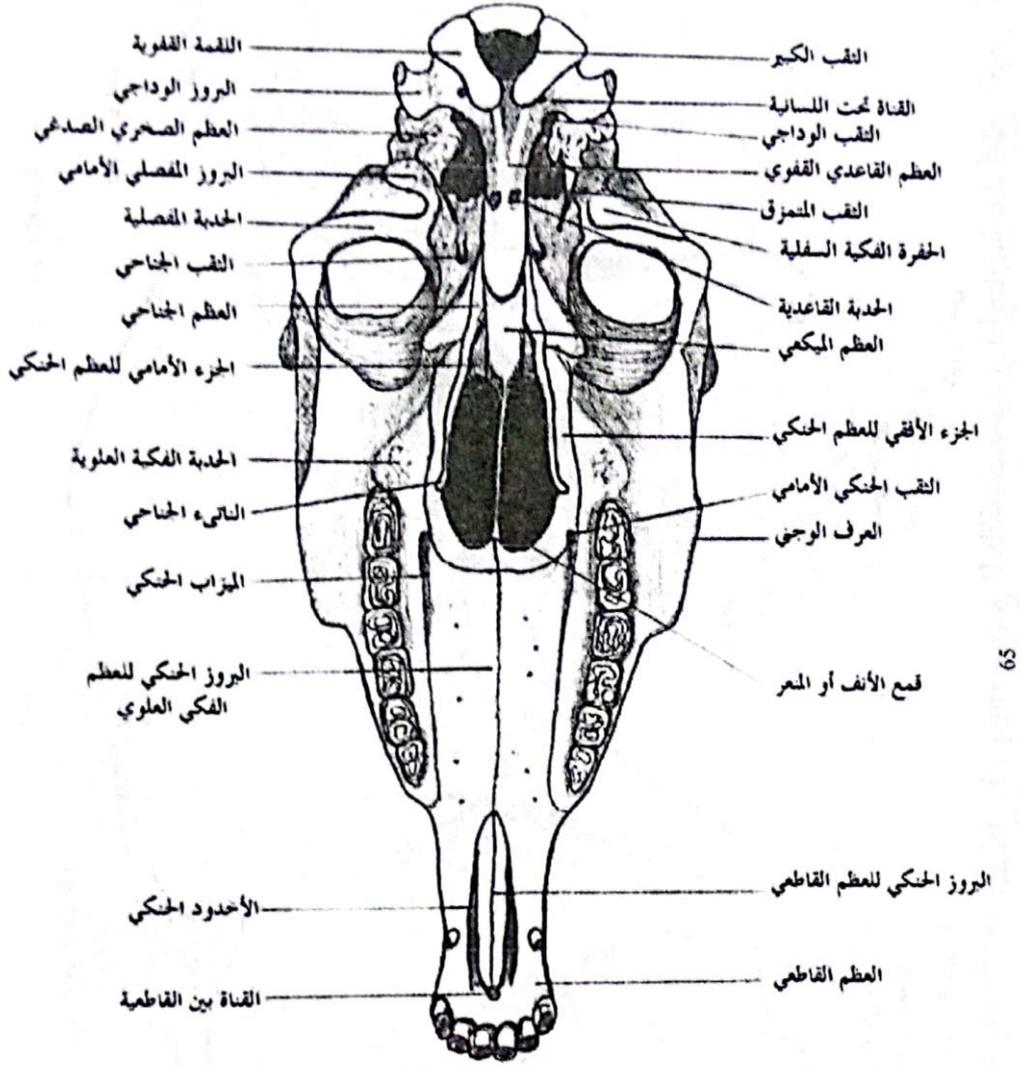
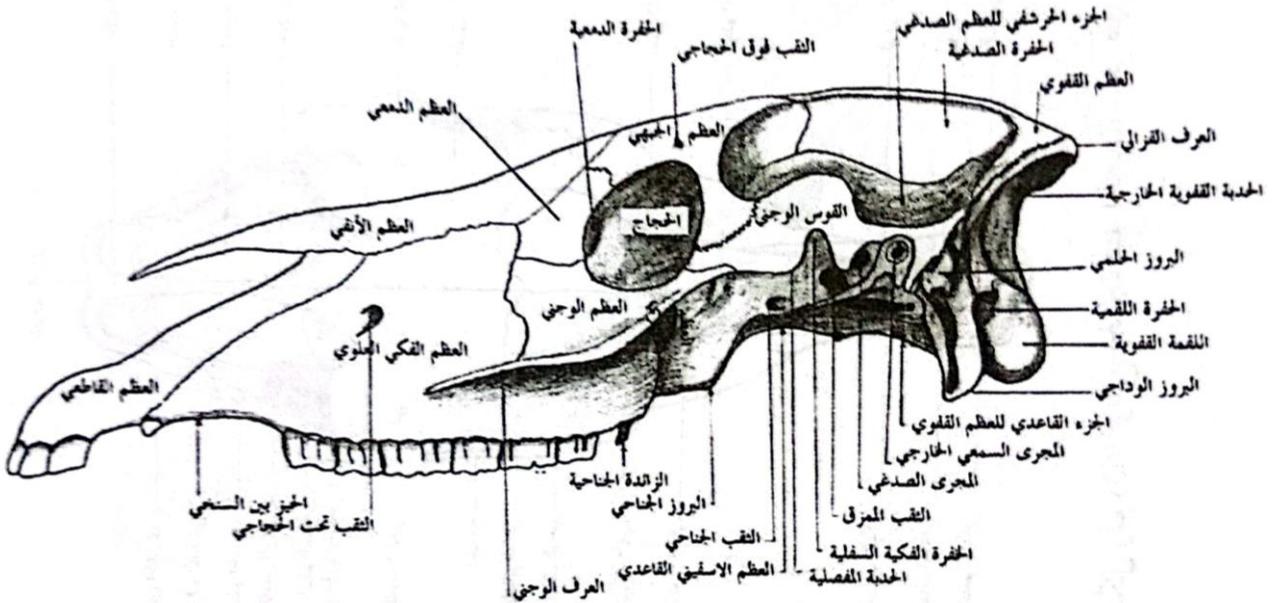


