen
 Retroarticular process
 Mandibular fossa
 Spinous foramen
 Oval foramen

 Caudal nasal spine of palatine
 Minor palatine foramen
 Major palatine foramen



Intercondyloid incisure
 Ventral condyloid fossa
 Hypoglossal canal
 Basisoccipital
 Muscular process
 Retroarticular process
 Carotid canal
 Caudal alar foramen
 Rostral alar foramen
 Orbital fissure
 Optic canal
 Ethmoid foramen

Bs Basisphenoid
 F Frontal
 M Maxilla
 O Occipital
 Pl Palatine
 Ps Presphenoid
 Pt Pterygoid
 T Temporal
 Z Zygomatic

Fig. 1-6. Bones of the cranial part of a canine skull (ventral aspect).



OS SPHENOIDAL



Lanjutan arah cranial dari basis Os. Occipitale
*Membentuk **alae** ke arah orbita dan **processus***
***pterygoideus** ke arah ventral*

Terdiri dari:

a. **Corpus**

- basis otak
- terdapat **sella tursica** (tempat kedudukan hipofisa)
- **sulcus chiasmatis** (alur persilangan chiasma opticus)

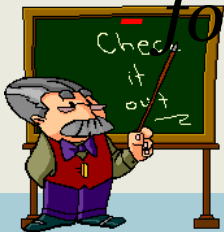


OS SPHENOIDAL



b. Alae: membentuk sayap yang menuju ke arah orbita dan arah temporal dan membentuk *processus pterygoideus*

- *foramen opticus: dorsal alae → N. Opticus*
- *foramen orbitorotundum: ventral → N. Occulomotoris, Ophthalmicus & Maxillaris*
- *foramen ovale (ruminansia) → N. Mandibularis*
- *foramen alare abolare (kuda)*



GAMBAR OS SPHENOID

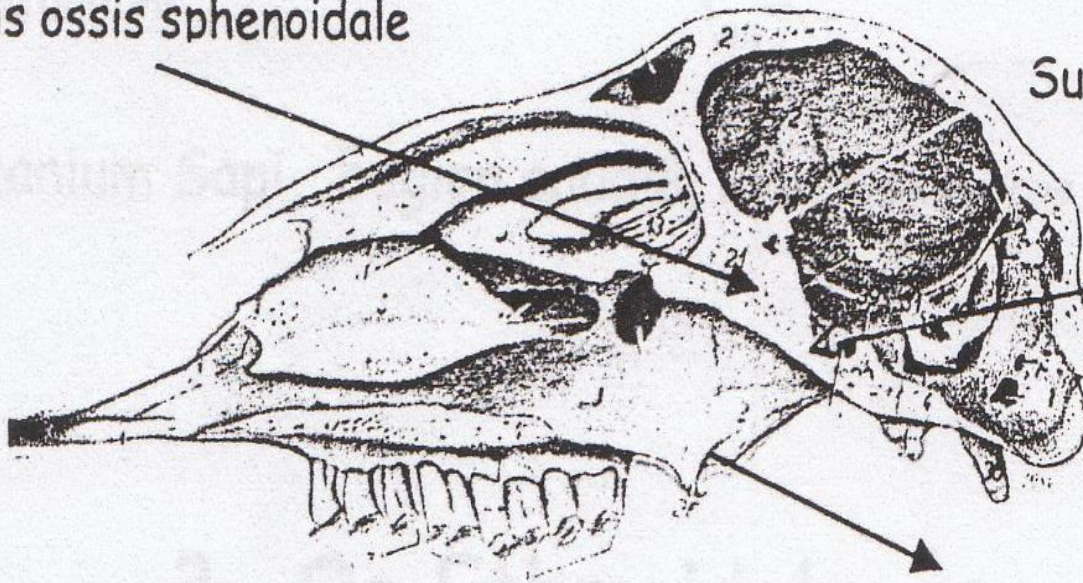


Basis ossis sphenoidale

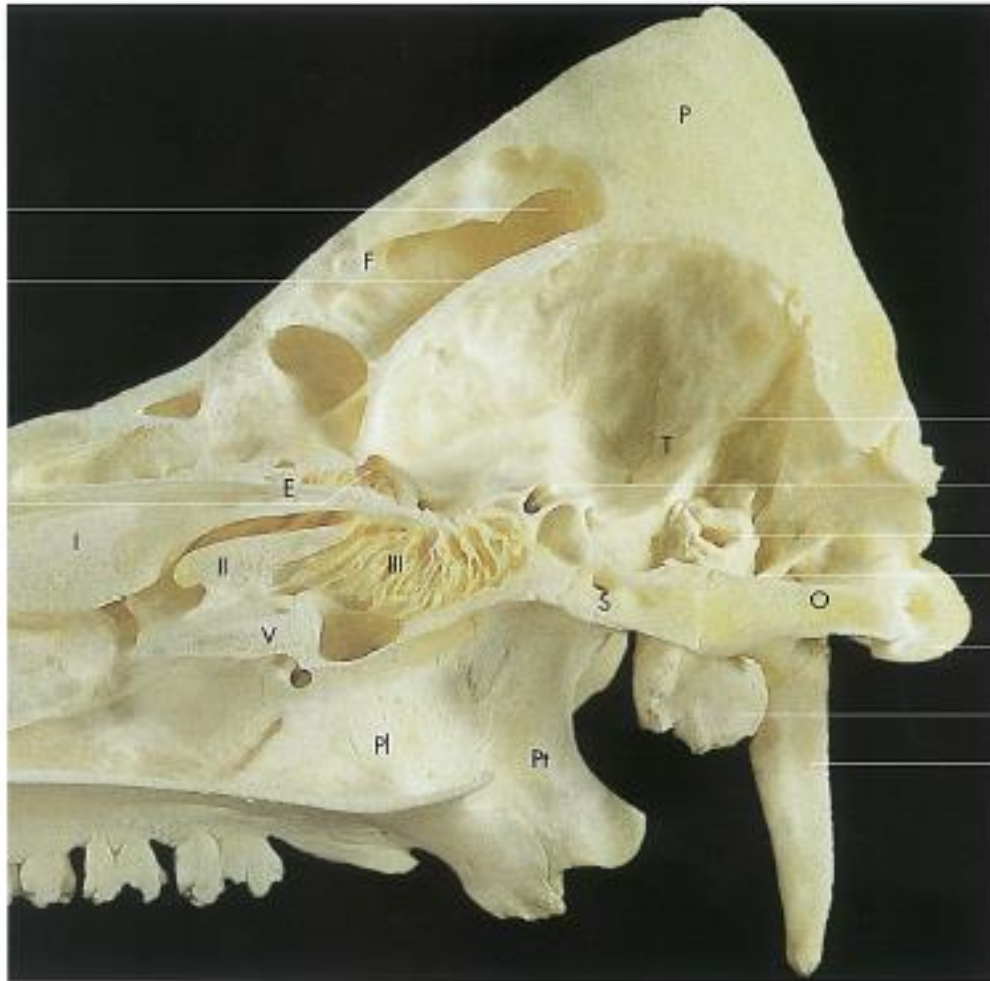
Sulcus chiasmatis

Sella tursica

Processus pterygoideus



Frontal sinus
 Internal table of frontal bone
 Ethmoidal fossa



E Ethmoid
 F Frontal
 O Occipital
 P Parietal
 Pl Palatine
 Pt Pterygoid
 S Sphenoidal
 T Temporal
 V Vomer
 Z Zygomatic
 I Endoturbinate I
 II Endoturbinate II
 III Endoturbinate III

Tentoric crest
 Optic canal
 Internal acoustic meatus
 Petrous part of the temporal
 Occipital condyle
 Tympanic bulla
 Paracandyilar process

Fig. 1-11. Bones of the cranial part of a porcine skull (medial aspect of sagittal section).



