

# Osteology II

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# Irregular bones

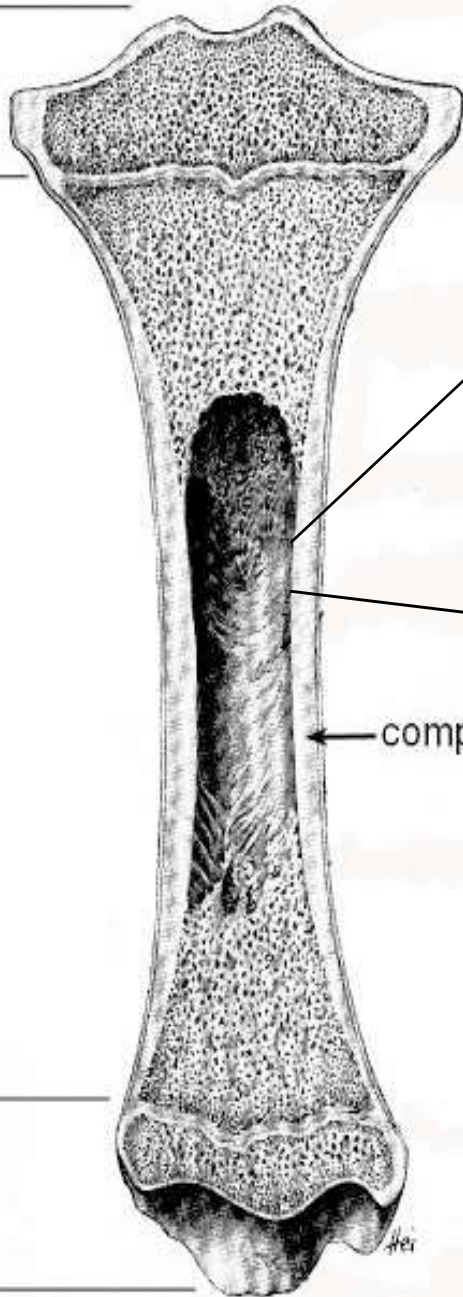
Bovine lumbar  
Vertebrae,  
Dorsal view



- Organization of bone (based on a typical long bone)
  - Cortex
    - compact, lamellar bone arranged in a series of concentric tubes (osteons) about small central canals (haversian canals)

Proximal End

proximal epiphysis

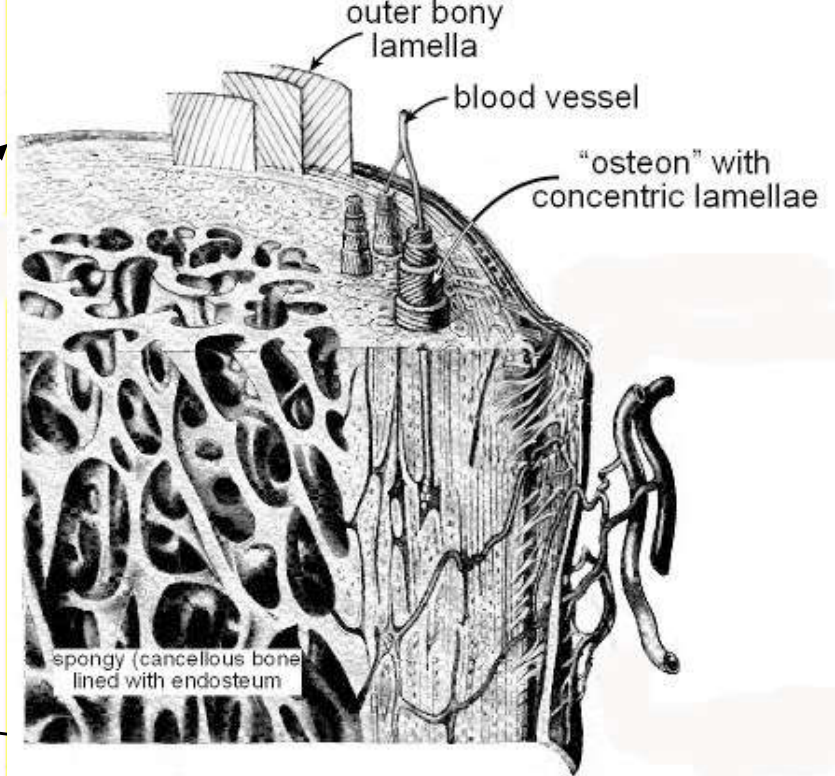


diaphysis (shaft)