الشكل رقم (63) يوضح الجمجمة عند الحصان، منظر ظهري

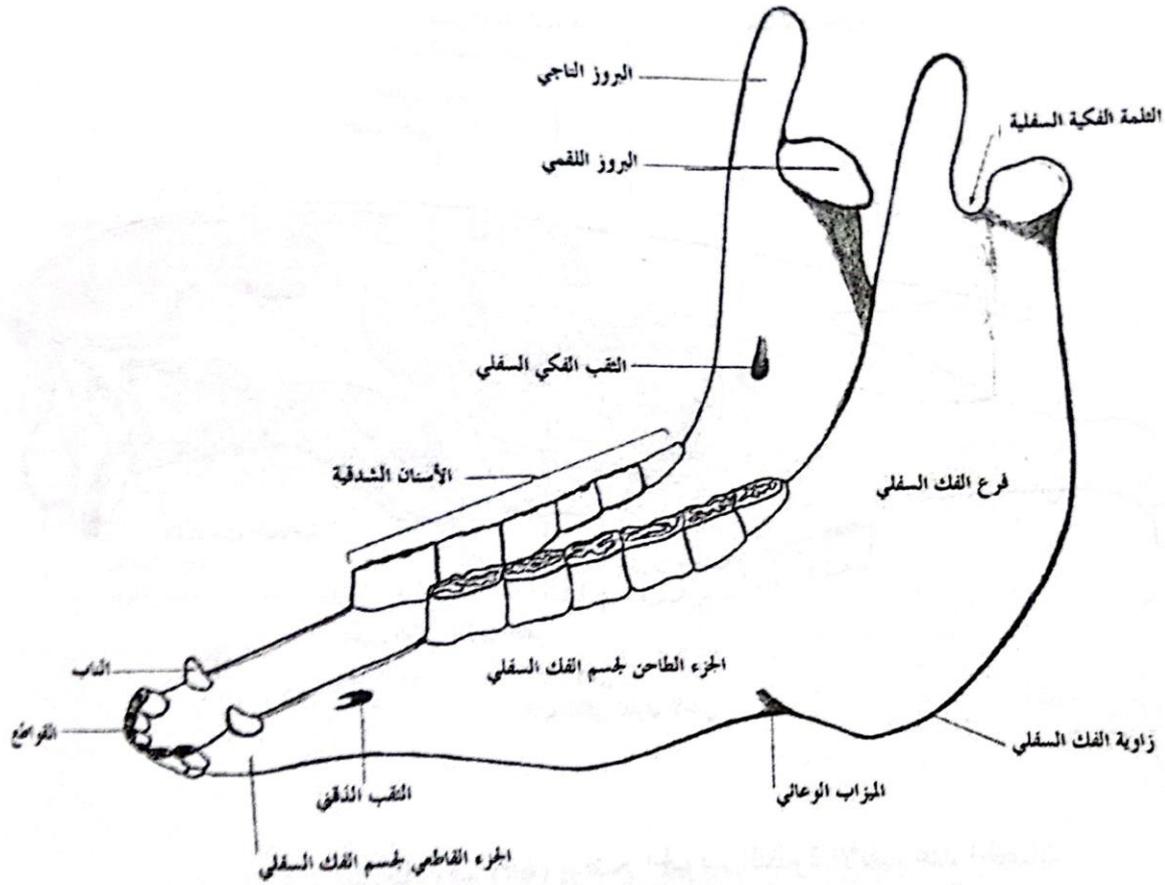


الشكل رقم (65) يوضح الجمجمة، السطح البطني



الشكل رقم (64) يوضح الجمجمة، السطح الوحشي

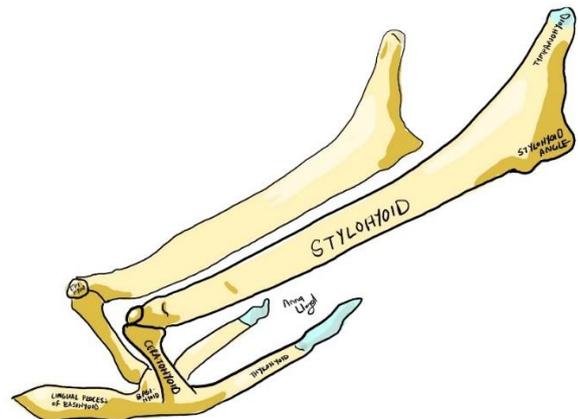




الشكل رقم (70) يوضح عظم الفك السفلي عند الحصان

70

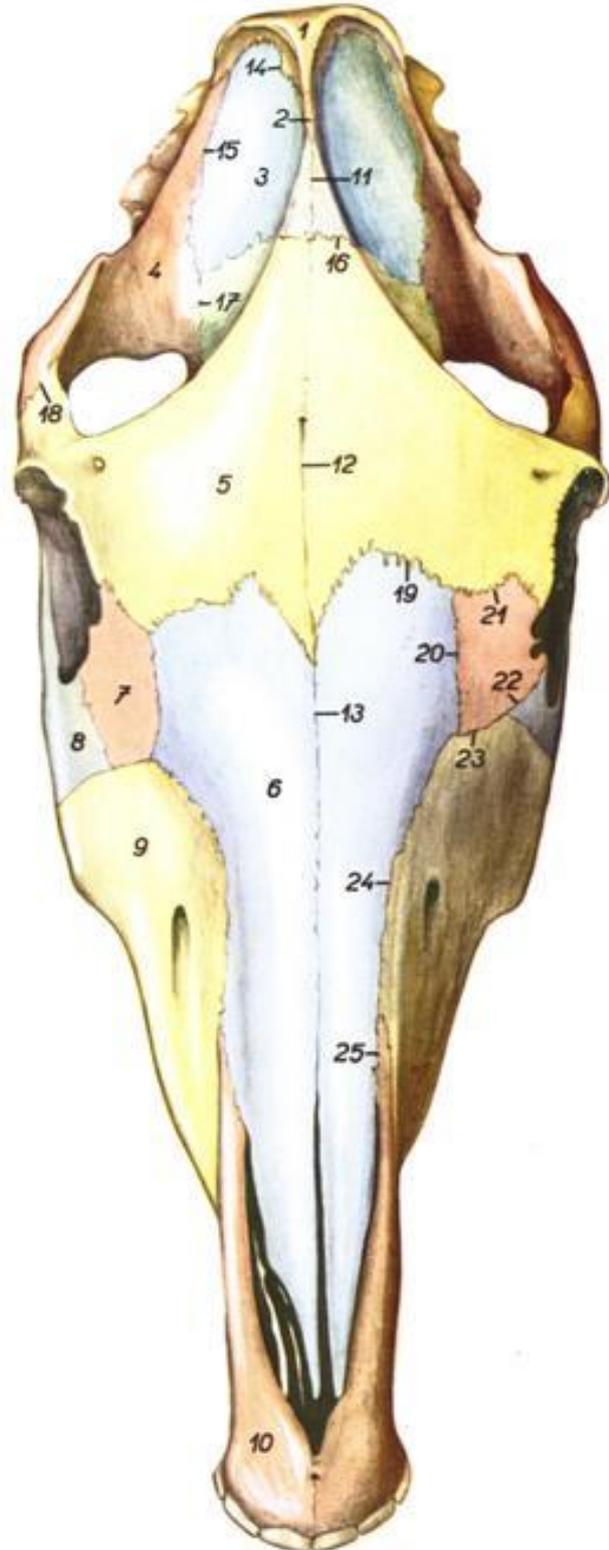
### العظم اللامي عند الخيل



## منظر ظهري للجمجمة عند الخيل

*Horse. Skull, dorsal view. Bone outlines demarcated by color.*

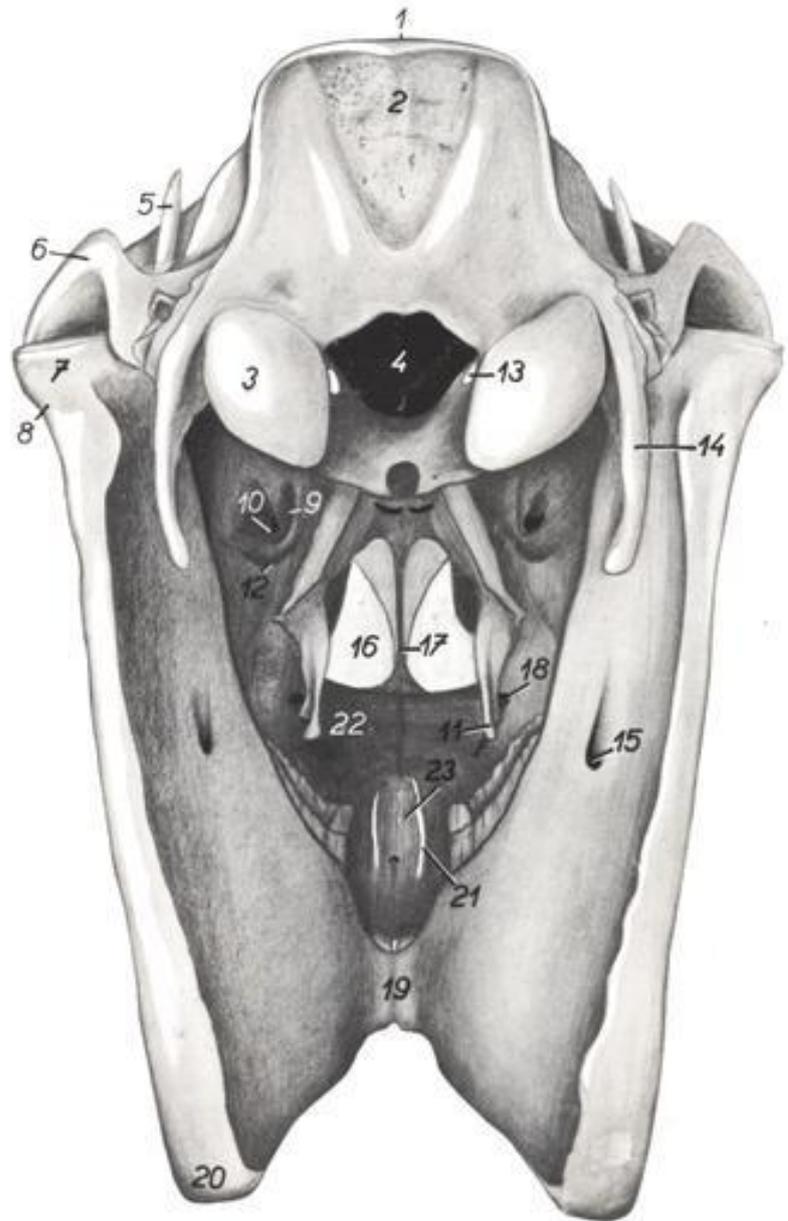
Figure 113



1. *os occipitale* – occipital bone
2. *os interparietale* – interparietal bone
3. *os parietale* – parietal bone
4. *os temporale* – temporal bone
5. *os frontale* – frontal bone
6. *os nasale* – nasal bone
7. *os lacrimale* – lacrimal bone
8. *os zygomaticum* – zygomatic bone
9. *maxilla* – maxilla
10. *os incisivum* – incisive bone
11. *sutura sagittalis* – sagittal suture
12. *sutura interfrontalis* – interfrontal suture
13. *sutura internasalis* – internasal suture
14. *sutura lambdoidea* – lambdoid suture
15. *sutura squamosa* – squamous suture
16. *sutura coronalis* – coronal suture
17. *sutura squamosofrontalis* – squamosofrontal suture
18. *sutura temporofrontalis* – temporofrontal suture
19. *sutura frontonasalis* – frontonasal suture
20. *sutura nasolacrimalis* – nasolacrimal suture
21. *sutura frontolacrimalis* – frontolacrimal suture
22. *sutura lacrimozygomatica* – lacrimozygomatic suture
23. *sutura lacrimomaxillaris* – lacrimomaxillary suture
24. *sutura nasomaxillaris* – nasomaxillary suture
25. *sutura nasoincisiva* – nasoincisive suture

Horse. Skull, view of caudal surface.

