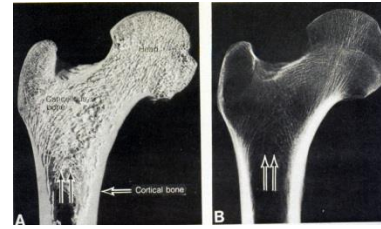
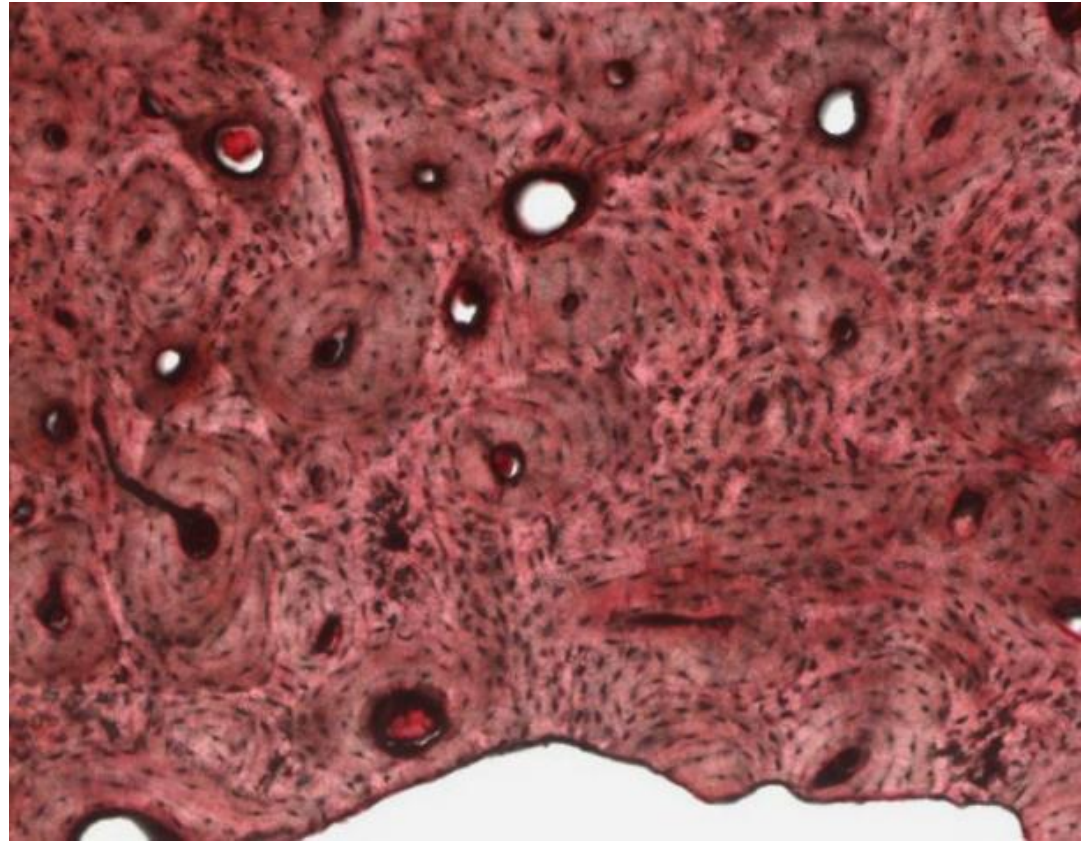
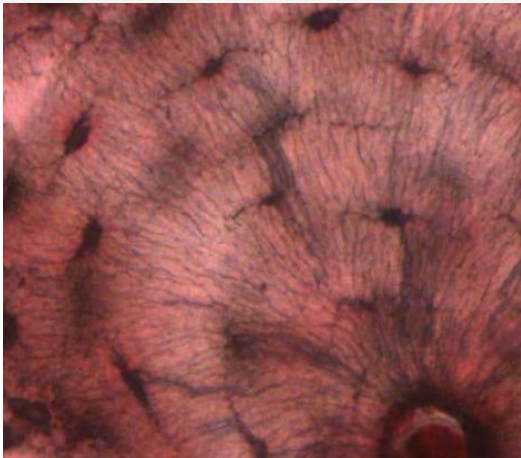


