TIBIA AND FIBULA

TIBIA

Strong and massive long bone

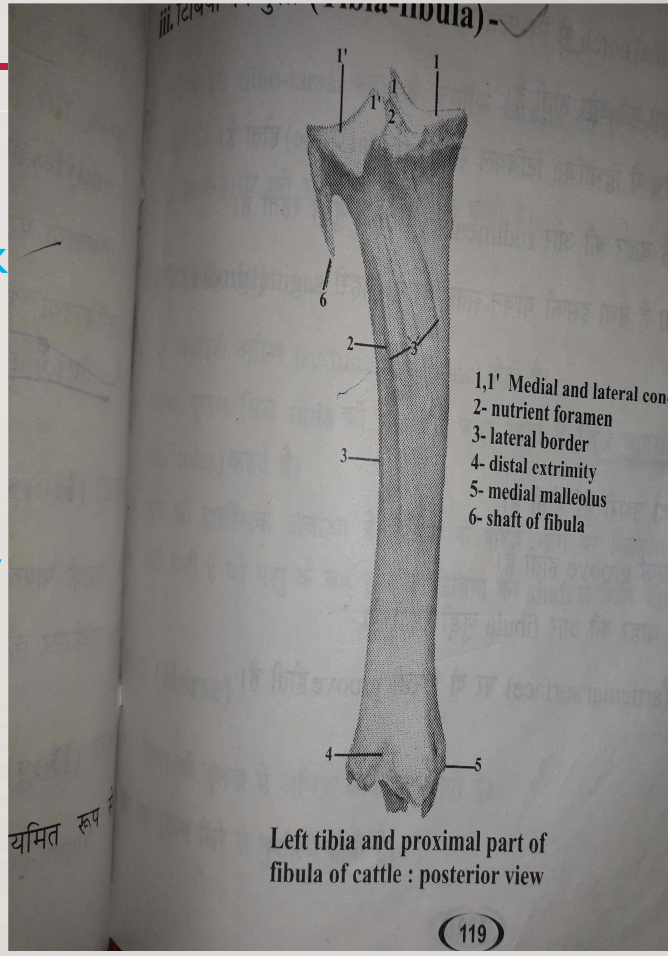
Extends obliquely downward and backward from stifle to hock

It presents a body and two ends

Bone is twisted in appearance

Shaft is expanded and prismaticat at its upper part and narrow

And flat at its lower part



SURFACES OF TIBIA

- *Lateral surface-*

__faintly concave

gradually spiral down to the front

accomodates anterior tibial and complex mu

- *Medial surface-*

__wide above and narrow below

- *Posterior surface-*

_rough and traversed by a number of rough lines called popliteal lines

_there is a smooth triangular area at the upper part and close to the medial aspect for the attachment of popliteus muscles