Figure 111



1. *crista nuchae* – nuchal crest
2. *protuberantia occipitalis externa* – external occipital protuberance
3. *condylus occipitalis* – occipital condyle
4. *foramen magnum* – foramen magnum
5. *processus coronoideus mandibulae* – coronoid process of mandible
6. *arcus zygomaticus* – zygomatic arch
- 7, 8. *processus condylaris mandibulae* – condyloid process of mandible
7. *caput mandibulae* – mandibular condyle
8. *collum mandibulae* – notch of mandible
9. *foramen sphenopalatinum* – sphenopalatine foramen
10. *foramen maxillare* – maxillary foramen
11. *hamulus pterygoideus* – pterygoid hamulus

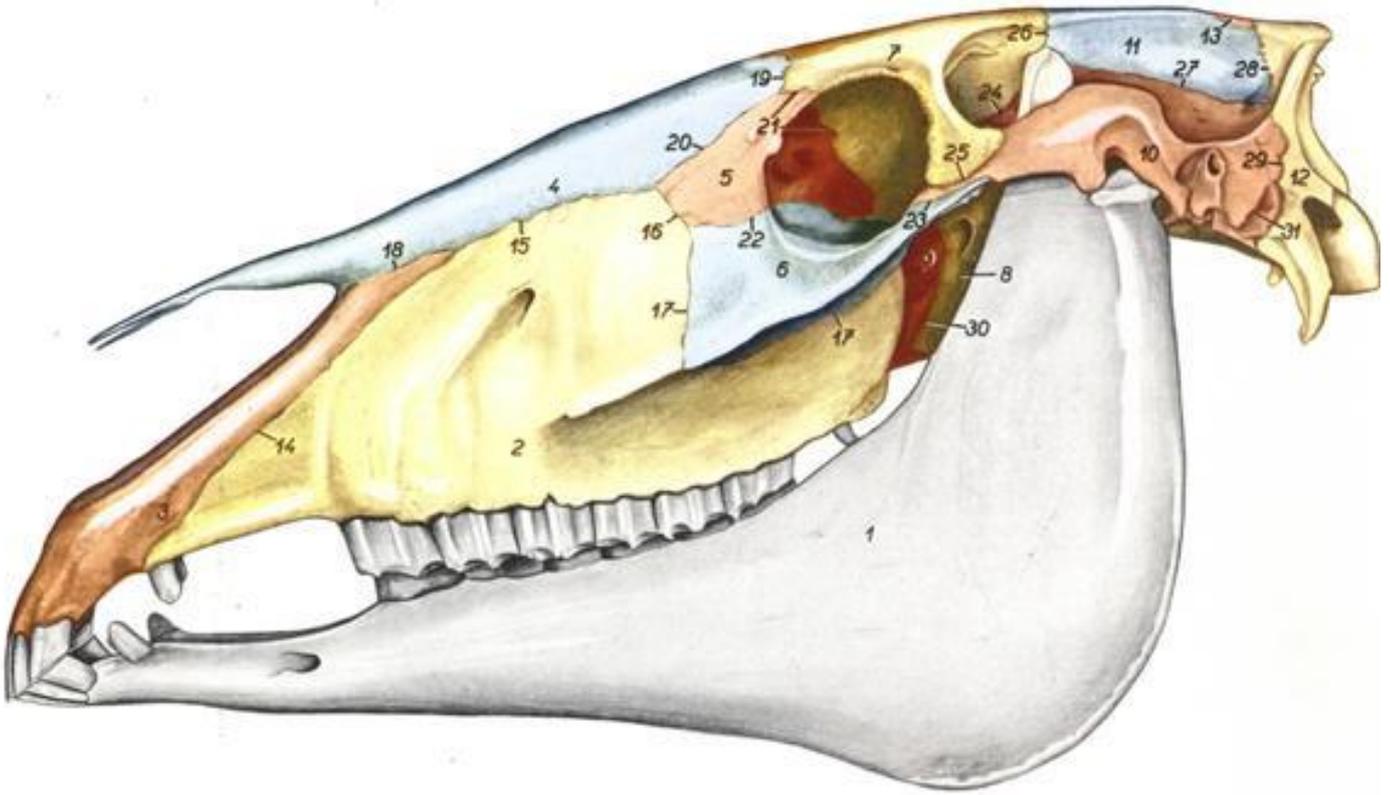
12. *foramen palatinum caudale* – caudal palatine foramen
13. *canalis ni. hypoglossi* – canal of hypoglossal nerve
14. *processus paracondylaris* – paracondyloid process
15. *foramen mandibulae* – mandibular foramen
16. *choana* – choana
17. *vomer* – vomer

18. *foramen palatinum majus* – greater palatine foramen
19. *angulus mentalis* – mental angle
20. *angulus mandibulae* – angle of mandible
21. *fissura palatina* – palatine fissure
22. *processus palatinus maxilla* – palatine process of maxilla
23. *processus palatinus ossis incisivi* – palatine process of incisive bone

## منظر جانبي للجمجمة عند الخيل

Horse. Skull, left lateral view. Bone outlines demarcated by color.

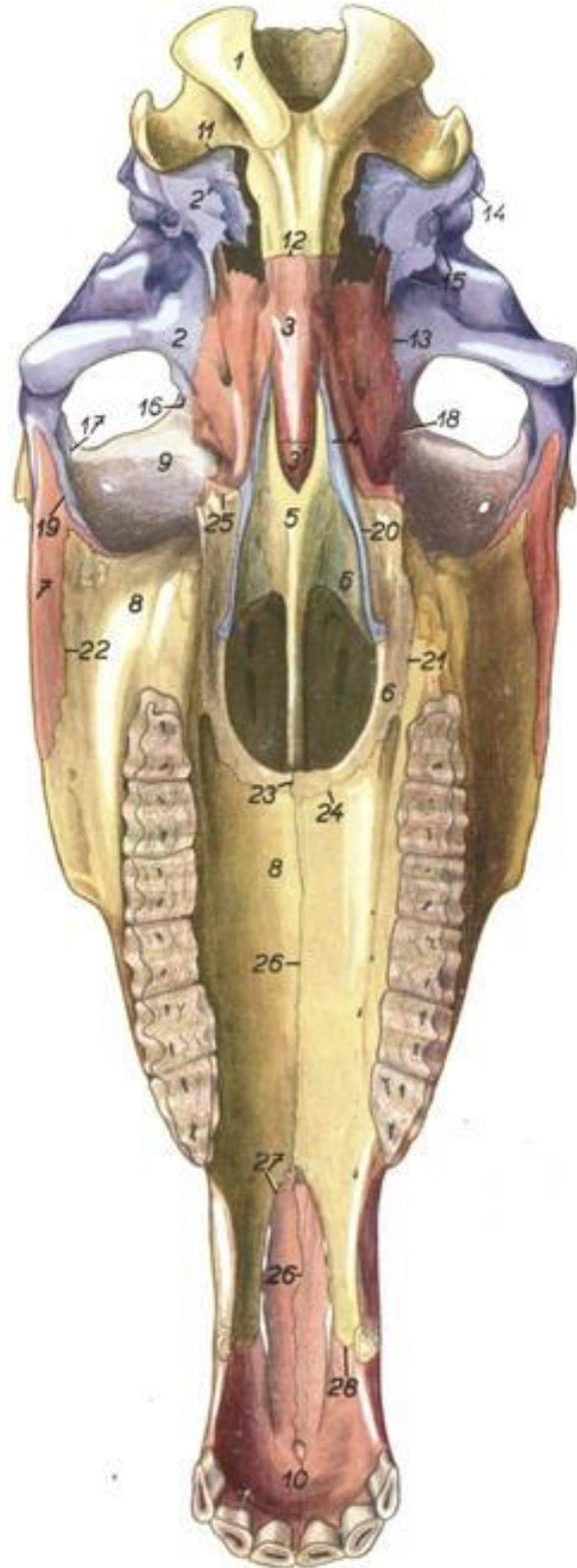
Figure 108



- |  |   |   |
|--|---|---|
| 1. <i>mandibula</i> – mandible   | 13. <i>os interparietale</i> – interparietal bone                   | 23. <i>sutura temporozygomatica</i> – temporozygomatic suture |
| 2. <i>maxilla</i> – maxilla  | 14. <i>sutura maxilloincisiva</i> – maxilloincisive suture          | 24. <i>sutura squamosofrontalis</i> – squamosofrontal suture  |
| 3. <i>os incisivum</i> – incisive bone   | 15. <i>sutura nasomaxillaris</i> – nasomaxillary suture             | 25. <i>sutura temporofrontalis</i> – temporofrontal suture    |
| 4. <i>os nasale</i> – nasal bone   | 16. <i>sutura lacrimomaxillaris</i> – lacrimomaxillary suture       | 26. <i>sutura coronalis</i> – coronal suture                  |
| 5. <i>os lacrimale</i> – lacrimal bone   | 17. <i>sutura zygomaticomaxillaris</i> – zygomaticomaxillary suture | 27. <i>sutura squamosa</i> – squamous suture                  |
| 6. <i>os zygomaticum</i> – zygomatic bone  | 18. <i>sutura nasoincisiva</i> – nasoincisive suture                | 28. <i>sutura lambdoides</i> – lambdoid suture                |
| 7. <i>os frontale</i> – frontal bone   | 19. <i>sutura frontonasalis</i> – frontonasal suture                | 29. <i>sutura occipitomastoidea</i> – occipitomastoid suture  |
| 8. <i>os presphenoidale</i> – presphenoid bone   | 20. <i>sutura nasolacrimalis</i> – nasolacrimal suture              | 30. <i>sutura sphenopalatina</i> – sphenopalatine suture      |
| 9. <i>lamina perpendicularis ossis palatini</i> – perpendicular plate of palatine bone | 21. <i>sutura frontolacrimalis</i> – frontolacrimal suture          | 31. <i>sutura squamosomastoidea</i> – squamosomastoid suture  |
| 10. <i>os temporale</i> – temporal bone  | 22. <i>sutura lacrimozygomatica</i> – lacrimozygomatic suture       |   |
| 11. <i>os parietale</i> – parietal bone  |   |   |
| 12. <i>os occipitale</i> – occipital bone  |   |   |

Horse. Skull, ventral view. Bone outlines demarcated by color.