Medical School Histology: Images of compact bone



VIBS Histology

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Dr. Larry Johnson

Texas A&M University

Observe/manipulate the images on your computer

Download actual images at

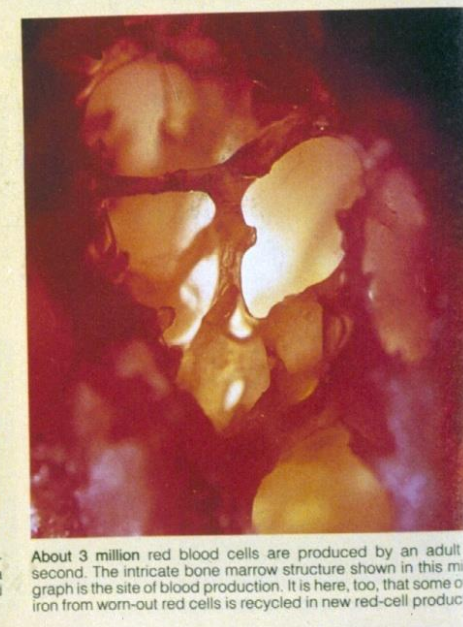
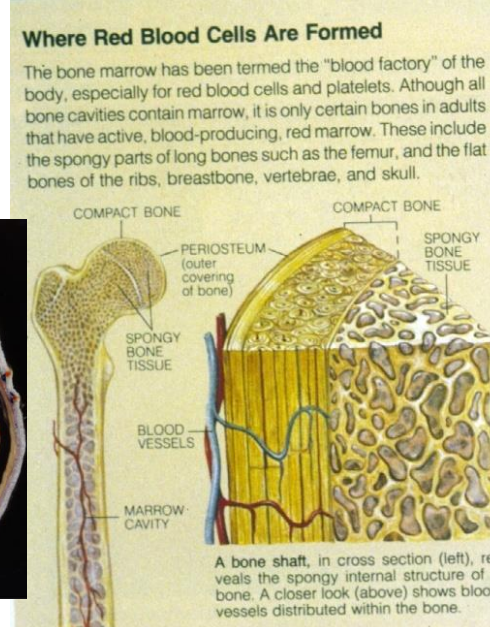
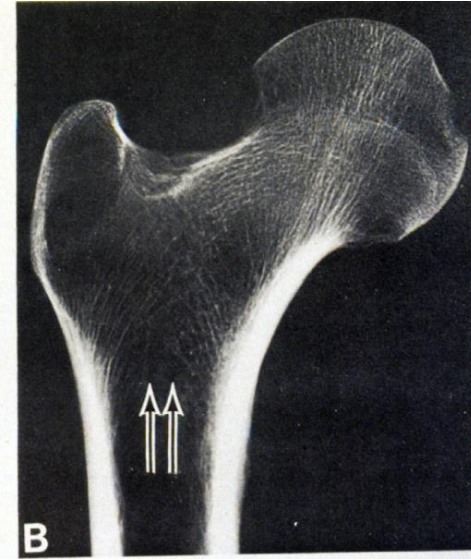
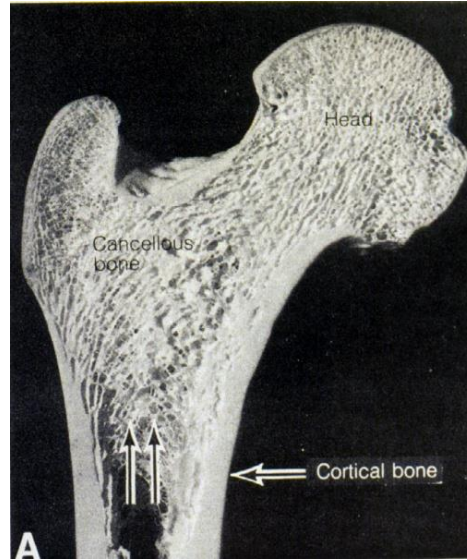
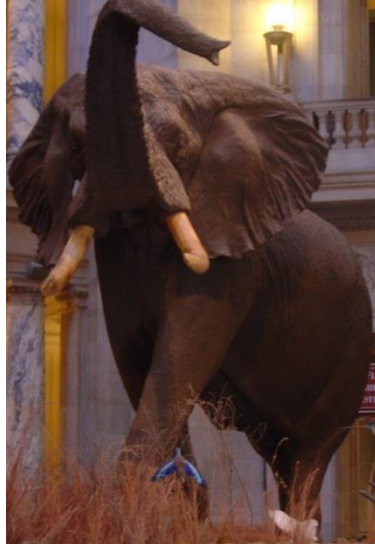
- Bone 36726 –
<http://viewer.serenusview.com/LinkHandler.axd?LinkId=bfeae008-4430-49a9-8deb-200690e3f484>