BORDERS OF TIBIA

- *Anterior border-*

  upper part is very prominent and termed as tibial crest

  at the distal part of the crest,towards the medial aspect

  There is a small prominence for insertion of semitendinosus

  Muscle the distal part of this border is not prominent

- *lateral border-*

  concave,it forms an interosseus space with the attachment

  of fibrous chord of fibula

- *Medial border-*

  rounded

PROXIMAL EXTREMITY OF TIBIA

It is Expended and presents two condyles and a tuberosity

Tuberosity is situated above the tibial crest

Sulcus muscularis seperates tuberosity from lateral condyl

Condyles are saddle shaped articular prominences which

articulates with corresponding condyles of femur

Tibial spine is the intercondyloid eminence and is bifid

Popleteal notch seperates the condyles at the posterior aspect

DISTAL EXTREMITY OF TIBIA

It presents two grooves

Grooves articulates with the ridges of tibial tarsal bone

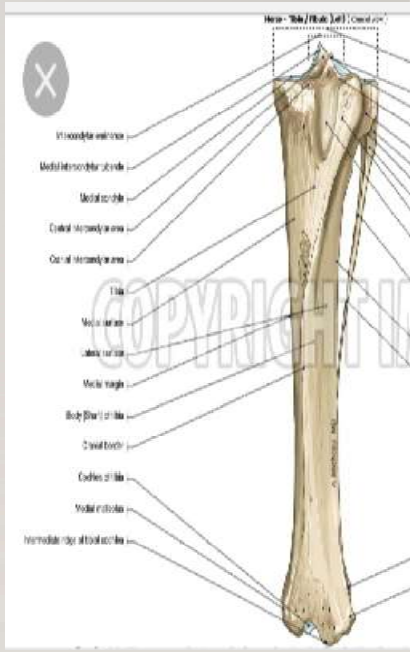
Lateral border of the lateral groove articulates with lateral malleolus

The medial border of medial groove projects ventrally as it is fused with

Medial malleollus

TIBIA OF HORSE

- *The bone is larger and longer*
- *The sulcus muscularis is wider*
- *There is a facet below and lateral to the lateral condyle for the head of fibula*
- ***Anterior tuberosity is grooved***
- *The grooves at the distal end for the ridges of tibial tarsals are oblique*
- *Both melleoli bones are fused at the distal end of tibia*



TIBIA OF DOG

- *The shaft along the length is convex medially at the upper part*

and again convex laterally at the lower part

- *Tibial crest is very prominent*
- *Upper part of the body is prismatic and lower part is cylindrical*

The cylindrical part presents a facet laterally for articulation with

the fibula

- *At the proximal end ,caudolateral to the lateral tuberosity,there is*

a facet for the proximal end of fibula

FIBULA

- *The proximal end is fused with the lateral condyle of tibia*
- *The body and the distal end remains as a blunt prolongation*
- *Highly rudimentary in ox*

FIBULA OF HORSE

- *It is an aborted long bone and more developed then ox*
- *Presents a head , body and a pointed distal end*
- *Placed along the lateral border of tibia*
- *Proximal end is little large , flat and articulates with lateral condyle of tibia*
- *The distal end extends to distal third of tibia*
- *The interosseous space between tibia and fibula is wide*

FIBULA OF DOG

- It is a long and thin bone and extends the whole length of tibia
- Proximal end is flat and articulates with the latera condyle of tibia
- The upper part of the bone is seperated from the tibia to form proximal interosseous space
- The distal end is thick

TARSAL BONES

- *Tarsal bones are 5 in number in ox*
- *At the proximal row there are two bones – tibial and fibular*
- *At the distal end there are three- central and fourth fused tarsal, second and third fused tarsal and first tarsal*

TIBIAL TARSAL

- *Present in the form of elongated pully*
- **Proximal end-***two ridges*
- **Distal end-***two condyles*
- **Anterior surface-***deep fossa present*
- **Posterior surface-***articular smooth area*
- **Medial surface-***flat and rough*
- **Lateral surface-***Irregularly concave and articular*
- ***Posteriolaterally it articulates with fibular tarsal, proximally with tibia and distally with c+4 tarsal***

FIBULAR TARSAL

- *Elongated short bone situated obliquely lateral and posterior to tibial tarsal bone*
- **Proximal end-***tuberous and known as* ***tuber calcis*** *or calcaneal tubercle*
- **Distal end-***irregular,medial portion of distal end articulates with the lateral surface of tibial tarsal .A thick projection extends from the medial aspect ,which articulates with the posterior surface of tibial tarsal,known as* ***sustentaculum tali***

CENTRAL AND FOURTH FUSED TARSAL

- *Plate like bone*
- ***Dorsal surface*** *has two concavities seperated by a ridge to accomodate the condyles of tibial tarsal there is a spine at posteriomedial angle of this surface*
- ***Ventral surface*** *articulates with first tarsal bone , second and third fused tarsal bone , and the metatarsal bones*
- ***Anterior lateral and medial surfaces*** *are rough and continuous*
- ***Posterior surface*** *is irregular*

FIRST TARSAL

- *Small nodule like bone*
- ***three articulating surfaces-***

1. *Proximally with central and fourth fused bone*
2. *Anteriorly with second and third fused bone*
3. *Distally with metatarsal bone*