Figure 115

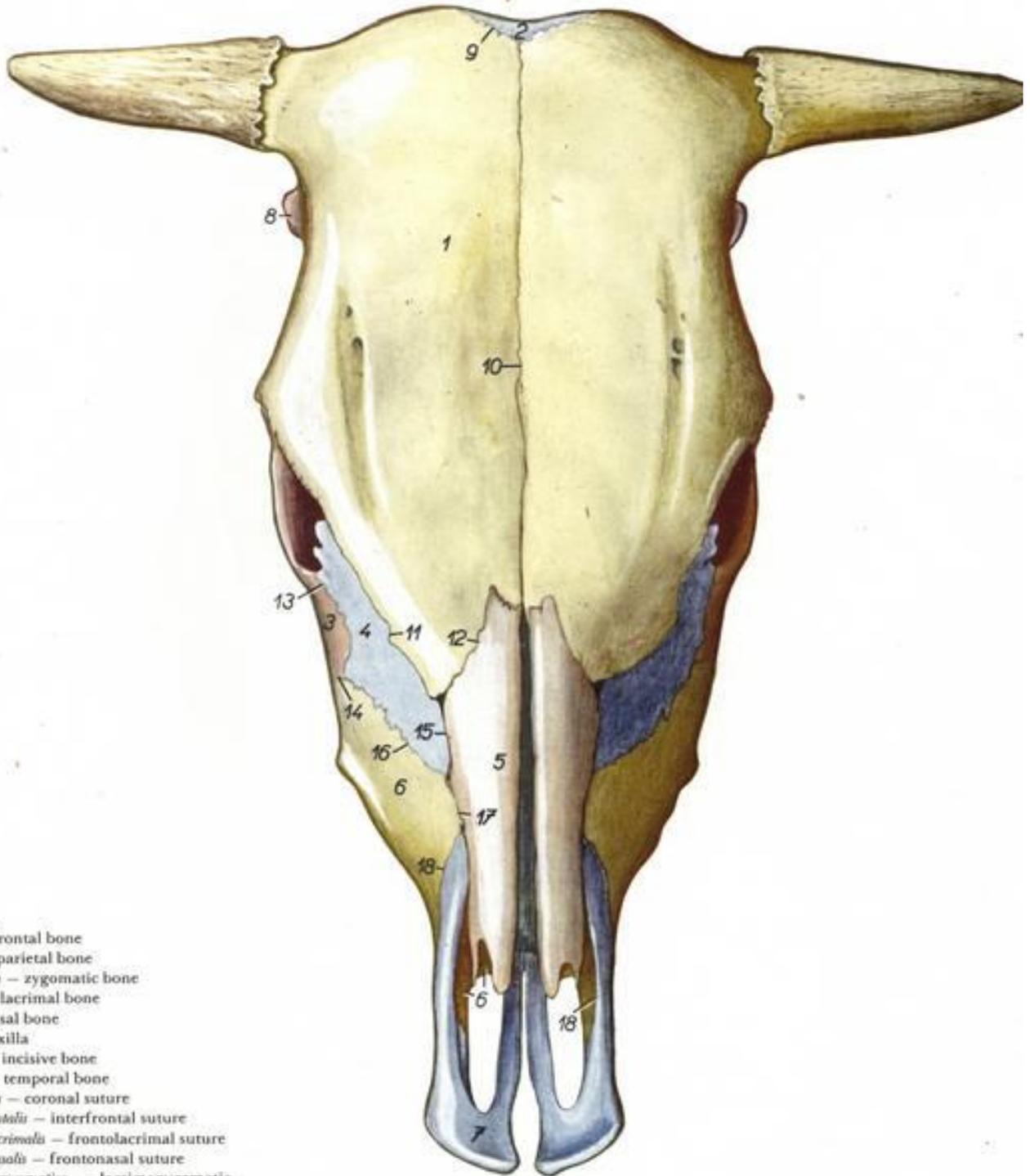


1. *os occipitale* – occipital bone
2. *pars squamosa ossis temporalis* – squamous part of temporal bone
2. *pars tympanica et pars petrosa ossis temporalis* – tympanic and petrous parts of temporal bone
- 3, 3. *os sphenoidale (basisphenoidale et presphenoidale)* – sphenoid (basisphenoid and presphenoid) bone
- 3'. *corpus ossis presphenoidalis* – body of presphenoid bone
4. *os pterygoideum* – pterygoid bone
5. *vomer* – vomer
6. *os palatinum* – palatine bone
7. *os zygomaticum* – zygomatic bone
8. *maxilla* – maxilla
9. *os frontale* – frontal bone
10. *os incisivum* – incisive bone
11. *sutura occipitomastoidea* – occipitomastoid suture
12. *synchondrosis sphenoccipitalis* – sphenoccipital synchondrosis
13. *sutura sphenosquamosa* – sphenosquamous suture
14. *fissura squamosomastoidea* – squamosomastoid fissure
15. *fissura petrosquamosa* – petrosquamous fissure
16. *sutura squamosofrontalis* – squamosofrontal suture
17. *sutura temporofrontalis* – temporo frontal suture
18. *sutura sphenofrontalis* – sphenofrontal suture
19. *sutura temporozygomatica* – temporozygomatic suture
20. *sutura pterygopalatina* – pterygopalatine suture
21. *sutura palatomaxillaris* – palatomaxillary suture
22. *sutura zygomaticomaxillaris* – zygomaticomaxillary suture
- 23, 26. *sutura palatina mediana* – median palatine suture
23. *sutura palatina mediana (ossium palatinum)* – median palatine suture (of palatine bones)
24. *sutura palatina transversa* – transverse palatine suture
25. *sutura sphenopalatina* – sphenopalatine suture
26. *sutura palatina mediana (maxillarum et ossium incisivorum)* – median palatine suture (of maxillae and incisive bones)
- 27., 28. *sutura maxilloincisiva* – maxilloincisive suture