PowerPoint slides on YouTube VIBS Histology
and at <http://peer.tamu.edu/histology.asp>

FUNCTIONS OF BONE

SKELETAL SUPPORT LAND ANIMALS

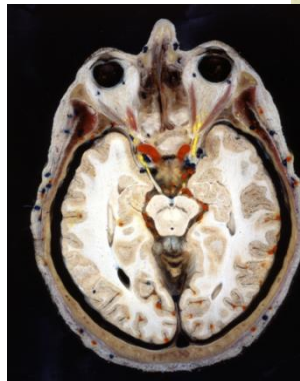


PROTECTIVE ENCLOSURE

SKULL TO

PROTECT BRAIN

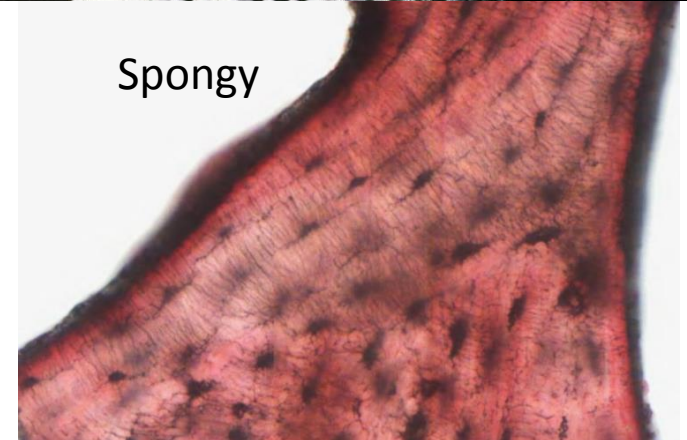
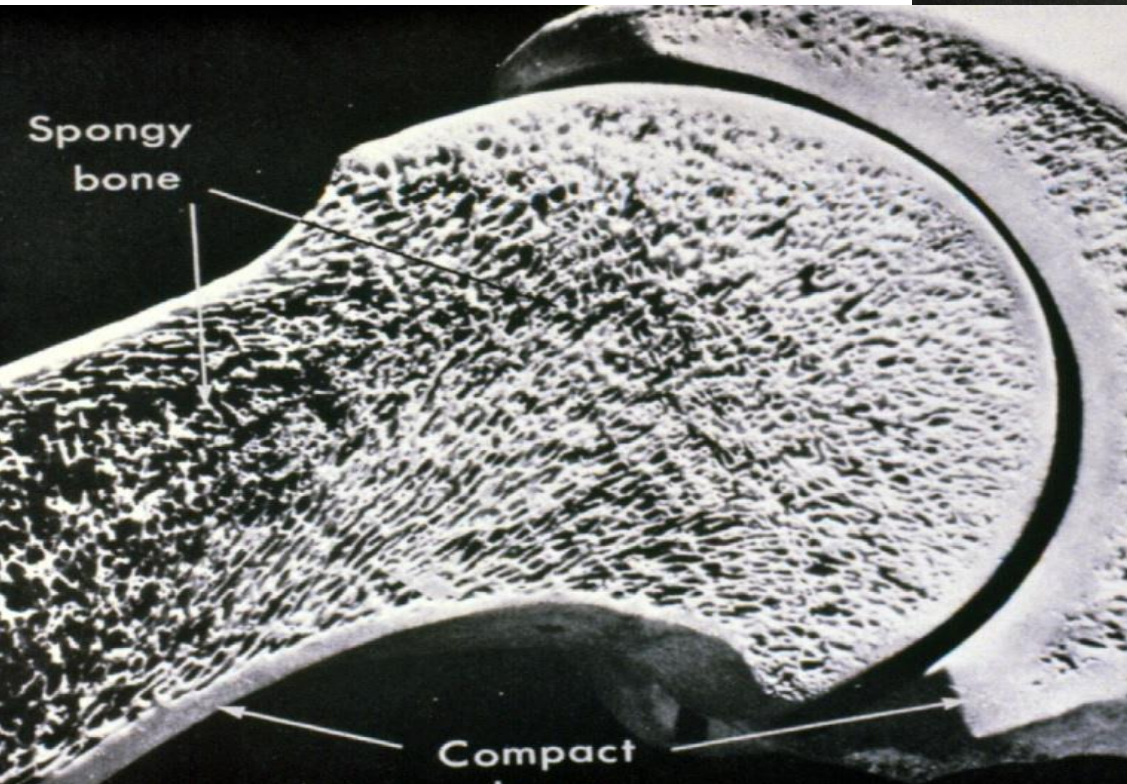
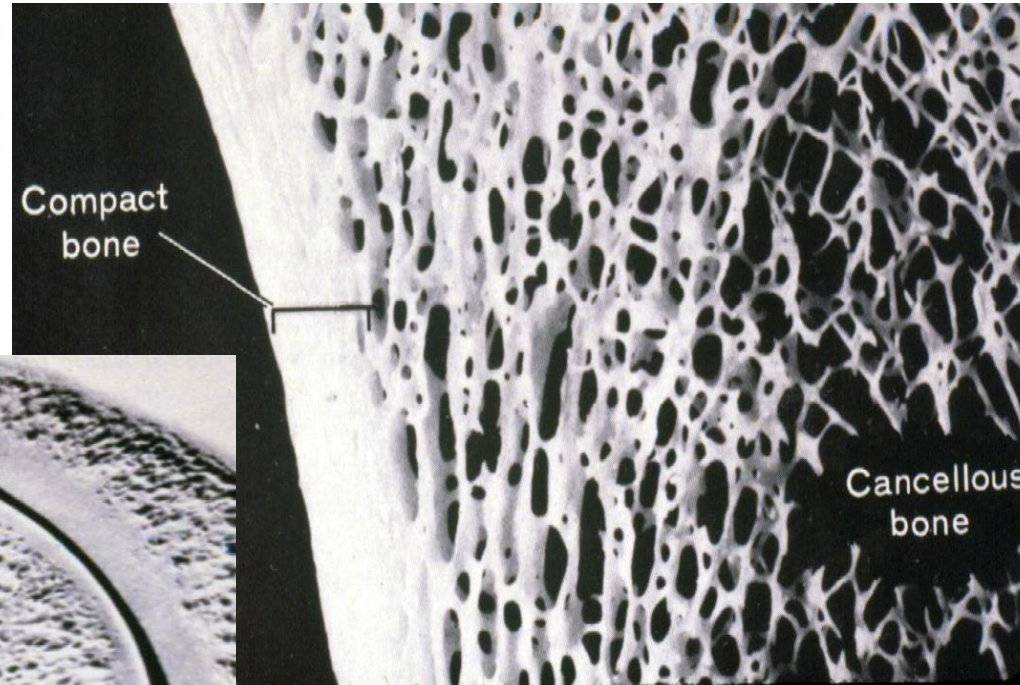
LONG BONE TO PROTECT
HEMOPOIETIC CELLS