distal epiphysis

Distal End

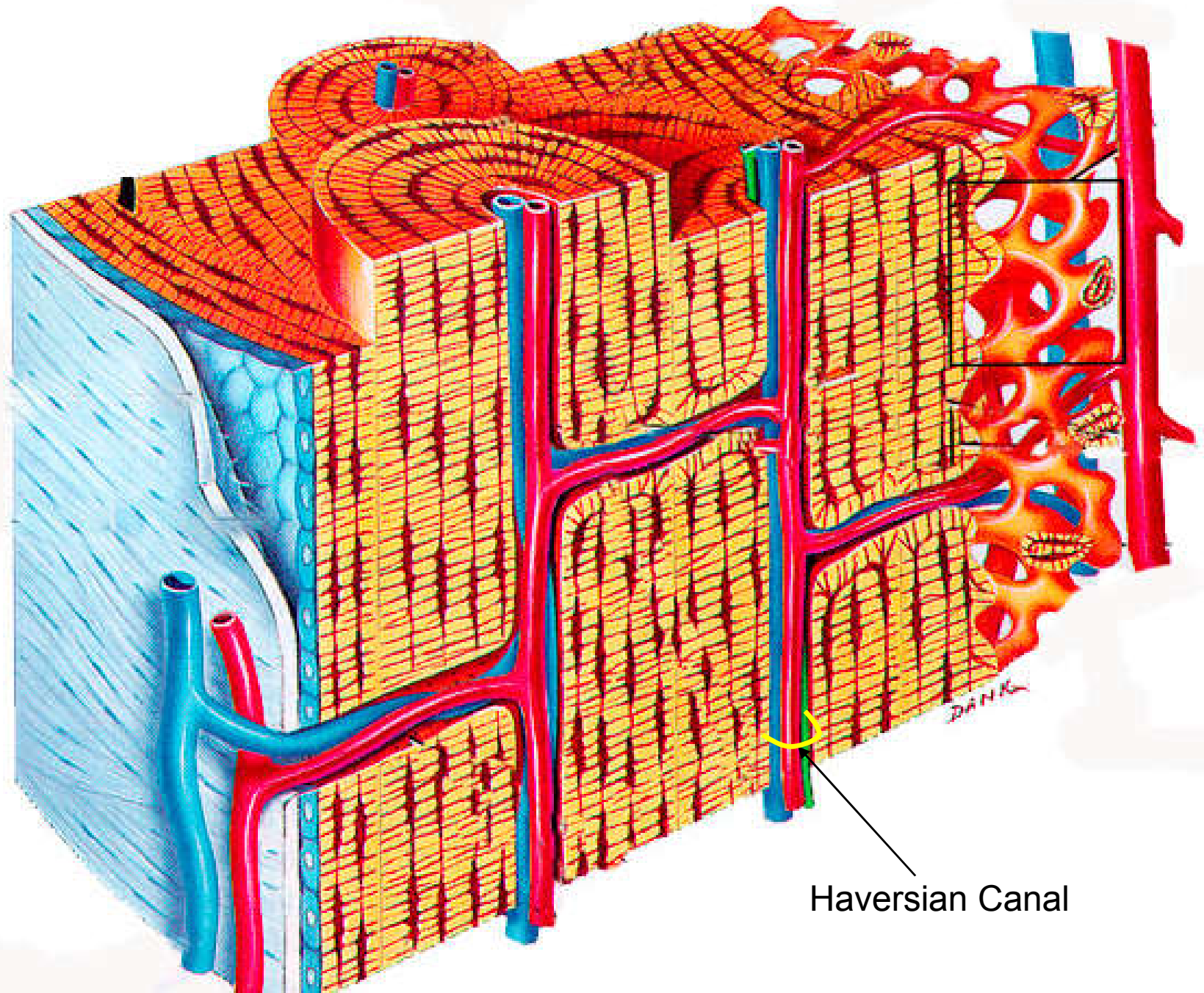
compact (cortical) bone



**Diagrammatic representation of the structure of a long bone.**

*(After Benninghoff, 1939)*

**Transverse section through an immature equine tibia**



Haversian Canal