SECOND AND THIRD FUSED BONE

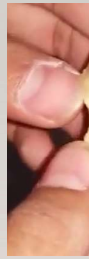
- *It looks like1/4 piece of a thick coin*
- *This bone is actually placed in the space,created by c+4 fused tarsal dorsally and laterally and by the proximal end of large metatarsal bone distally*
- ***Anterior and medial surfaces-*** *non articular and continuous*
- ***Dorsal,ventral,lateral and posterior surfaces-*** *articular*

TARSAL BONES OF HORSE

There are 6 tarsal bones

- *These are:-*

1. ***Tibial tarsal-*** *short and thick*
2. ***Fibular tarsal-****short and thick*
3. ***Central tarsal-*** *Flat*
4. ***First and second fused tarsal-****Small*
5. ***Third tarsal-*** *Flat*
6. ***Fourth tarsal-*** *Irregular*



TARSAL BONE OF DOG

- There are 7 tarsal bones in dog

1. ***Tibial tarsal-*** *has a body,head and neck*
2. ***Fibular tarsal-*** *elongated*
3. ***Central tarsal-*** *articulates with the head of tibial tarsal*
4. ***First tarsal-*** *quadrilateral in shape*
5. ***Second tarsal-*** *smallest*
6. ***Third tarsal-*** *wedge shaped*
7. ***Fourth tarsal-*** *irregular cube form*

Metatarsal bone

Large metatarsal bone

It has structural similarities with large metacarpal bone

Its length is more than metacarpal bone

Shaft is four sided

Proximal end bears a facet at its medial aspect for small metatarsal bone

The dorsal longitudinal groove is more deep and wide

Small metatarsal bone

Medial small metatarsal bone

Rudimentary and quadrilateral

Articulates with large metatarsal by a facet at its anterior aspect

METATARSAL BONE OF HORSE

- *One large(3) and two small(2 and 4) metatarsal bone*
- *Small metatarsal articulate with the large bone on either side of the posterior aspect*
- *Small metatarsal extends up to distal third*
- *Large metatarsal is larger and has wide proximal end comparatively to large metacarpal*

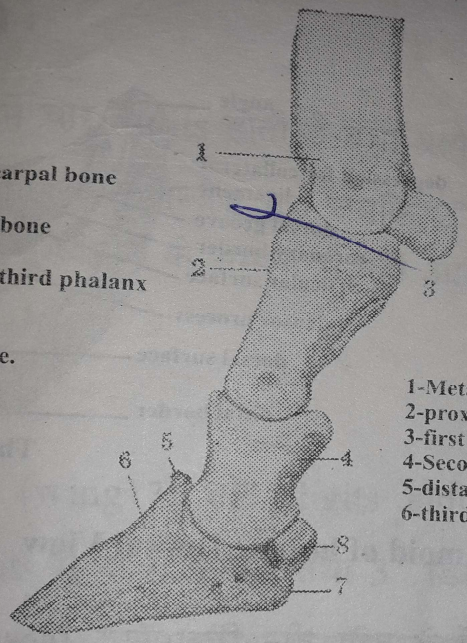
METATARSAL BONES OF DOG

- *5 metatarsal bone*
- *First one is ill developed and is in the form of a flat cone*
- *Rest of the metatarsal bones are comparatively longer to those of metacarpal bone*

PHALANGES

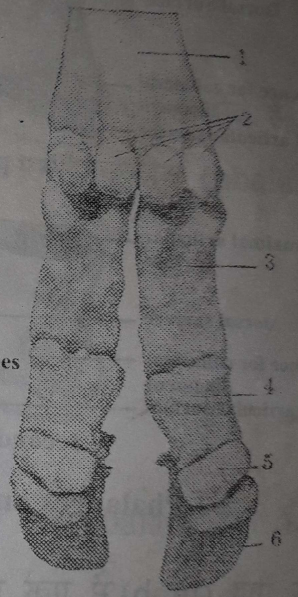
vi. अंगुलास्थियां (Phalanges or digits) -

1-Distal end of metacarpal bone
2-First phalanx
3-proximal sesamoid bone
4-second phalanx
5-extensor process of third phalanx
6-Dorsal surface
7-Angle
8-Distal sesamoid bone.