OS ETHMOIDAL



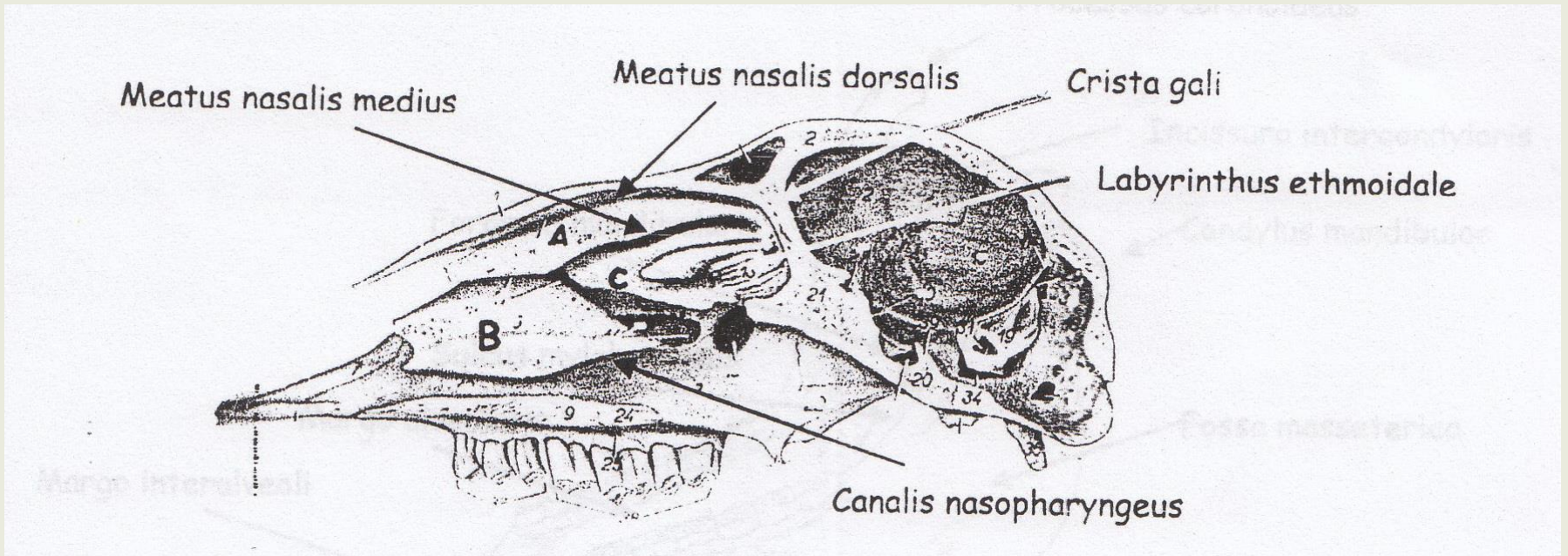
Cranial dari basis os sphenoidale

Terdiri dari:

- a. **Lamina cribosa** → sekat horizontal antara cavum nasi & cavum cranii (terdapat *foramen cribosa* untuk jalan keluar serabut *N. Olfactorius*)
- b. **Pars perpendicularis** → sekat vertikal (membagi bidang kanan & kiri)
- c. **Labyrintus** → beberapa keping tulang yang menggulung (*cellulae ethmoidale*)



GAMBAR OS ETHMOIDAL



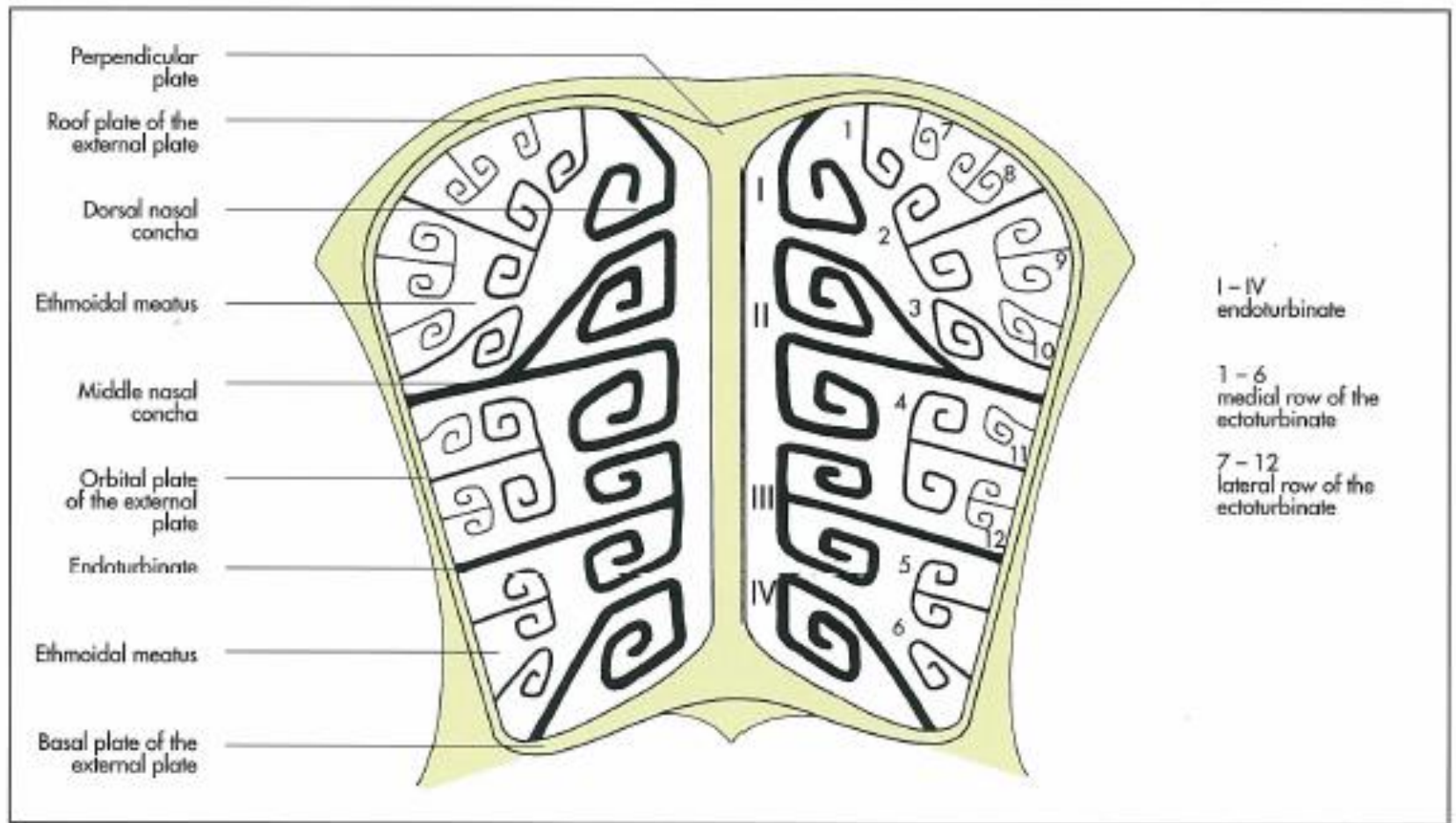


Fig. 1-24. Transverse section of the ethmoturbinates of the horse (schematic) (Nickel, Schummer and Seiferle, 1992).