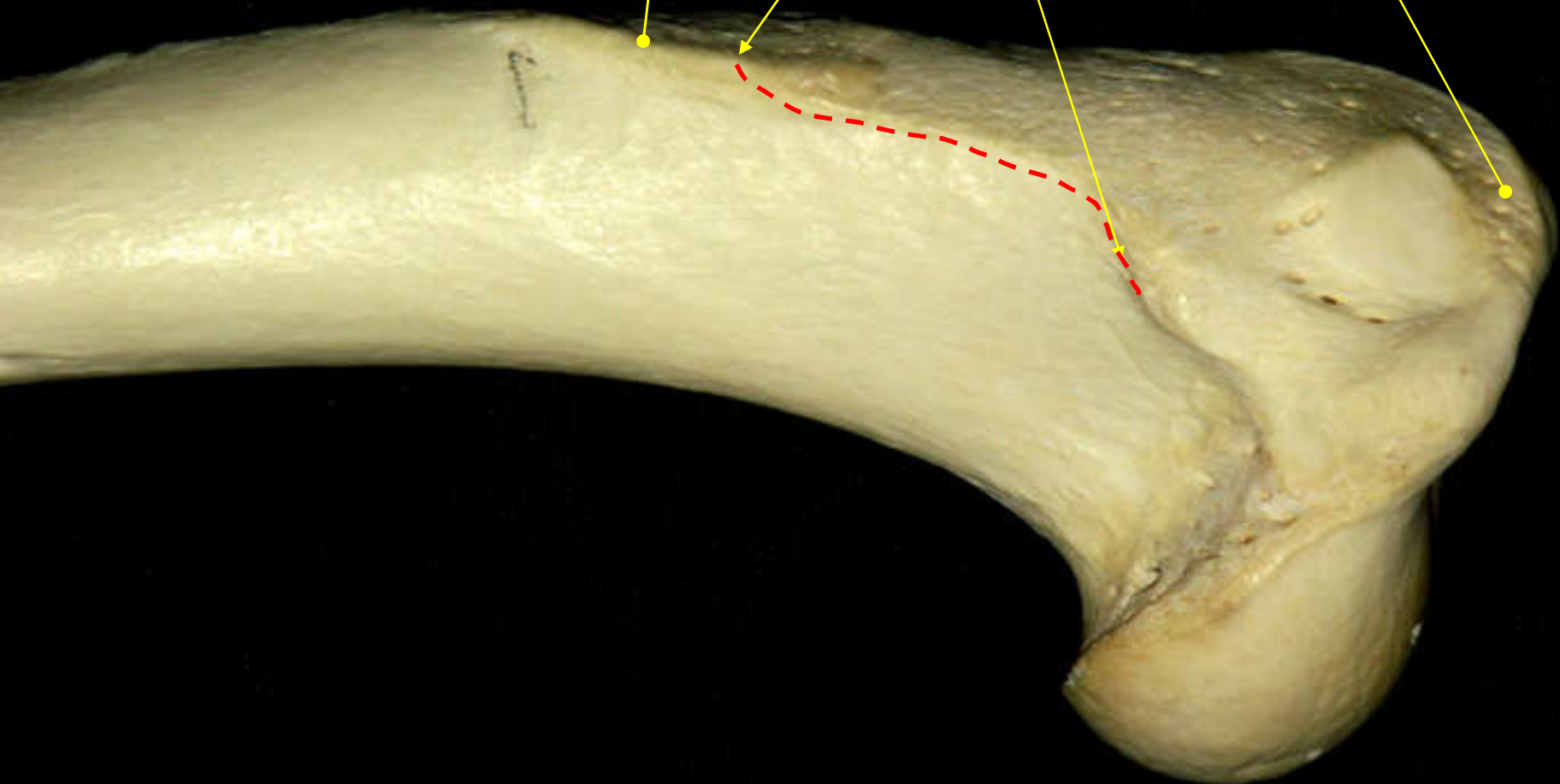
- Organization of bone (based on a typical long bone)
  - Cortex
    - Surface has irregularities for muscle and ligament attachment (lines, crests, tubercles, tuberosities, spines, fossae, and sulci)