Bones of distal part of fore limb of cattle : lateral view

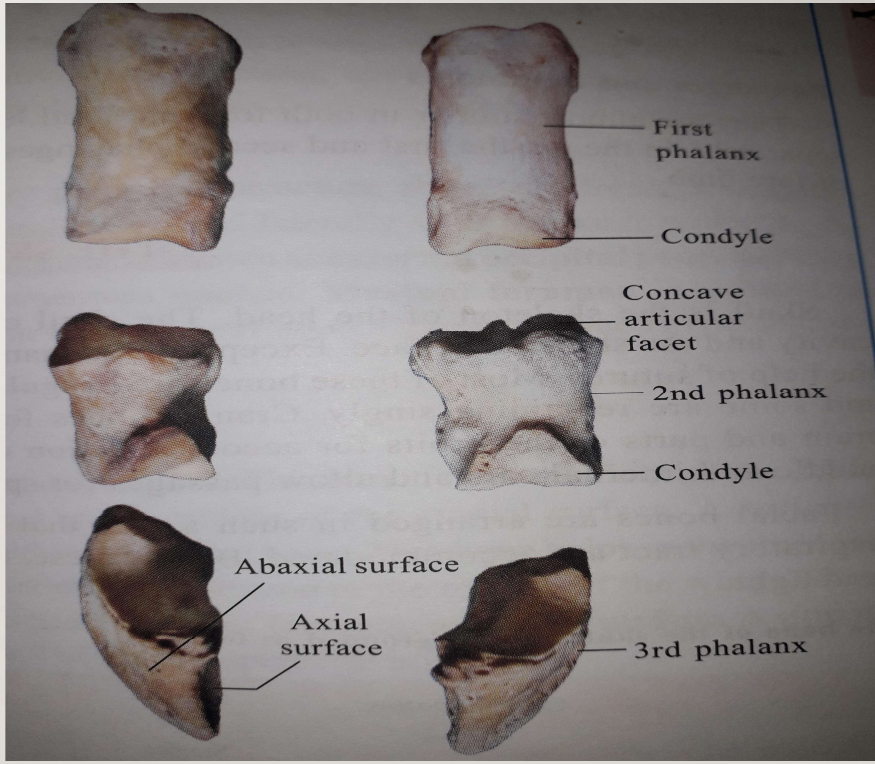
1-Metacarpal bone
2-proximal sesamoid bones
3-first phalanx
4-Second phalanx
5-distal sesamoid bone
6-third phalanx.



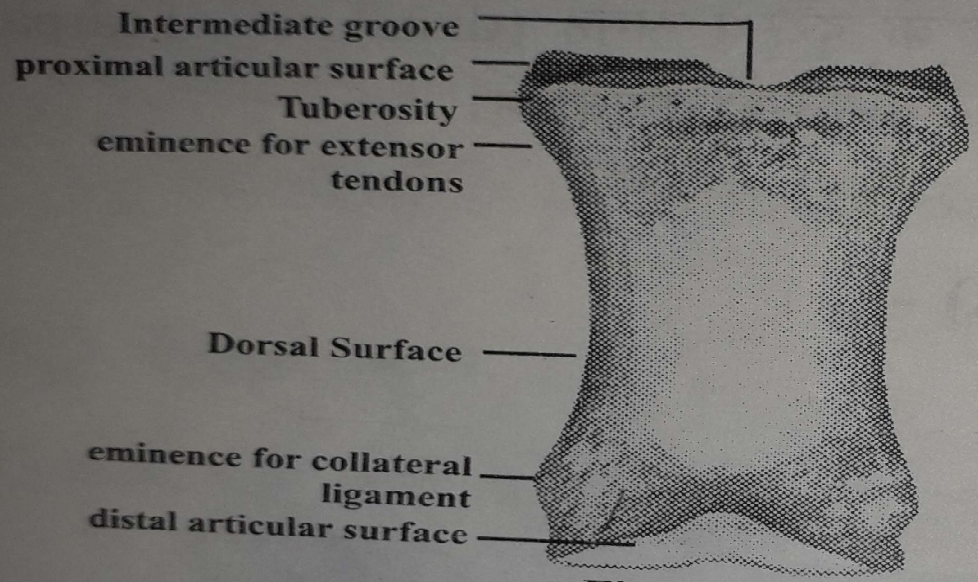
bones of distal part of fore limb of cattle : volar view