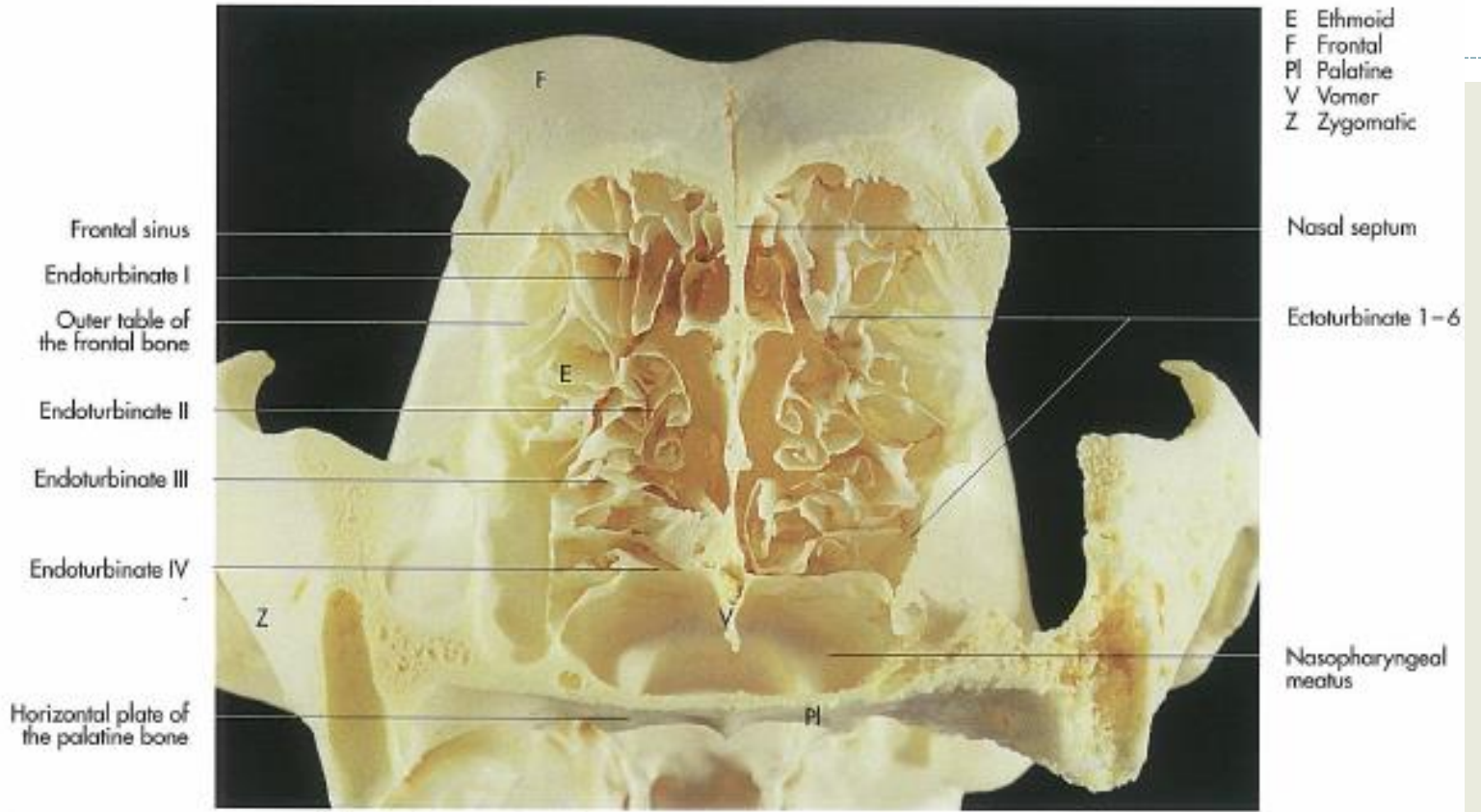


Fig. 1-25. Transverse section of the nasal cavity of a dog.



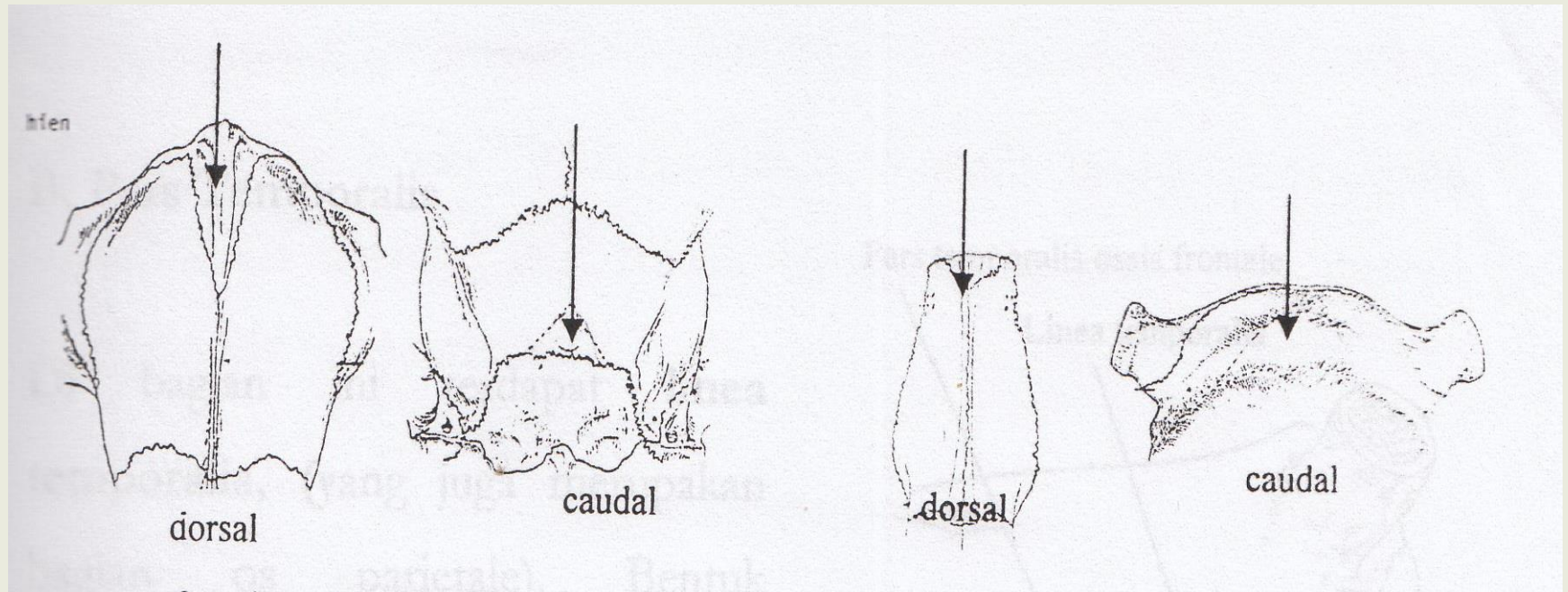
OS INTERPARIETALE



→ tulang yang relatif kecil, posisinya di puncak kuduk (*nuchalis*)



GAMBAR OS INTERPARIETALE



OS FRONTAL



→ *atap cavum cranii, paling luas*

Terbagi:

a. Pars nasalis:

- cranial → sinus frontalis rostralis
- caudal → sinus frontalis caudalis
- sekat → septum transversum sinusuum frontaliuum

b. Pars temporalis:

- linea temporalis (ruminansia → fossa temporalis)





c. Pars orbitalis

- processus zygomaticus
- foramen supraorbitalis (tidak ada pada anjing)

d. Facies externa

- processus cornualis
- Protuberantia intercornualis

e. Facies cerebralis

- permukaan dalam cavum cranii → impressiones digitatae
- Dorsolateral cavum orbita → fossa glandula lacrimalis & fovea trochlearis.