COMPACT BONE - SHAFT AND OUTER SURFACE OF LONG BONES



Compact



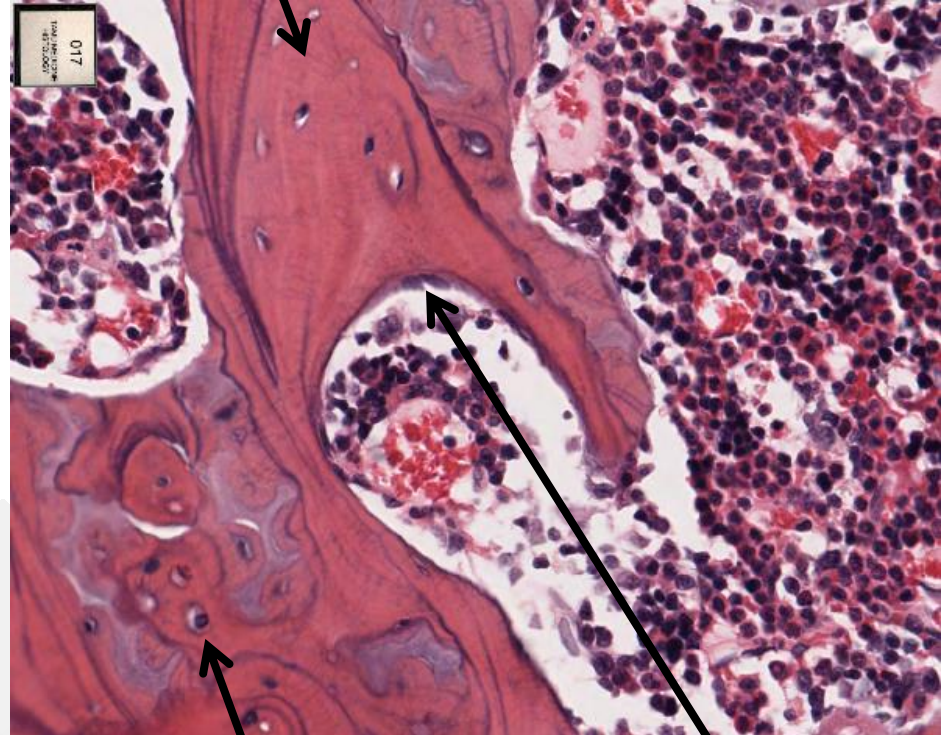
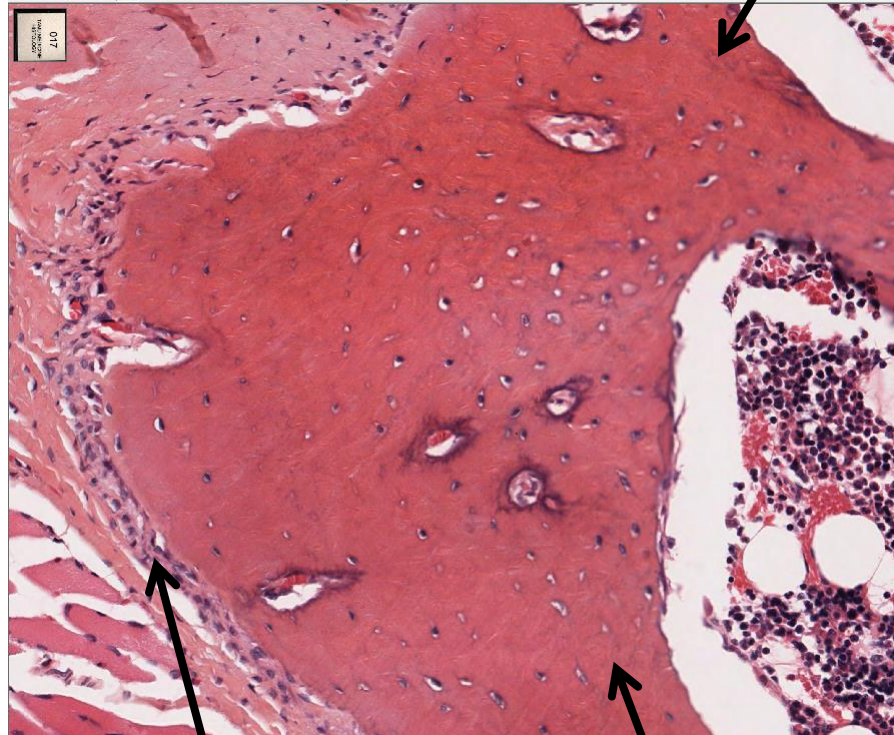
Vertebra

Compact bone

Periosteum

Spongy bone

Endosteum



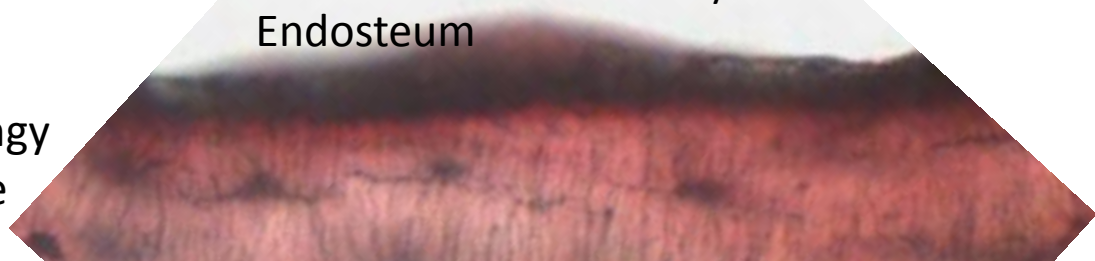
Fibrous periosteum containing fibroblasts