## منظر ظهري للجمجمة عند الأبقار

*Bovine. Skull, view of dorsal surface. Bone outlines demarcated by color.*

Figure 10

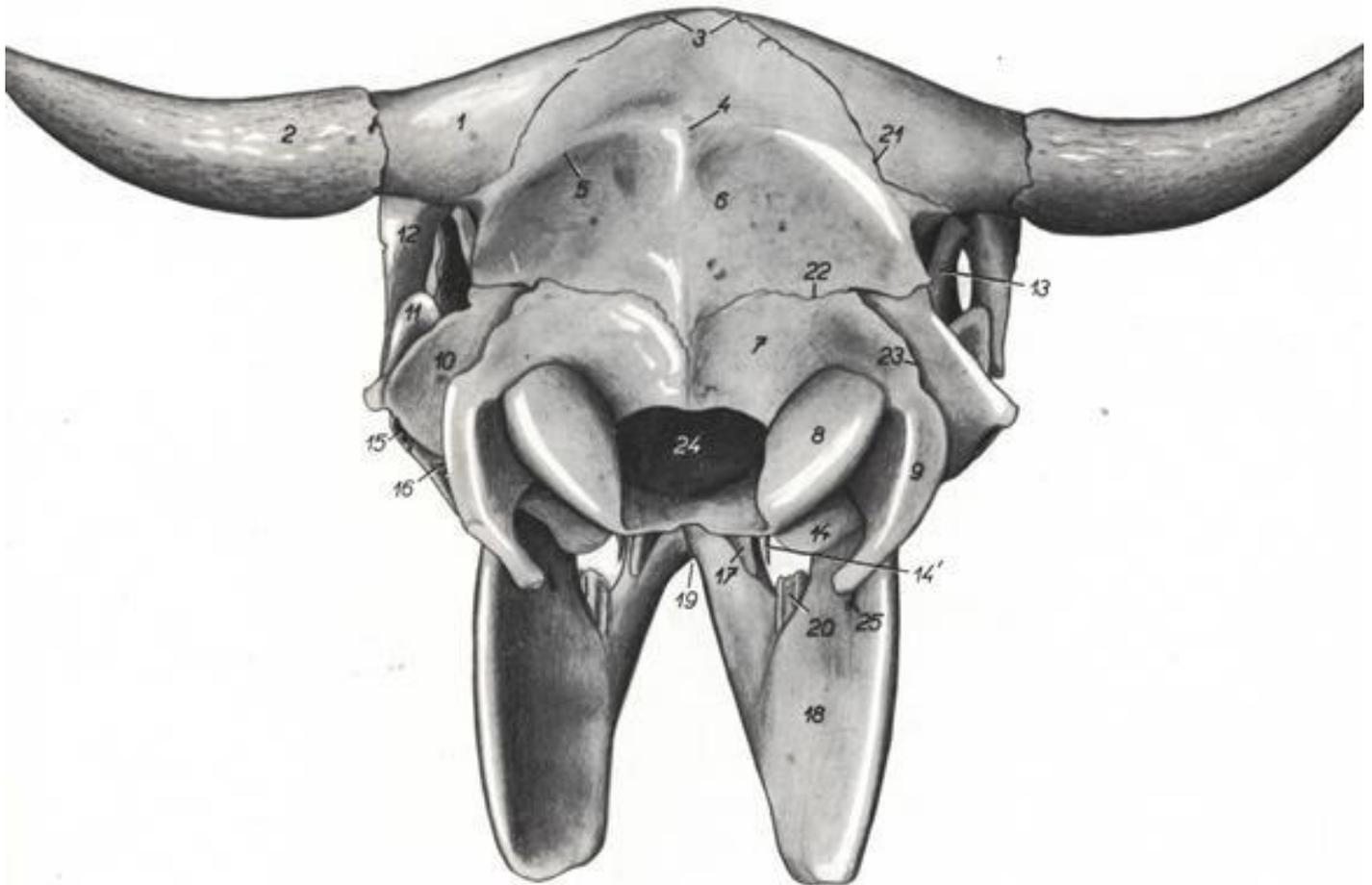


1. *os frontale* – frontal bone
2. *os parietale* – parietal bone
3. *os zygomaticum* – zygomatic bone
4. *os lacrimale* – lacrimal bone
5. *os nasale* – nasal bone
6. *maxilla* – maxilla
7. *os incisivum* – incisive bone
8. *os temporale* – temporal bone
9. *sutura coronalis* – coronal suture
10. *sutura interfrontalis* – interfrontal suture
11. *sutura frontolacrimalis* – frontolacrimal suture
12. *sutura frontonasalis* – frontonasal suture
13. *sutura lacrimozygomatica* – lacrimozygomatic suture
14. *sutura zygomaticomaxillaris* – zygomaticomaxillary suture
15. *sutura nasolacrimalis* – nasolacrimal suture
16. *sutura lacrimomaxillaris* – lacrimomaxillary suture
17. *sutura nasomaxillaris* – nasomaxillary suture
18. *sutura maxilloincisiva* – maxilloincisive suture

## منظر خلفي للجمجمة عند الأبقار

*Bovine. Skull, view of caudal surface.*

Figure 8

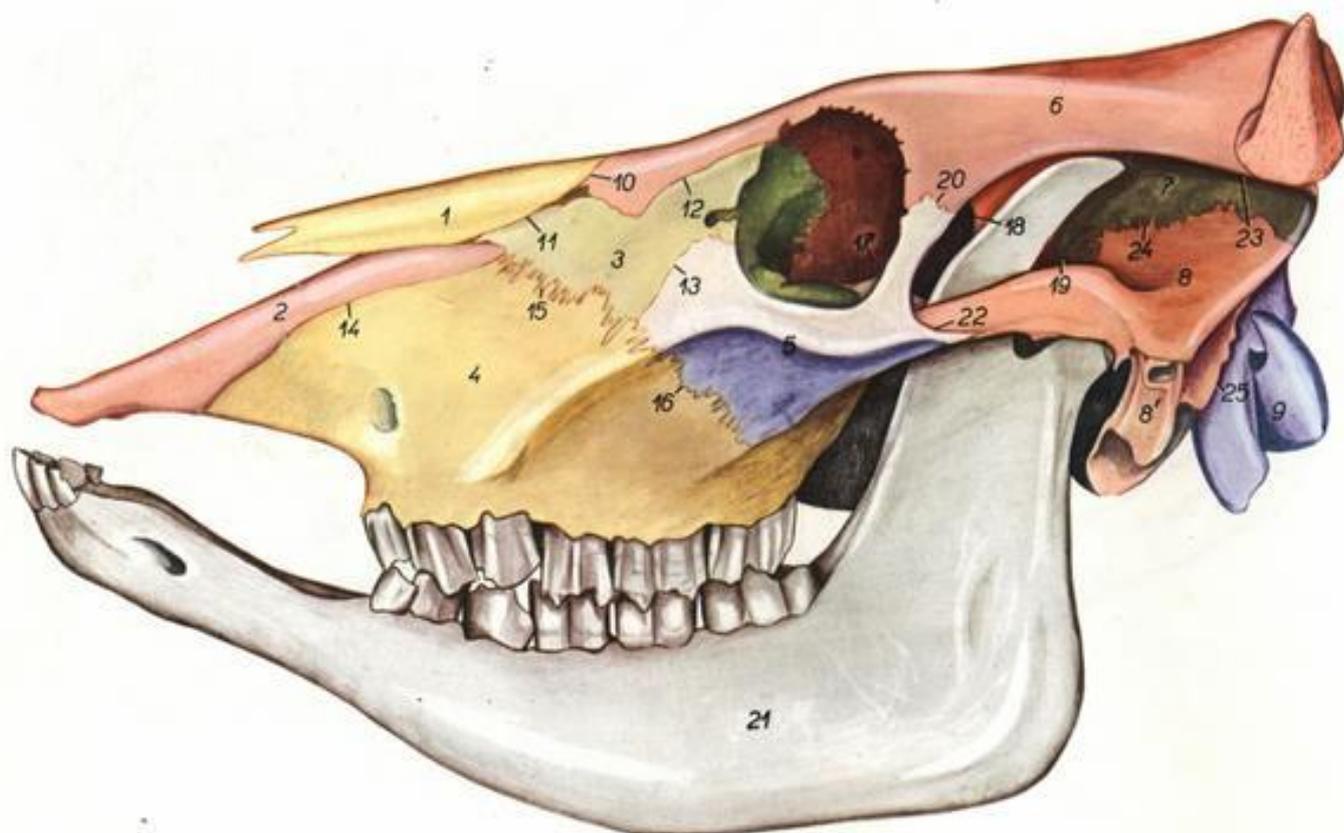


- |   |  |  |
|---|--|--|
| 1. <i>os frontale</i> – frontal bone  | 10. <i>processus mastoideus ossis temporalis</i> – mastoid process of temporal bone  | 17. <i>hamulus pterygoideus</i> – pterygoid hamulus          |
| 2. <i>processus cornualis</i> – cornual process                               | 11. <i>arcus zygomaticus</i> – zygomatic arch  | 18. <i>ramus mandibulae</i> – ramus of mandible              |
| 3. <i>protuberantia intercornualis</i> – intercornual protuberance            | 12. <i>processus zygomaticus ossis frontalis</i> – zygomatic process of frontal bone | 19. <i>angulus mentalis</i> – mental angle                   |
| 4. <i>protuberantia occipitalis externa</i> – external occipital protuberance | 13. <i>processus coronoideus</i> – coronoid process                                  | 20. <i>dentes molares</i> – molar teeth                      |
| 5. <i>linea nuchae</i> – nuchal line  | 14. <i>bulla tympanica</i> – tympanic bulla  | 21. <i>sutura coronalis</i> – coronal suture                 |
| 6. <i>os parietale</i> – parietal bone  | 14'. <i>processus muscularis</i> – muscular process                                  | 22. <i>sutura lambdoidea</i> – lambdoid suture               |
| 7. <i>squama occipitalis</i> – occipital squama                               | 15. <i>porus acusticus externus</i> – opening of external acoustic meatus            | 23. <i>sutura occipitomastoidea</i> – occipitomastoid suture |
| 8. <i>condylo occipitalis</i> – occipital condyle                             | 16. <i>foramen stylomastoideum</i> – stylomastoid foramen                            | 24. <i>foramen magnum</i> – foramen magnum                   |
| 9. <i>processus paracondylaris</i> – paracondyloid process                    |  | 25. <i>foramen mandibulae</i> – mandibular foramen           |

## منظر جانبي للجمجمة عند الأبقار

*Bovine. Left view of skull. Bone outlines demarcated by color.*

Figure 3



1. *os nasale* – nasal bone
2. *os incisivum* – incisive bone
3. *os lacrimale* – lacrimal bone
4. *maxilla* – maxilla
5. *os zygomaticum* – zygomatic bone
6. *os frontale* – frontal bone
7. *os parietale* – parietal bone
8. *pars squamosa ossis temporalis* – squamous part of temporal bone
- 8'. *pars tympanica ossis temporalis* – tympanic part of temporal bone