GAMBAR OS FRONTAL

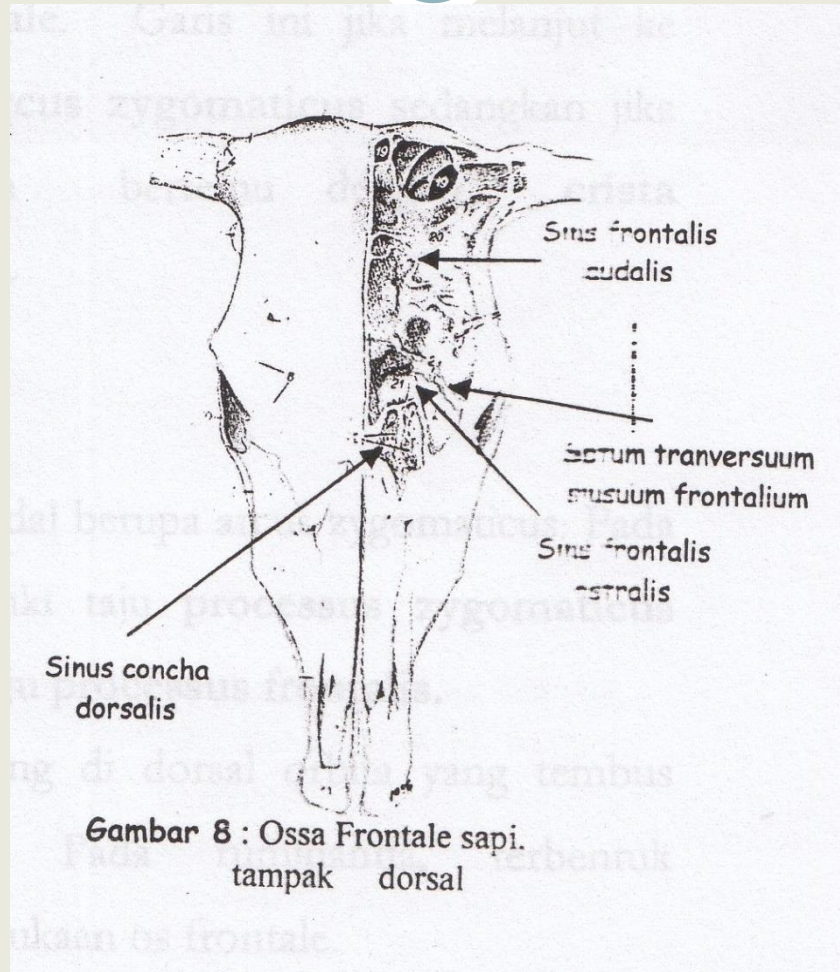




Fig. 1-10. Bones of the cranial part of a porcine skull (dorsal aspect).



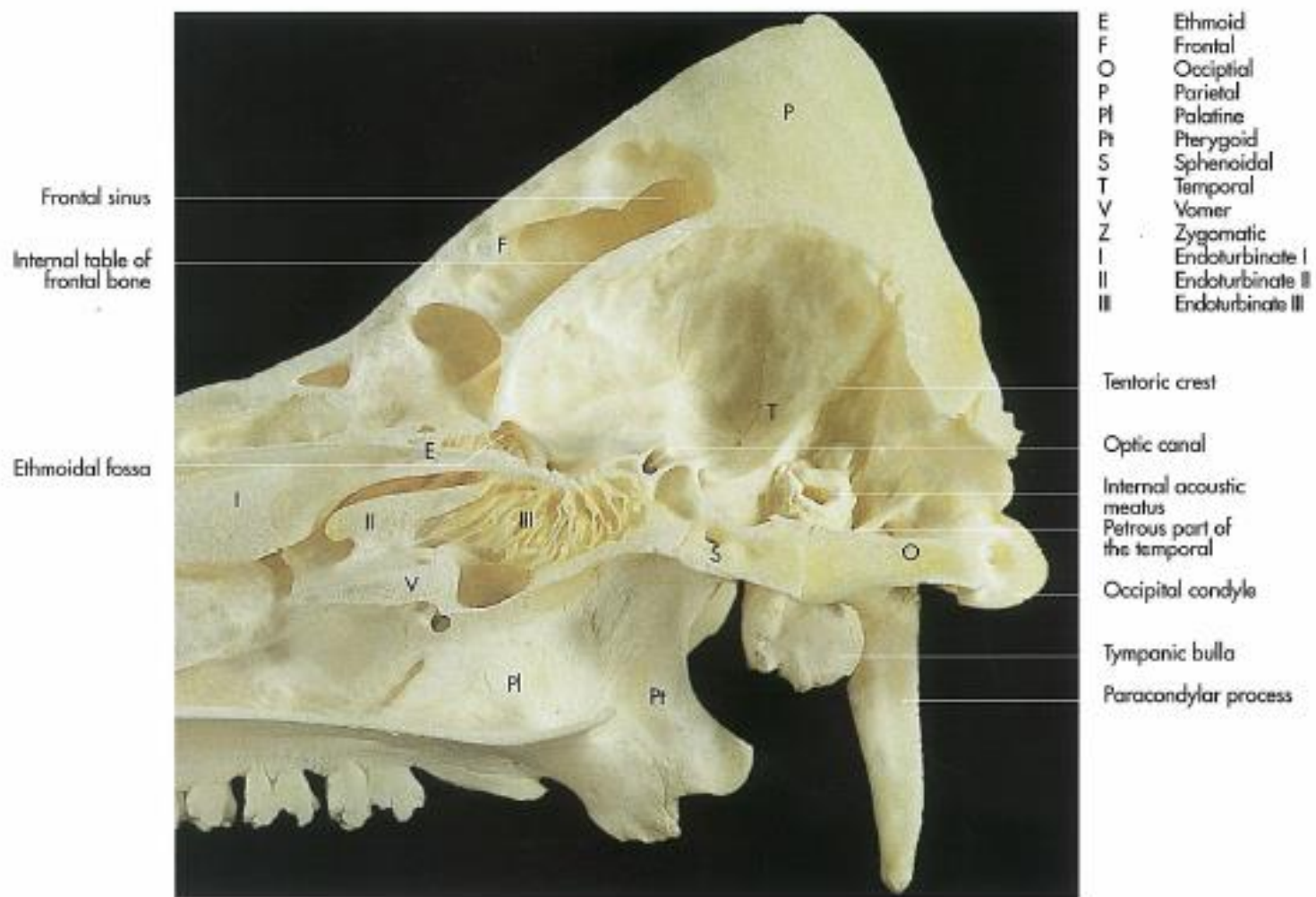
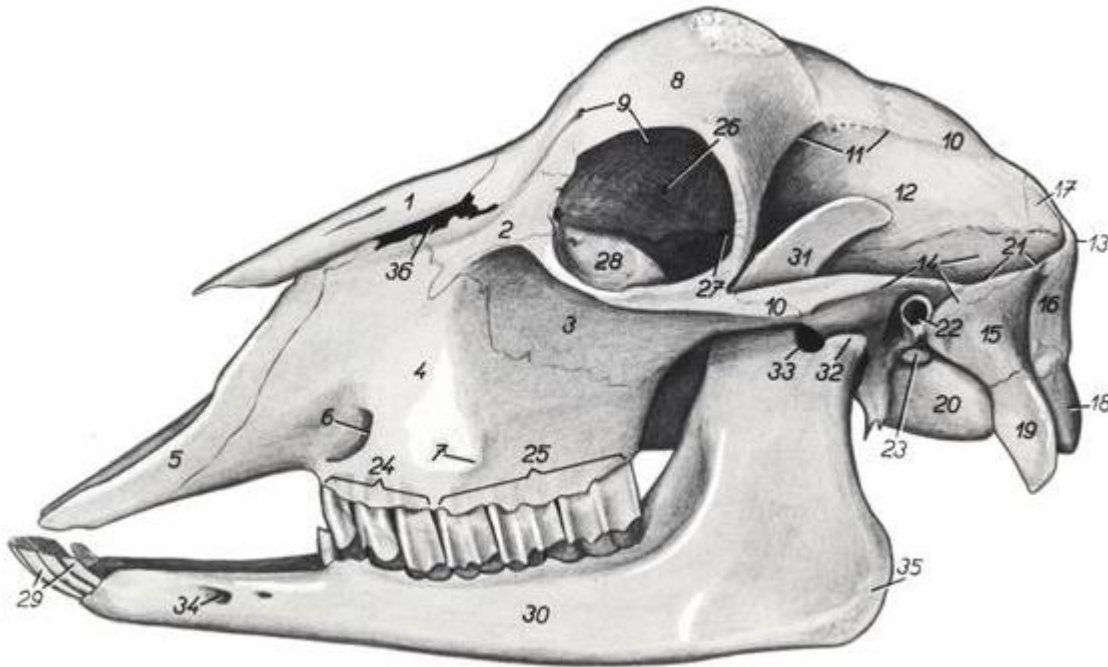


Fig. 1-11. Bones of the cranial part of a porcine skull (medial aspect of sagittal section).