**Canine Left Humerus,  
Lateral view**

**Tuberosity**

**Line**

**Tubercle**



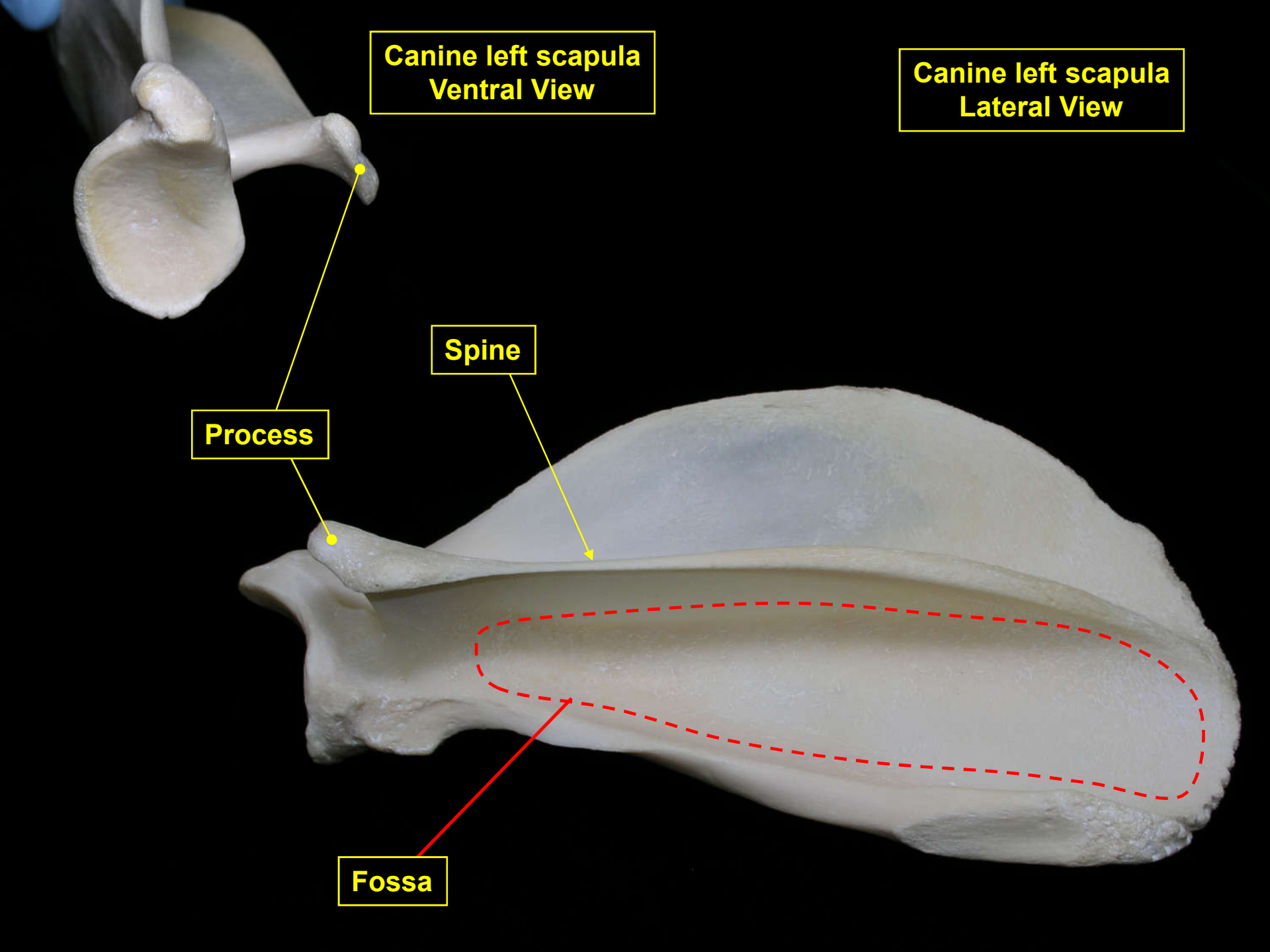
**Canine left scapula  
Ventral View**

**Canine left scapula  
Lateral View**

**Process**

**Spine**

**Fossa**

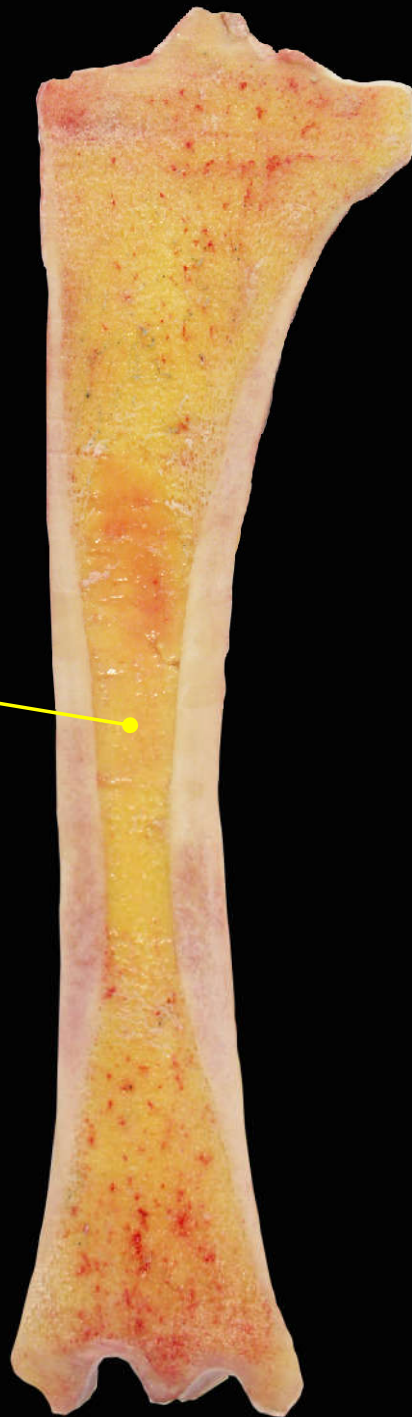




- Organization of bone (based on a typical long bone)
  - Medullary Cavity
    - Inner surface of shaft