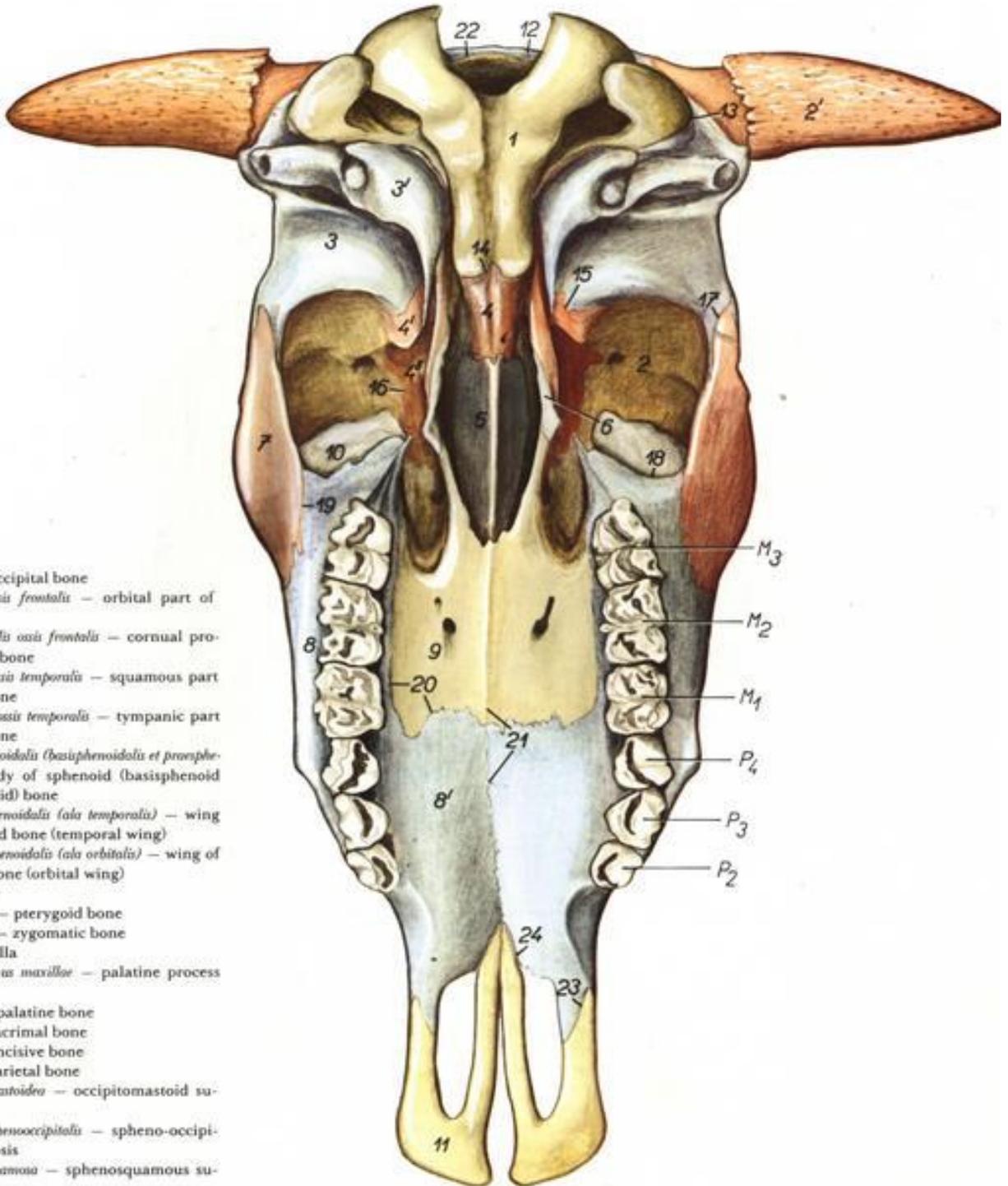
9. *os occipitale* – occipital bone
10. *sutura frontonasalis* – frontonasal suture
11. *sutura nasolacrimalis* – nasolacrimal suture
12. *sutura frontolacrimalis* – frontolacrimal suture
13. *sutura lacrimozygomatica* – lacrimozygomatic suture
14. *sutura maxilloincisiva* – maxilloincisive suture
15. *sutura lacrimomaxillaris* – lacrimomaxillary suture
16. *sutura zygomaticomaxillaris* – zygomaticomaxillary suture

- 17., 18. *sutura sphenofrontalis* – sphenofrontal suture
19. *sutura sphenoparietalis* – sphenoparietal suture
20. *sutura frontozygomatica* – frontozygomatic suture
21. *mandibula* – mandible
22. *sutura temporozygomatica* – temporozygomatic suture
23. *sutura coronalis* – coronal suture
24. *sutura squamosa* – squamous suture
25. *sutura occipitomastoidea* – occipitomastoid suture

## منظر بطني للجمجمة عند الأبقار

*Bovine. Ventral view of skull. Bone outlines demarcated by color.*

Figure 12

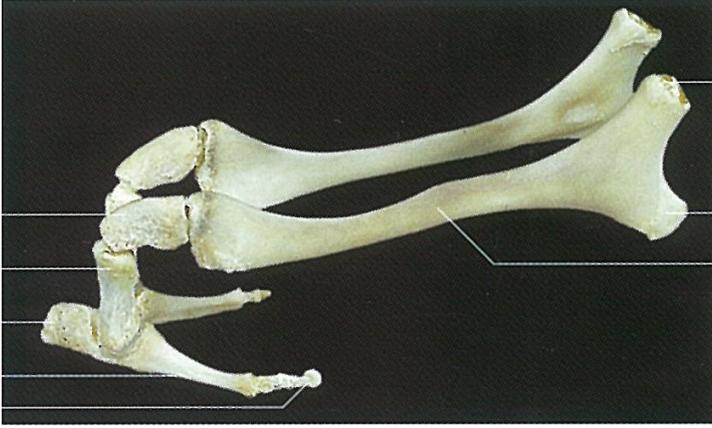


1. *os occipitale* – occipital bone
2. *pars orbitalis ossis frontalis* – orbital part of frontal bone
- 2'. *processus cornuosis ossis frontalis* – cornual process of frontal bone
3. *pars squamosa ossis temporalis* – squamous part of temporal bone
- 3'. *pars tympanica ossis temporalis* – tympanic part of temporal bone
4. *corpus ossis sphenoidalis (basisphenoidalis et presphenoidalis)* – body of sphenoid (basisphenoid and presphenoid) bone
- 4'. *ala ossis basisphenoidalis (ala temporalis)* – wing of basisphenoid bone (temporal wing)
- 4''. *ala ossis presphenoidalis (ala orbitalis)* – wing of presphenoid bone (orbital wing)
5. *vomer* – vomer
6. *os pterygoideum* – pterygoid bone
7. *os zygomaticum* – zygomatic bone
8. *maxilla* – maxilla
- 8'. *processus palatinus maxillae* – palatine process of maxilla
9. *os palatinum* – palatine bone
10. *os lacrimale* – lacrimal bone
11. *os incisivum* – incisive bone
12. *os parietale* – parietal bone
13. *sutura occipitomastoidea* – occipitomastoid suture
14. *synchondrosis sphenoccipitalis* – spheno-occipital synchondrosis
15. *sutura sphenosquamosa* – sphenosquamous suture
16. *sutura sphenofrontalis* – sphenofrontal suture
17. *sutura temporozygomatica* – temporozygomatic suture
18. *sutura lacrimomaxillaris* – lacrimomaxillary suture
19. *sutura zygomaticomaxillaris* – zygomaticomaxillary suture

20. *sutura palatina transversa* – transverse palatine suture
21. *sutura palatina mediana* – median palatine suture
22. *sutura lambdoidea* – lambdoid suture
- 23, 24. *suturae maxilloincisivae* – maxilloincisive sutures

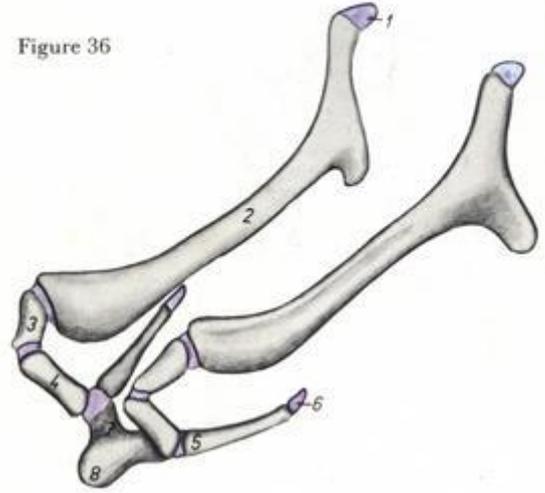
- M<sub>1</sub>. *dens molaris I* – first molar tooth  
M<sub>2</sub>. *dens molaris II* – second molar tooth  
M<sub>3</sub>. *dens molaris III* – third molar tooth  
P<sub>2</sub>. *dens premolaris II* – second premolar tooth  
P<sub>3</sub>. *dens premolaris III* – third premolar tooth  
P<sub>4</sub>. *dens premolaris IV* – fourth premolar tooth