1. *os nasale* – nasal bone
2. *os lacrimale* – lacrimal bone
3. *os zygomaticum* – zygomatic bone
4. *maxilla* – maxilla
5. *os incisivum* – incisor bone
6. *foramen infraorbitale* – infraorbital foramen
7. *tuber faciale* – facial tuber
8. *os frontale* – frontal bone
9. *canalis supraorbitalis* – supraorbital canal
10. *os parietale* – parietal bone
11. *linea temporalis* – temporal line
12. *fossa temporalis* – temporal fossa
13. *protuberantia occipitalis externa* – external occipital protuberance



OS PARIETAL



→ *caudal os frontale/pelipis bagian dorsal*

Terbagi :

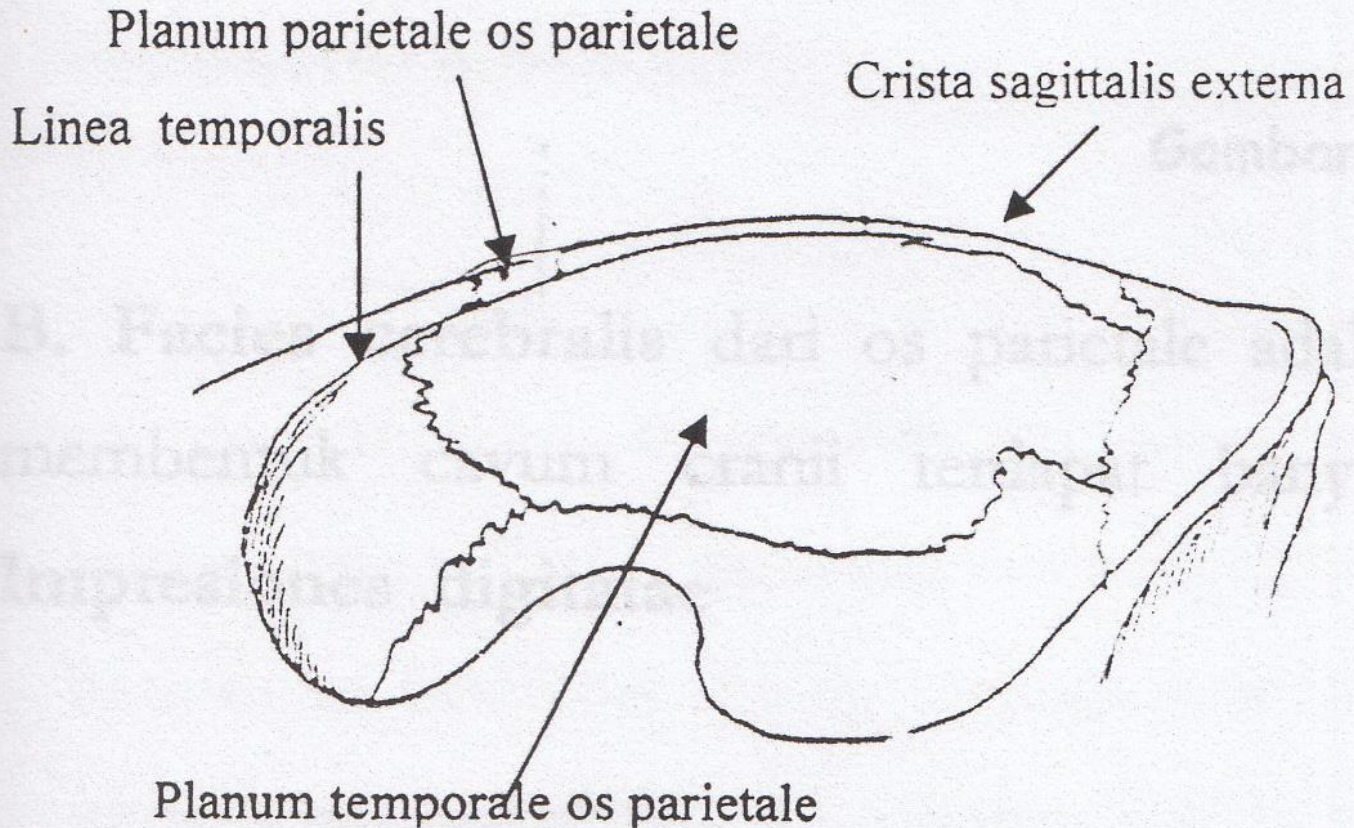
a. **Facies parietalis = luar**

- a. KUDA: 1) planum parietal ossis parietal; 2) planum temporal ossis parietal; keduanya dibatasi linea temporalis
- b. SAPI: 1) planum temporale ossis frontale; 2) planum temporate ossis parietal; 3) planum nuchale ossis parietal
- c. ANJING: sebagian besar pelipis disusun os parietal

b. **Facies cerebralis = dalam (impressiodigitatae)**



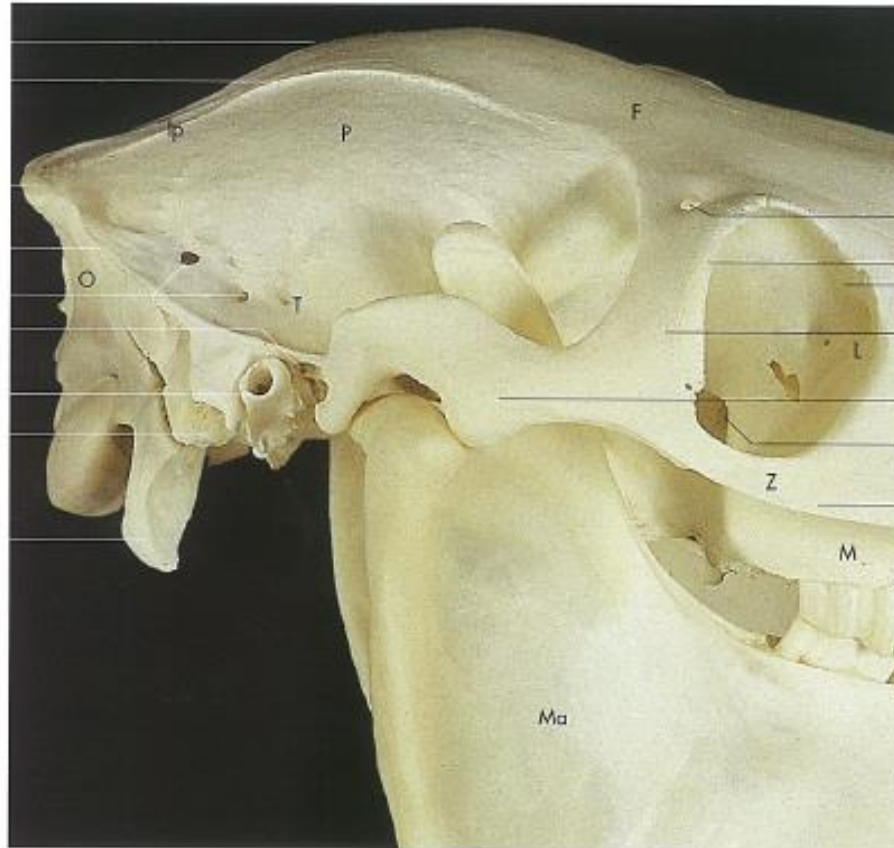
GAMBAR OS PARIETAL KUDA



EQUINE



External sagittal crest
 Temporal line
 Nuchal crest
 Supramastoid crest
 Foramen leading to the temporal meatus
 Retroarticular foramen
 External acoustic meatus
 Petrous part of the temporal bone with mastoid process
 Paracondylar process