**Transverse section through a  
mature equine tibia**

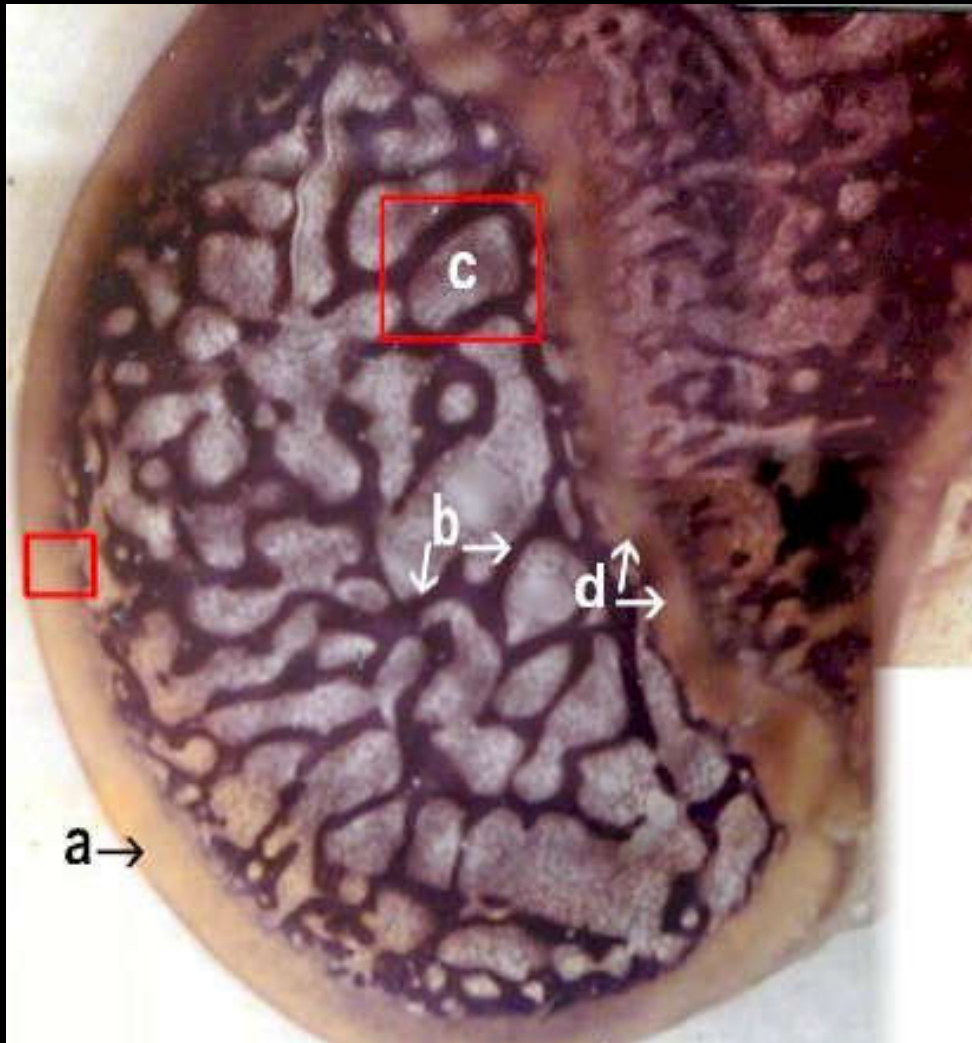
**Medullary cavity**



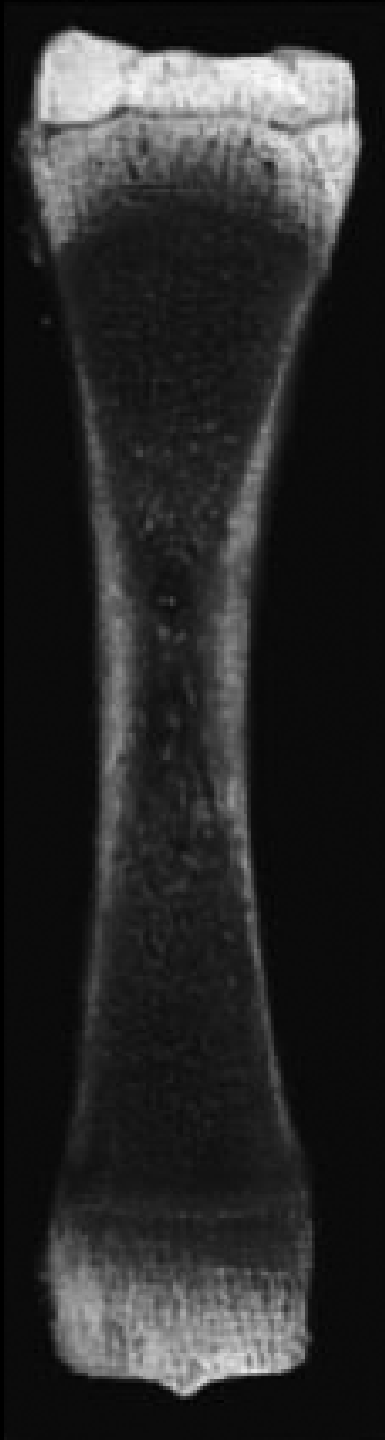
- Organization of bone (based on a typical long bone)
  - Medullary Cavity
    - Inner surface of shaft
    - Called the diplöe in skull bones

- **Organization of bone (long bone)**
  - **Medullary Cavity**
    - **Two types of marrow**
      - **Red marrow-** highly vascularized gelatinous tissue in which red and granular white blood cells are produced (hemopoiesis)