Bone
Endosteum

Osteocyte in lacunae

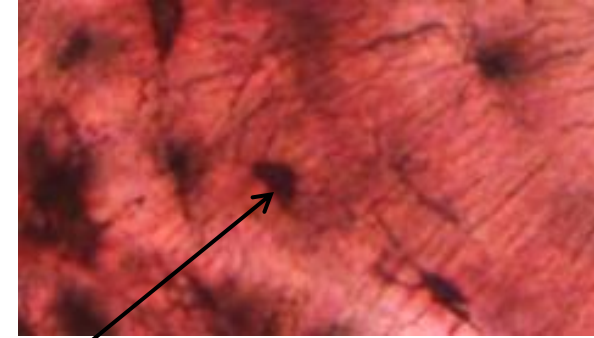
Osteoblasts lining bony trabeculae

Spongy bone

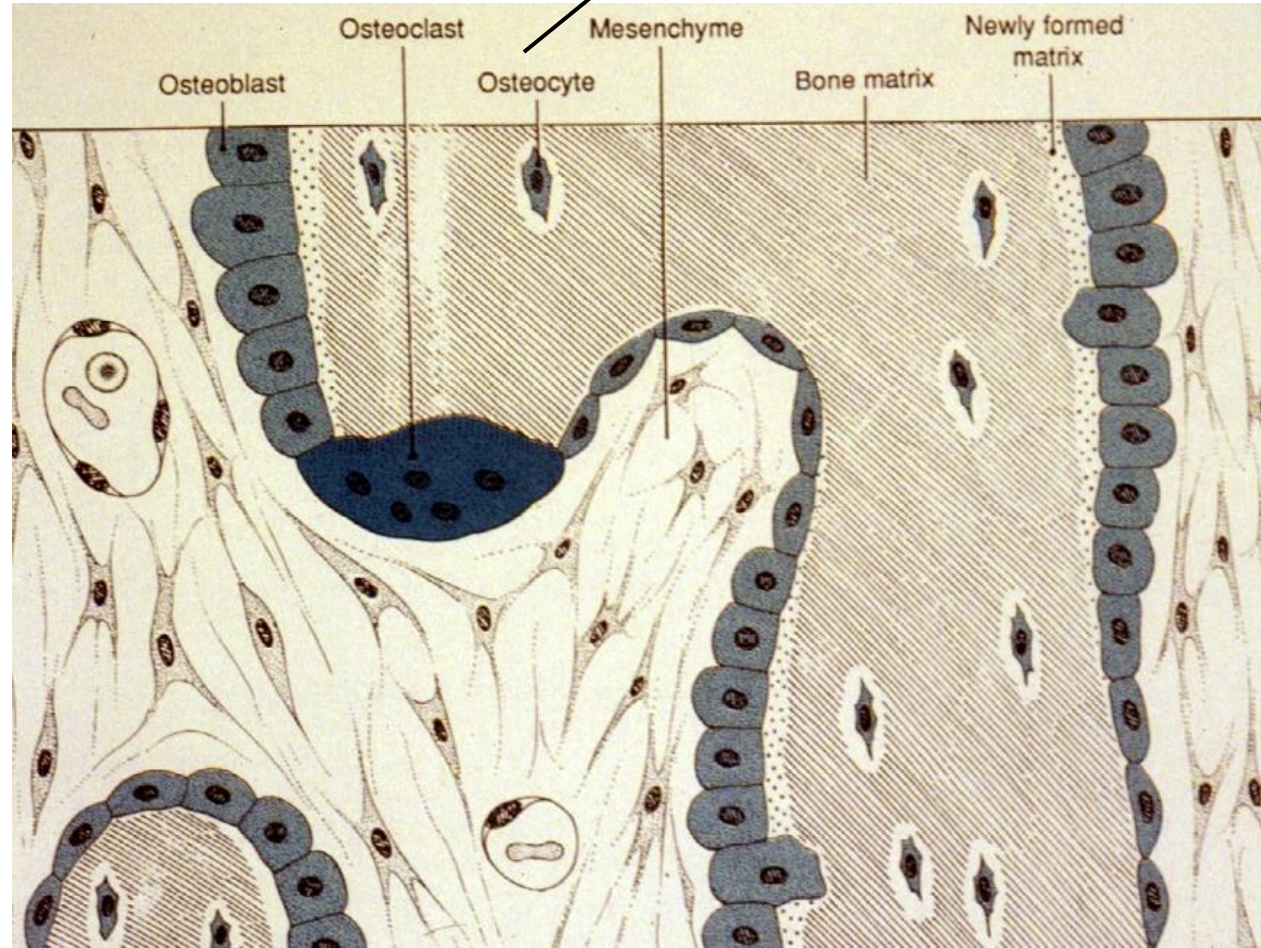


CELLS OF BONE

OSTEOBLASTS - SECRETE OSTEOID - BONE