Supraorbital foramen
 Supraorbital margin
 Fossa of the lacrimal sac
 Zygomatic process of the frontal bone
 Zygomatic process of temporal bone
 Ethmoidal foramen
 Temporal process of the zygomatic bone

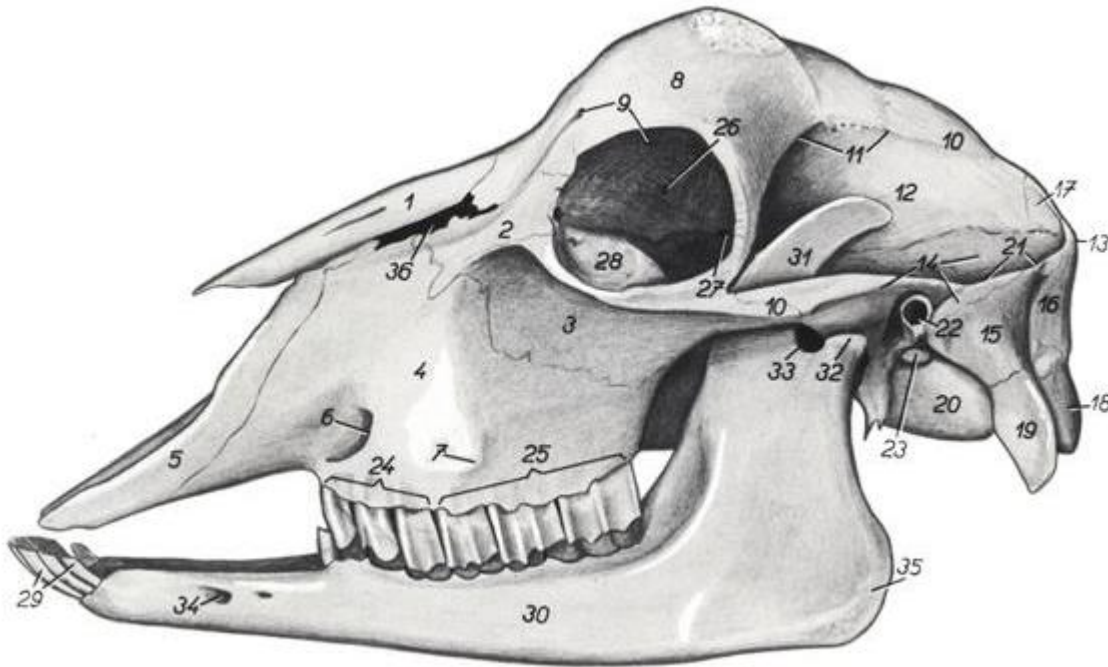
F Frontal
 Ip Interparietal
 L Lacrimal
 M Maxilla
 Ma Mandible
 O Occipital
 P Parietal
 T Temporal (squamous part)
 Z Zygomatic

Fig. 1-19. Bones of the cranial part of an equine skull (lateral aspect).



SAPI





1. *os nasale* – nasal bone
2. *os lacrimale* – lacrimal bone
3. *os zygomaticum* – zygomatic bone
4. *maxilla* – maxilla
5. *os incisivum* – incisor bone
6. *foramen infraorbitale* – infraorbital foramen
7. *tuber faciale* – facial tuber
8. *os frontale* – frontal bone
9. *canalis supraorbitalis* – supraorbital canal
10. *os parietale* – parietal bone
11. *linea temporalis* – temporal line
12. *fossa temporalis* – temporal fossa
13. *protuberantia occipitalis externa* – external occipital protuberance