        - » in young animals
        - » confined to the proximal end of the femur and humerus, the girdle bones and the axial skeleton in adults
      - **Yellow marrow-** waxy yellow fat whose hemopoietic potential is dormant
        - » May be reactivated by a fracture

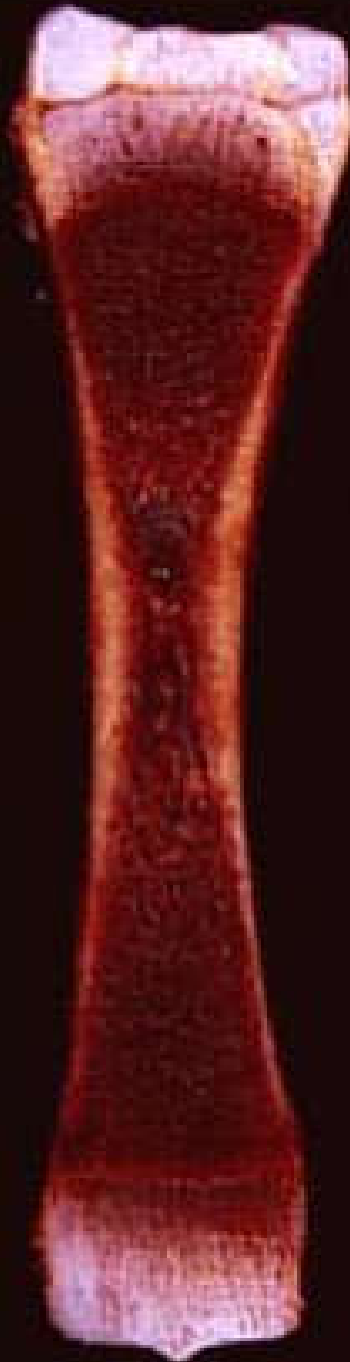
# Red and Yellow Marrow



What type of marrow?



What type of marrow?



## – Extremities

- Epiphyses

- Occur as separate ossification centers on the ends of long bones in immature individuals