## العظم اللامي عند الأبقار



*Bovine. Hyoid bone. The cartilaginous parts in blue.*

Figure 36

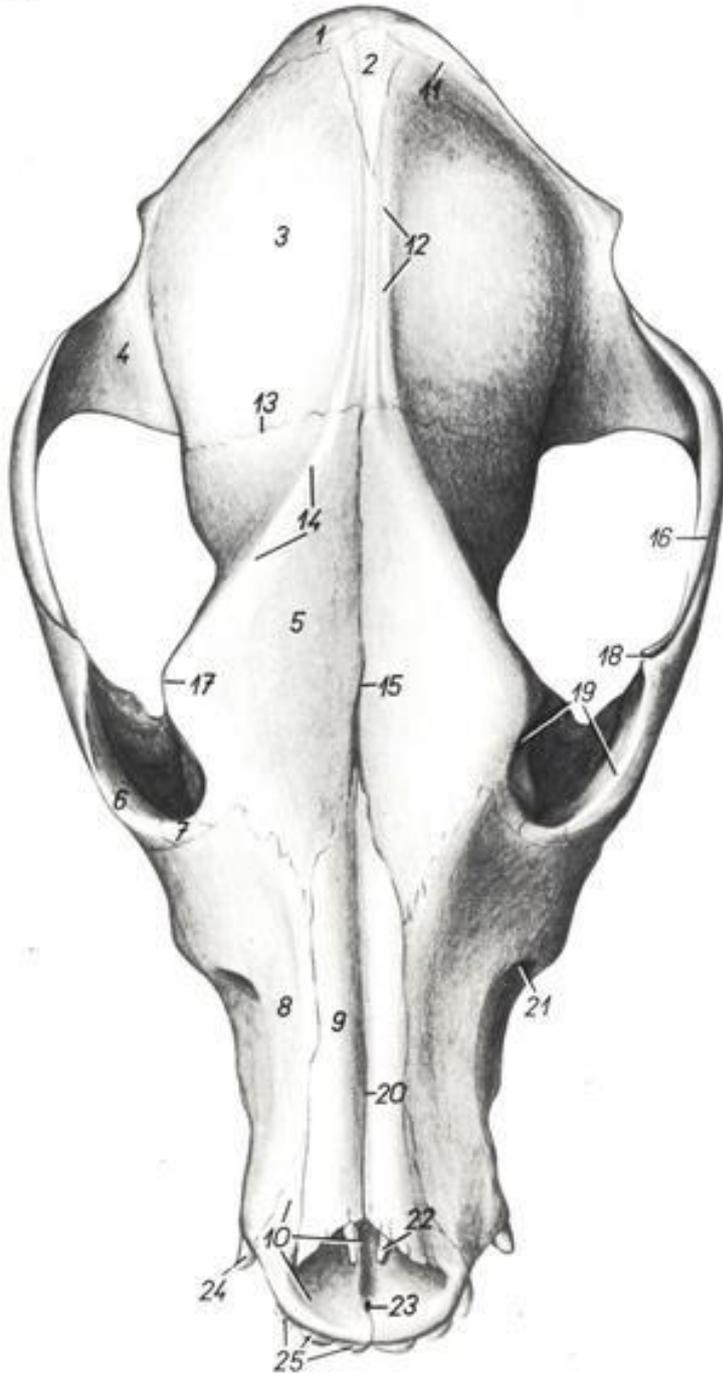


## الفك السفلي عند الأبقار



*Dog. Skull, view of dorsal surface.*

Figure 175



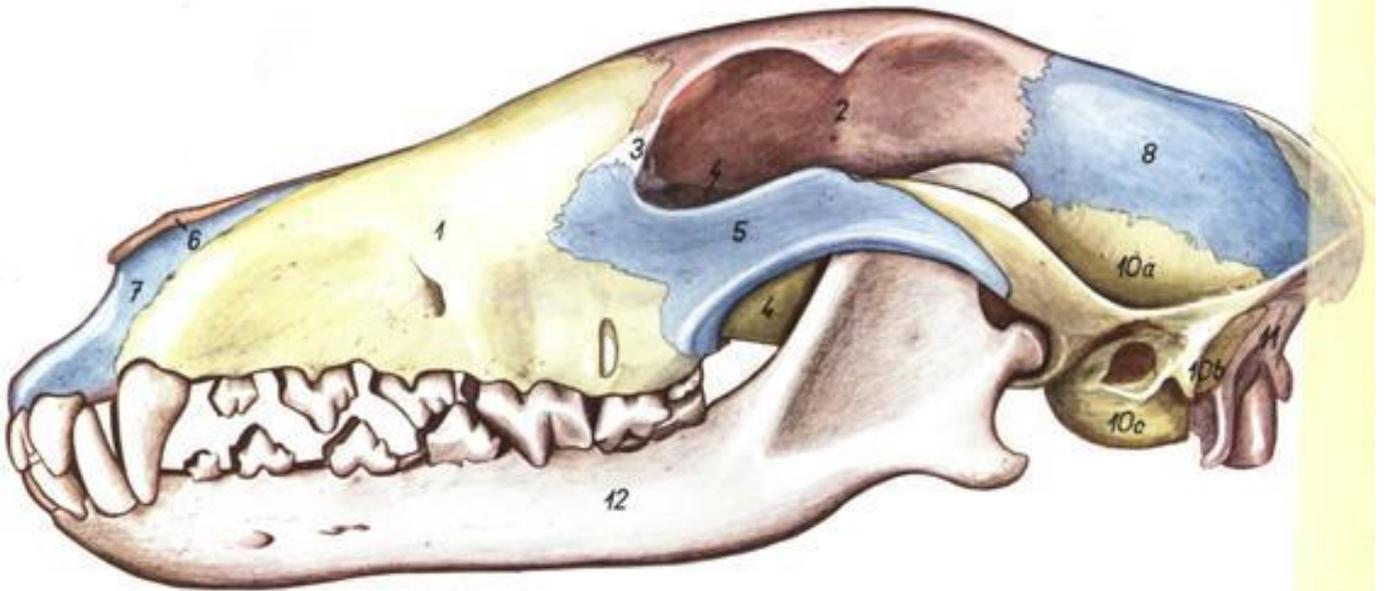
- |   |  |   |
|---|--|---|
| 1. <i>os occipitale</i> — occipital bone                                  | 10. <i>os incisivum</i> — incisive bone  | 18. <i>processus frontalis ossis zygomatici</i> — frontal process of zygomatic bone |
| 2. <i>os interparietale</i> — interparietal bone                          | 11. <i>sutura lambdoides</i> — lambdoid suture                                       | 19. <i>margo orbitalis</i> — orbital margin   |
| 3. <i>os parietale</i> — parietal bone                                    | 12. <i>crista sagittalis externa</i> — external sagittal crest                       | 20. <i>sutura internasalis</i> — internasal suture                                  |
| 4. <i>pars squamosa ossis temporalis</i> — squamous part of temporal bone | 13. <i>sutura coronalis</i> — coronal suture   | 21. <i>foramen infraorbitale</i> — infraorbital foramen                             |
| 5. <i>os frontale</i> — frontal bone                                      | 14. <i>linea temporalis</i> — temporal line  | 22. <i>fissura palatina</i> — palatine fissure                                      |
| 6. <i>os zygomaticum</i> — zygomatic bone                                 | 15. <i>sutura interfrontalis</i> — interfrontal suture                               | 23. <i>canalis interincisivus</i> — interincisive canal                             |
| 7. <i>os lacrimale</i> — lacrimal bone                                    | 16. <i>arcus zygomaticus</i> — zygomatic arch  | 24. <i>dens caninus</i> — canine tooth  |
| 8. <i>maxilla</i> — maxilla   | 17. <i>processus zygomaticus ossis frontalis</i> — zygomatic process of frontal bone | 25. <i>dentes incisivi</i> — incisors   |
| 9. <i>os nasale</i> — nasal bone  |  |   |



## منظر جانبي للجمجمة عند الكلاب

Dog. Left view of skull. Bone outlines demarcated by color. Dolichocephalic skull (greyhound).