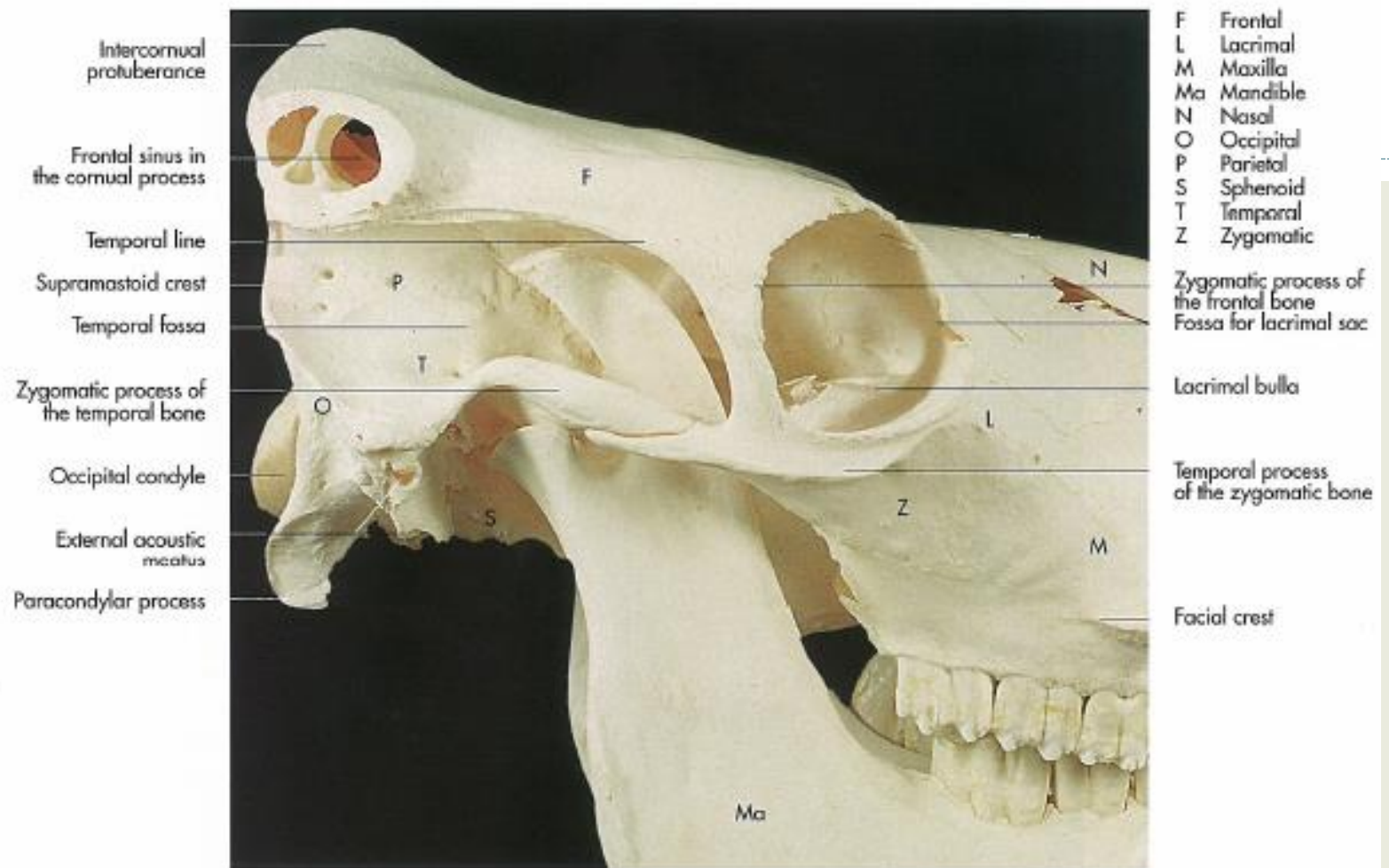


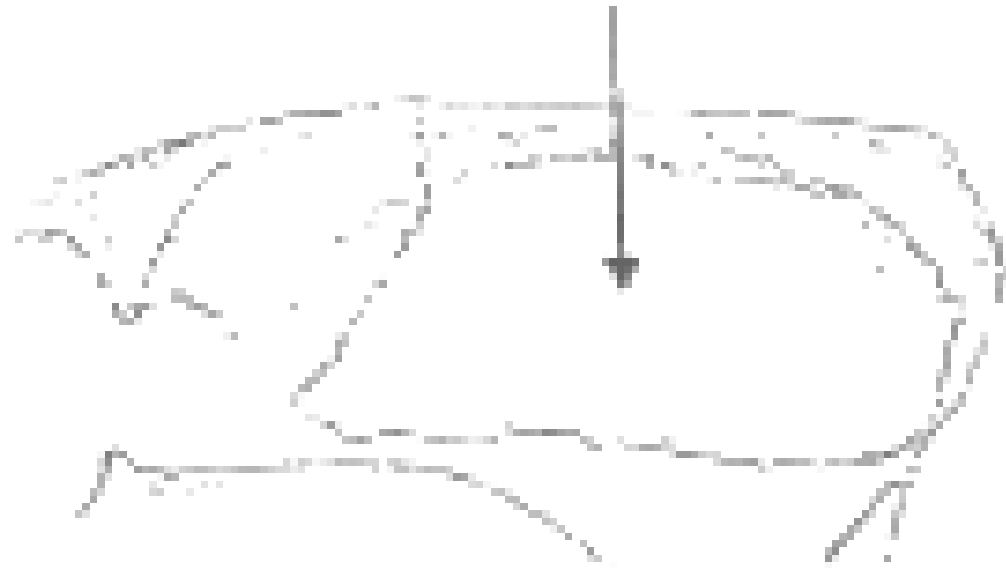
Fig. 1-15. Bones of the cranial part of a bovine skull (lateral aspect).



CARNIVOR



Planum temporale ossis parietale



Gambar 14: Os Parietale, Anjing

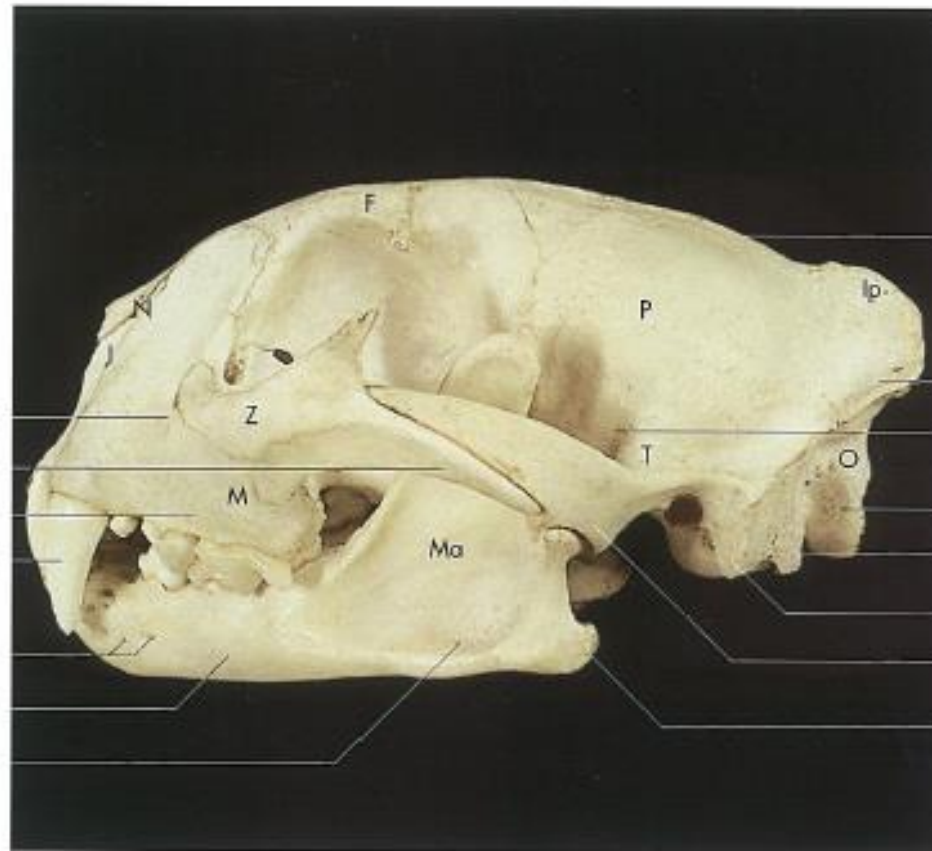


CARNIVORE



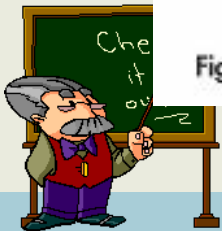
- F Frontal
- I Incisive
- Ip Interparietal
- M Maxilla
- Ma Mandible
- N Nasal
- O Occipital
- P Parietal
- T Temporal
- Z Zygomatic

- Infraorbital foramen
- Zygomatic arch
- Facial surface of the maxilla
- Canine
- Mental foramina
- Body of mandible
- Ramus of mandible



- External sagittal crest
- Nuchal crest
- Temporal fossa
- Occipital condyle
- Paracondylar process
- Tympanic bulla
- Zygomatic process of the temporal bone
- Angular process of the mandible

Fig. 1-26. Skull of a puma (lateral aspect).



OS TEMPORALE



→ membentuk pelipis (melindungi organ pendengar & keseimbangan)

Terbagi 4 yaitu:

- a. Pars squamosa → tedapat *processus zygomaticus ossis temporale* dan *facies articularis* untuk condylus mandibularis



OS TEMPORALE



b. Pars **Tympanicus**, penyusun cavum tympani.
Terdapat:

- *processus acusticus externus et internus*
- *meatus acusticus externus*
- *bulla tympanica*
- *processus muscularis*

Cavum tympani memiliki hubungan dengan ruang pharynx melalui *tuba auditiva eustachi*