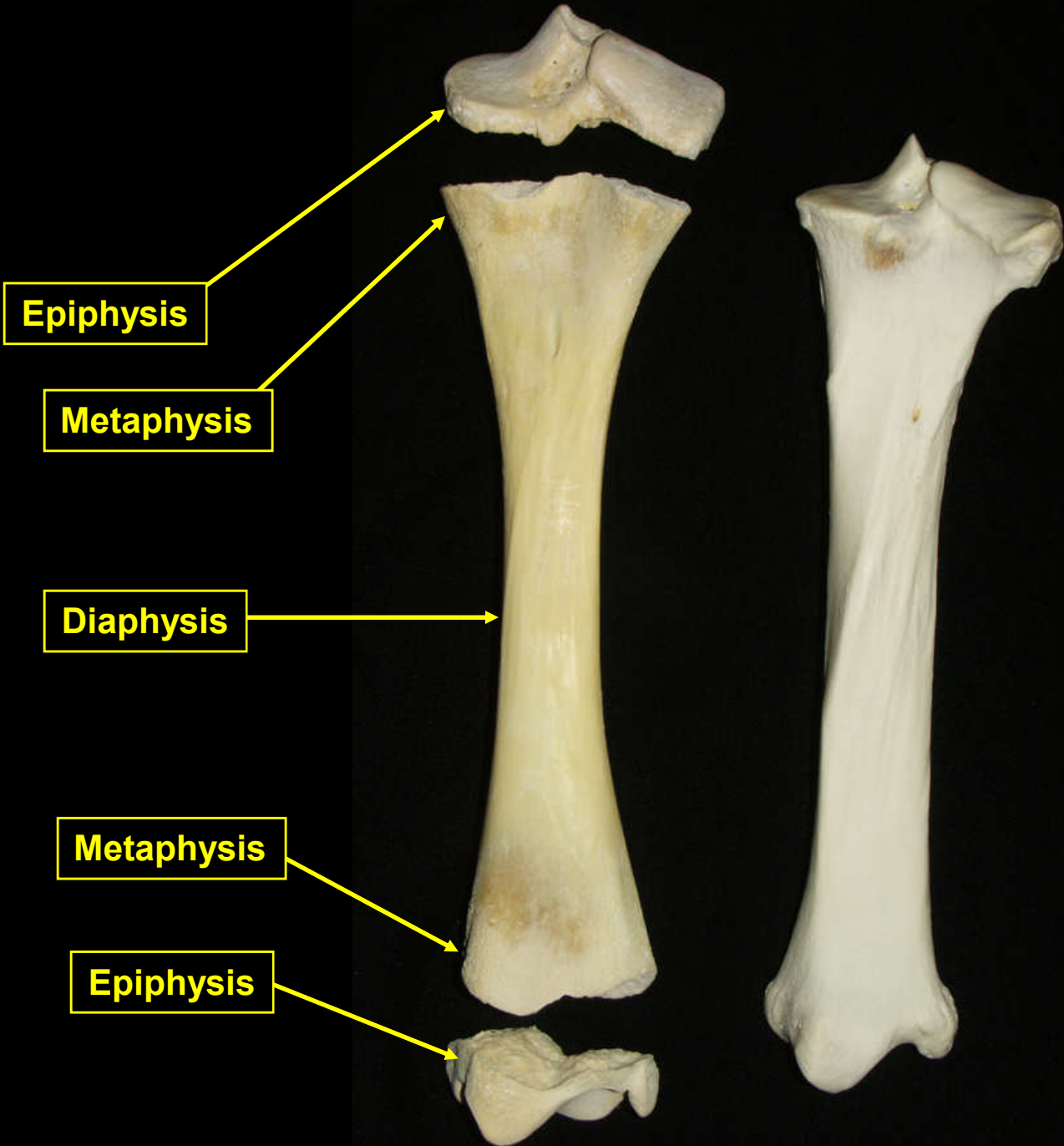
- Cancellous or Spongy Bone

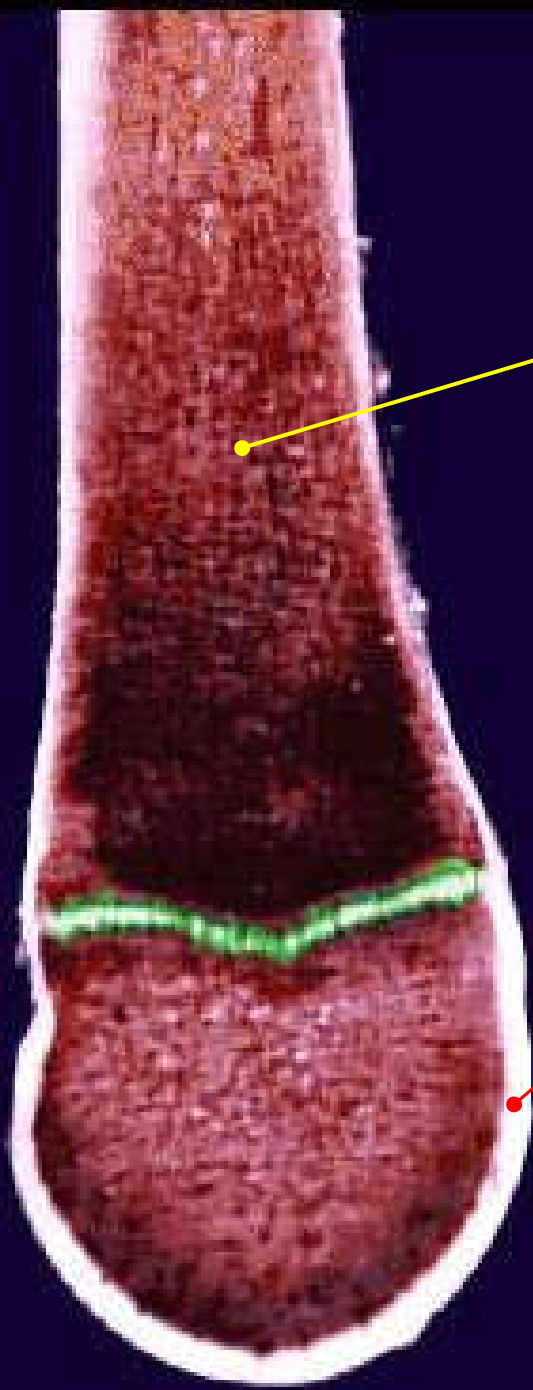
- Forms a three-dimensional lattice of interlacing planes and tubes of varying density