109

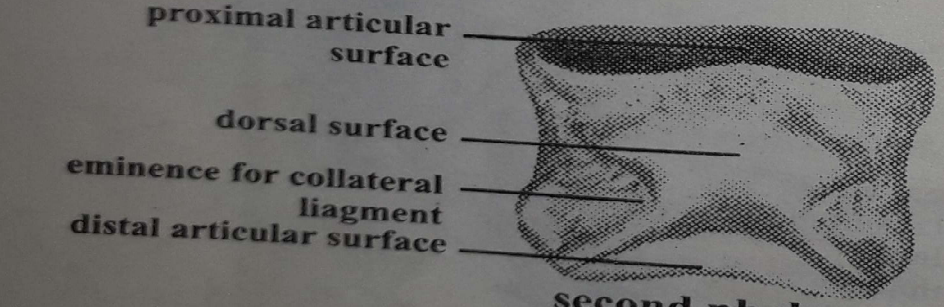
- Each of the developed digit has three phalanges and proximal and distal sesamoids
- *First phalanx*
- *Second phalanx*
- *Third phalanx*



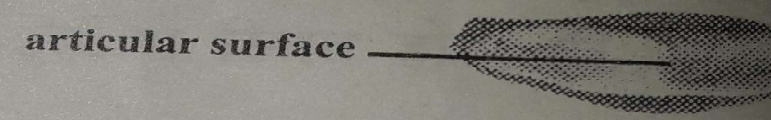
ड़ा (Horse) :



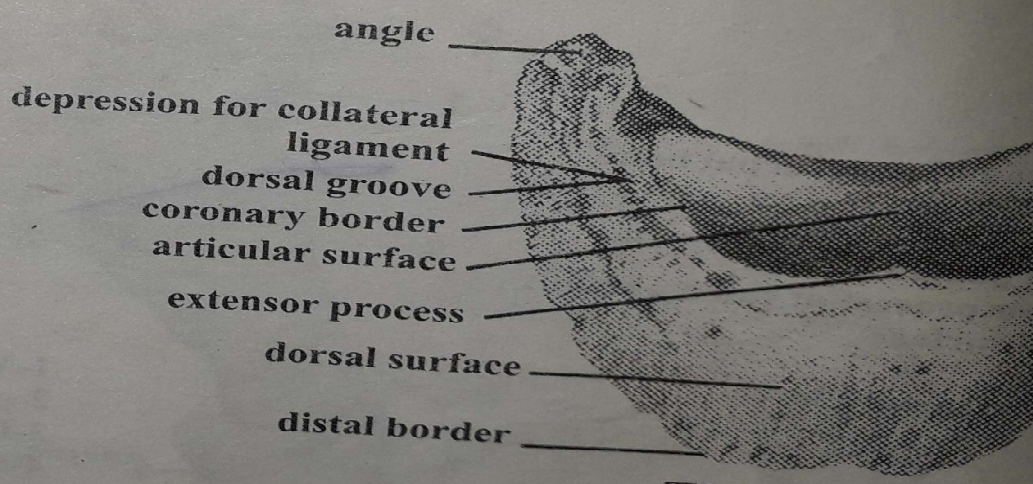
First phalanx



second phalanx



distal sesam



Third phalanx

Phalanges and distal sesamoid of horse : Dorsal View

प्रत्येक पाद (limb) में