Figure 173



1. *maxilla* – maxilla
2. *os frontale* – frontal bone
3. *os lacrimale* – lacrimal bone
4. *lamina perpendicularis ossis palatini* – perpendicular plate of palatine bone
5. *os zygomaticum* – zygomatic bone
6. *os nasale* – nasal bone

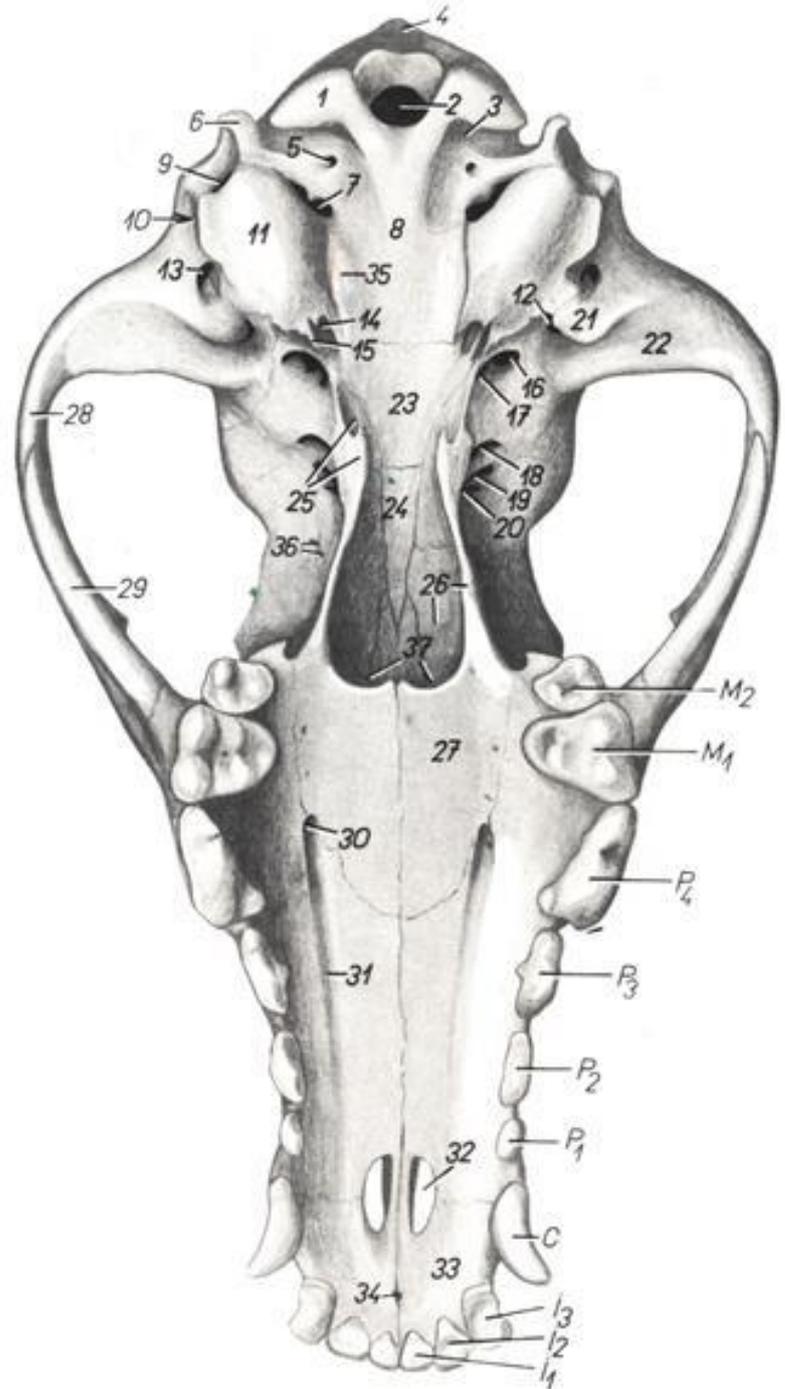
7. *os incisivum* – incisive bone
8. *os parietale* – parietal bone
9. *os interparietale* – interparietal bone
10. *os temporale* – temporal bone
- 10a. *pars squamosa ossis temporalis* – squamous part of temporal bone

- 10b. *processus mastoideus ossis temporalis* – mastoid process of temporal bone
- 10c. *pars tympanica ossis temporalis* – tympanic part of temporal bone
11. *os occipitale* – occipital bone
12. *mandibula* – mandible

# منظر بطني للجمجمة عند الكلاب

Dog. Skull, ventral view.

Figure 176

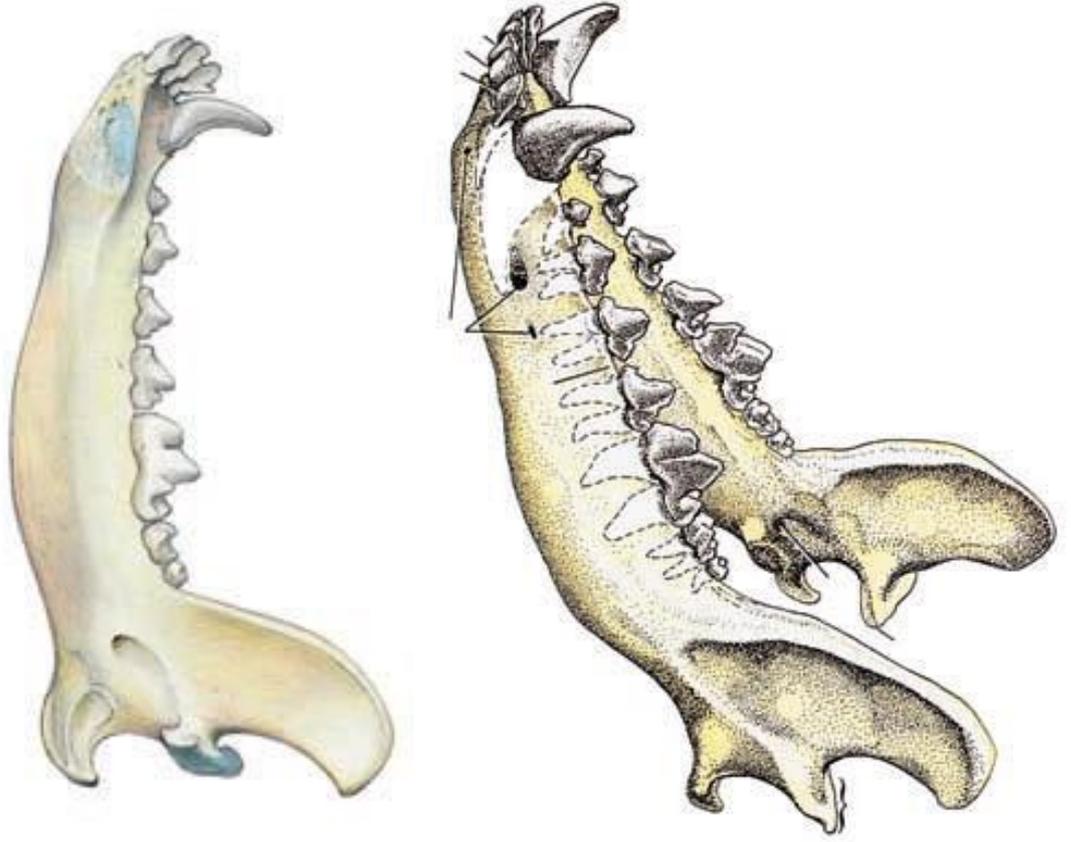


1. *condylus occipitalis* – occipital condyle
2. *foramen magnum* – foramen magnum
3. *fossa condylaris ventralis* – ventral condylar fossa
4. *protuberantia occipitalis externa* – external occipital protuberance
5. *canalis n. hypoglossi* – canal of hypoglossal nerve
6. *processus paracondylaris* – paracondyloid process
7. *foramen jugulare* – jugular foramen
8. *pars basilaris ossis occipitalis* – basilar part of occipital bone
9. *foramen stylomastoideum* – stylomastoid foramen
10. *porus acusticus externus* – external acoustic opening
11. *bulla tympanica* – tympanic bulla
12. *fissura petrotympanica* – petrotympanic fissure
13. *meatus temporalis* – temporal meatus
14. *foramen caroticum externum* – external carotid foramen
15. *processus muscularis* – muscular process
16. *foramen ovale* – oval foramen
17. *foramen alare caudale* – caudal alar foramen
18. *foramen alare rostrale* – rostral alar foramen
19. *fissura orbitalis* – orbital fissure
20. *canalis opticus* – optic canal
21. *processus retroarticularis* – retroarticular process
22. *fossa mandibularis* – mandibular fossa
23. *corpus ossis basisphenoidalis* – body of basisphenoid bone
24. *corpus ossis presphenoidalis* – body of presphenoid bone
25. *os pterygoideum* – pterygoid bone
26. *lamina perpendicularis ossis palatini* – perpendicular plate of palatine bone
27. *lamina horizontalis ossis palatini* – horizontal plate of palatine bone

- 28, 29. *arcus zygomaticus* – zygomatic arch
29. *processus zygomaticus ossis temporalis* – zygomatic process of temporal bone
29. *processus temporalis ossis zygomatici* – temporal process of zygomatic bone
30. *foramen palatinum majus* – major palatine foramen
31. *sulcus palatinus* – palatine sulcus
32. *fissura palatina* – palatine fissure
33. *corpus ossis incisivi* – body of incisive bone
34. *canalis interincisivi* – interincisive canal

35. *tuberculum musculare* – muscular tubercle
36. *foramen ethmoidale* – ethmoid foramen
37. *choanae* – choanae
- C. *dens caninus* – canine tooth
- I<sub>1</sub>. *dens incisivi I* – first incisor
- I<sub>2</sub>. *dens incisivi II* – second incisor
- I<sub>3</sub>. *dens incisivi III* – third incisor
- M<sub>1</sub>, M<sub>2</sub>. *dentes molares I et II* – first and second molar teeth
- P<sub>1</sub>–P<sub>4</sub>. *dentes premolares I–IV* – first–fourth premolar teeth

## الفك السفلي عند الكلاب



## العظم اللامي عند الكلاب