- Articular surfaces covered by hyaline articular cartilage



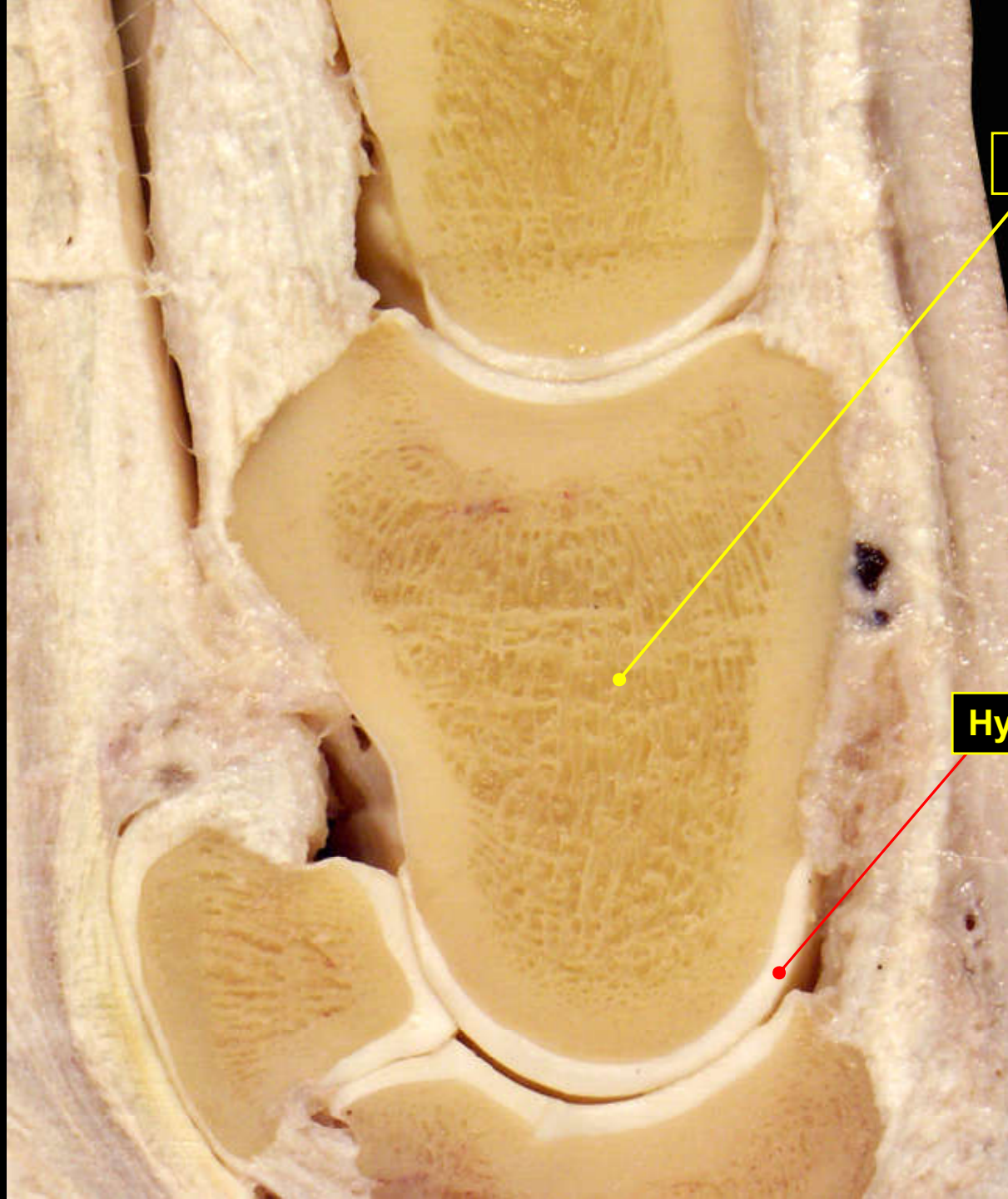
**Equine Right Tibiae,  
Caudal View**





**Spongy Bone**

**Hyaline Cartilage**



**Spongy Bone**

**Hyaline Cartilage**