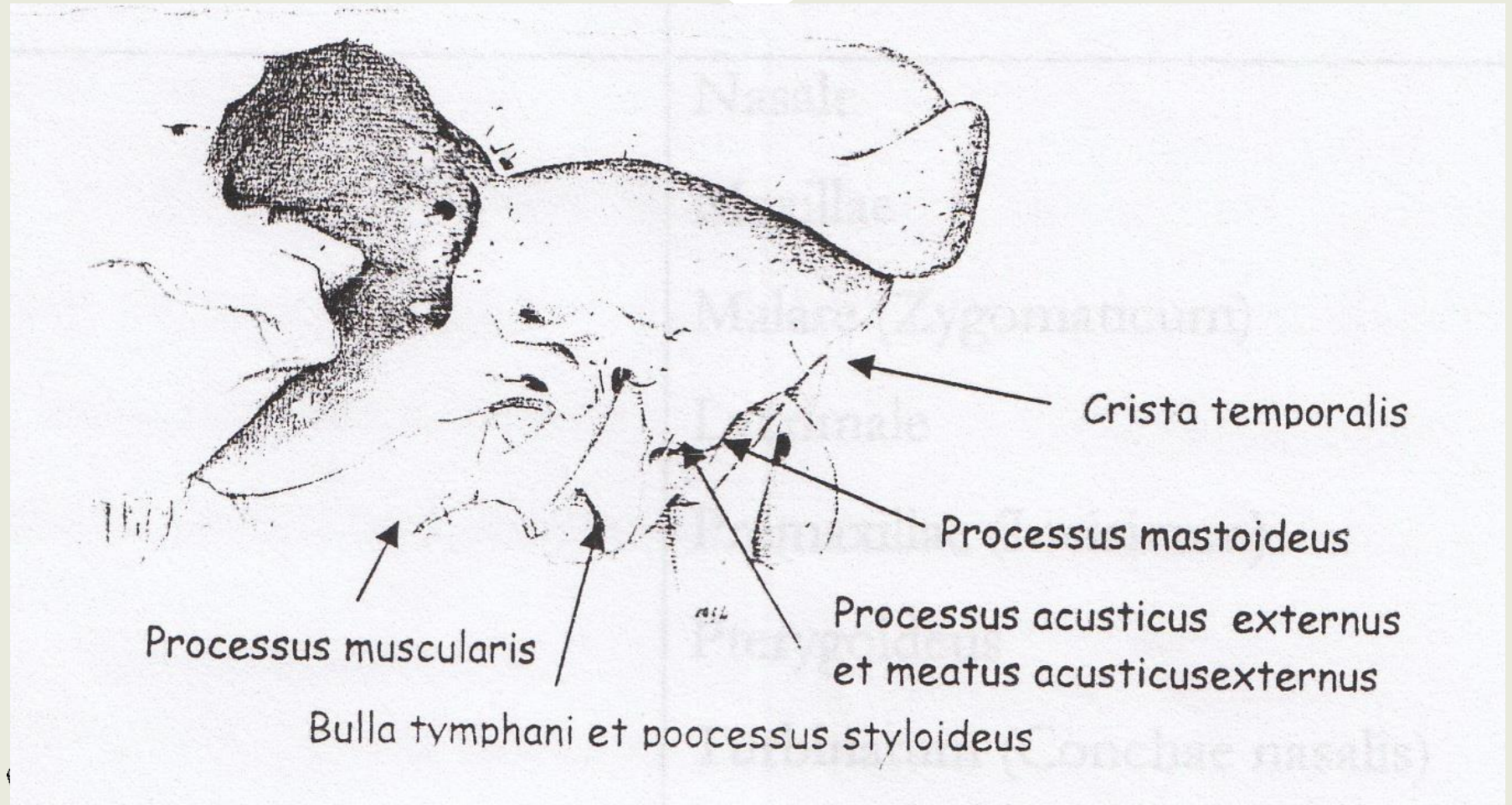
OS TEMPORALE

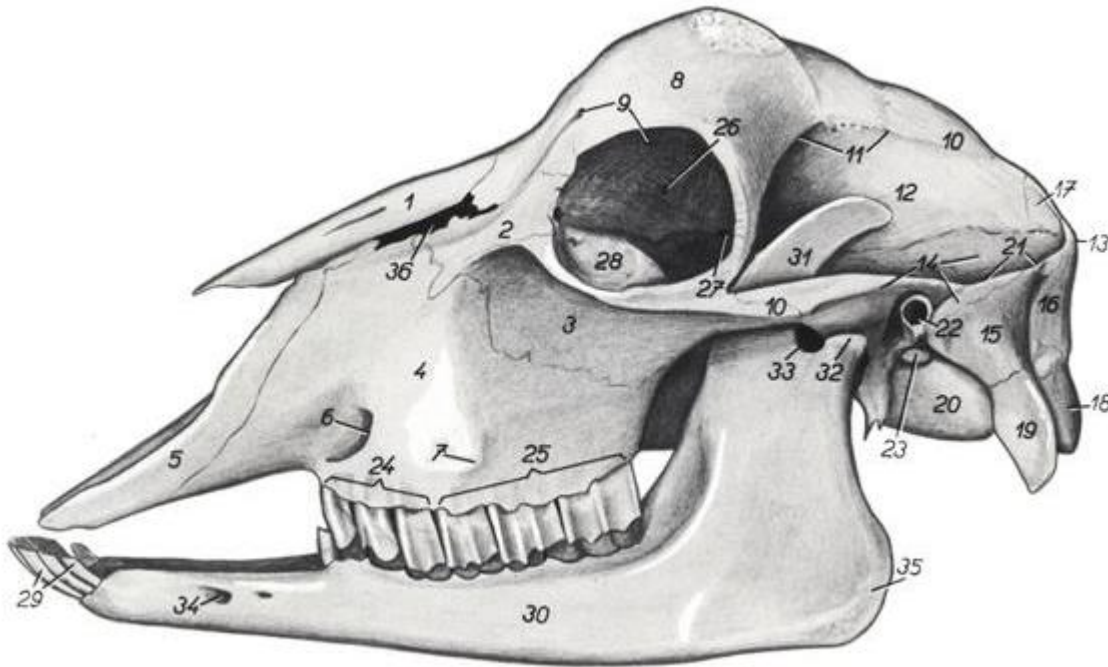


- c. Pars **mastoideus** → belakang meatus acusticus externus
- d. Pars **petrosa** → keluarnya **N. facialis** dan **N. Vestibulocochlearis** serta terbentuknya **meatus acusticus internus**



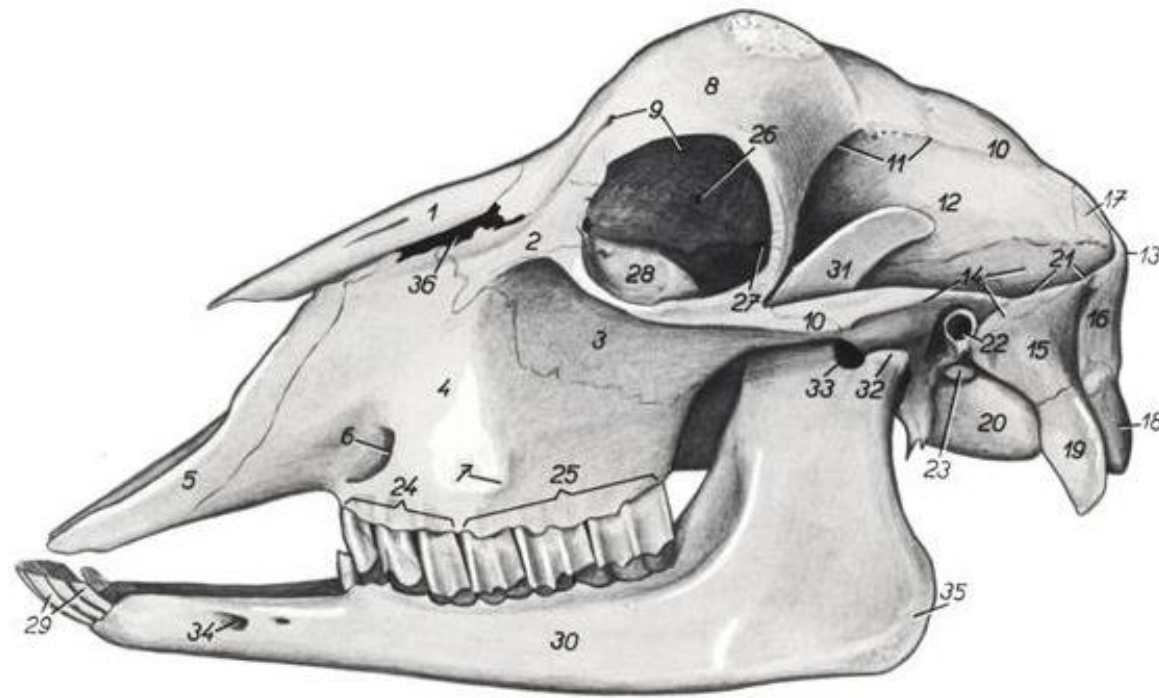
GAMBAR OS TEMPORALE





1. *os nasale* – nasal bone
2. *os lacrimale* – lacrimal bone
3. *os zygomaticum* – zygomatic bone
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10. *os parietale* – parietal bone
11. *linea temporalis* – temporal line
12. *fossa temporalis* – temporal fossa
13. *protuberantia occipitalis externa* – external occipital protuberance





14. *pars squamosa ossis temporalis* – squamous part of temporal bone
15. *processus mastoideus ossis temporalis* – mastoid process of temporal bone
16. *squama occipitalis* – occipital squama
17. *os interparietale* – interparietal bone
18. *condylus occipitalis* – occipital condyle
19. *processus paracondylaris* – paracondyloid process
20. *bulla tympanica* – tympanic bulla
21. *crista temporalis* – temporal crest
22. *porus acusticus externus* – external acoustic opening
23. *processus styloideus* – styloid process





TERIMA KASIH



*Selamat Belajar
para pejuang Veteriner !*