– EXPAND BONE BY APPositionAL GROWTH



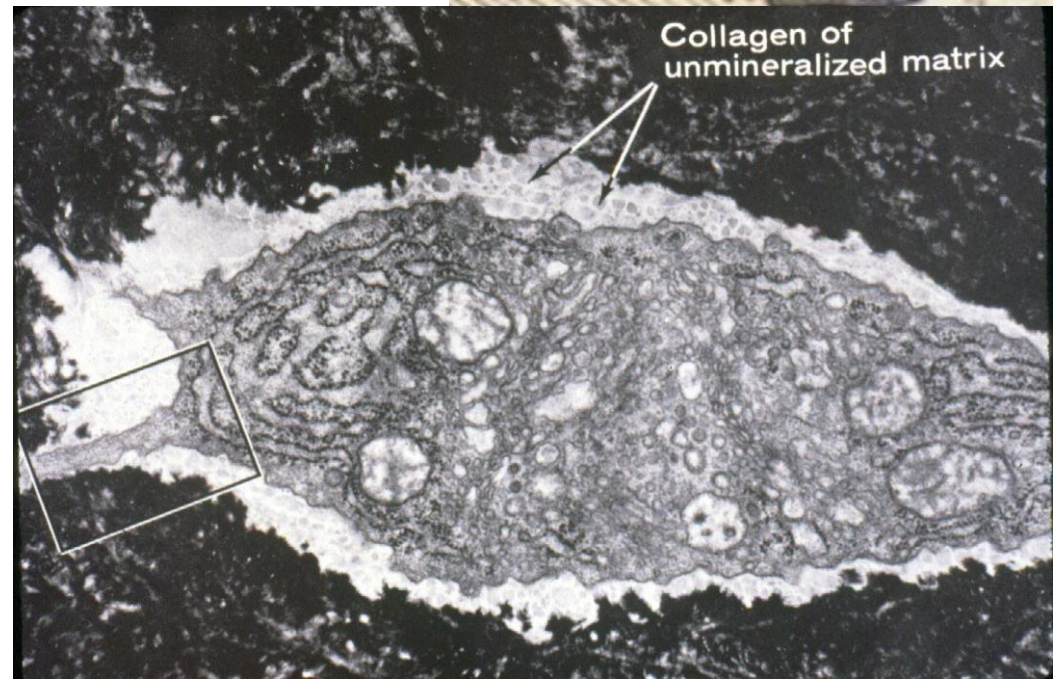
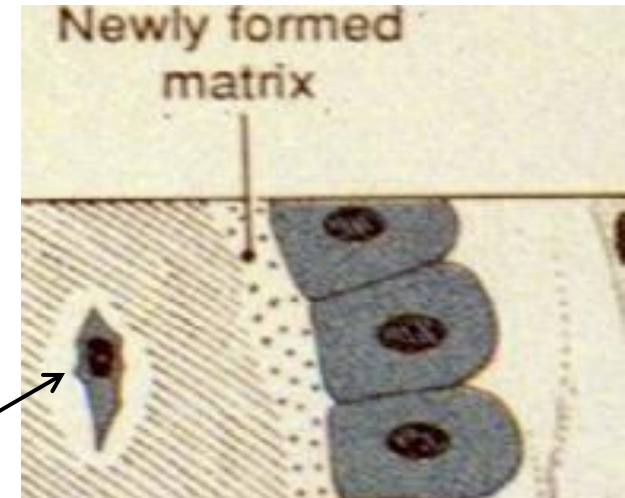
OSTEOCYTE =
OSTEOBLAST
TRAPPED IN
MATRIX OF
BONE



EXTRACELLULAR MATRIX OF BONE

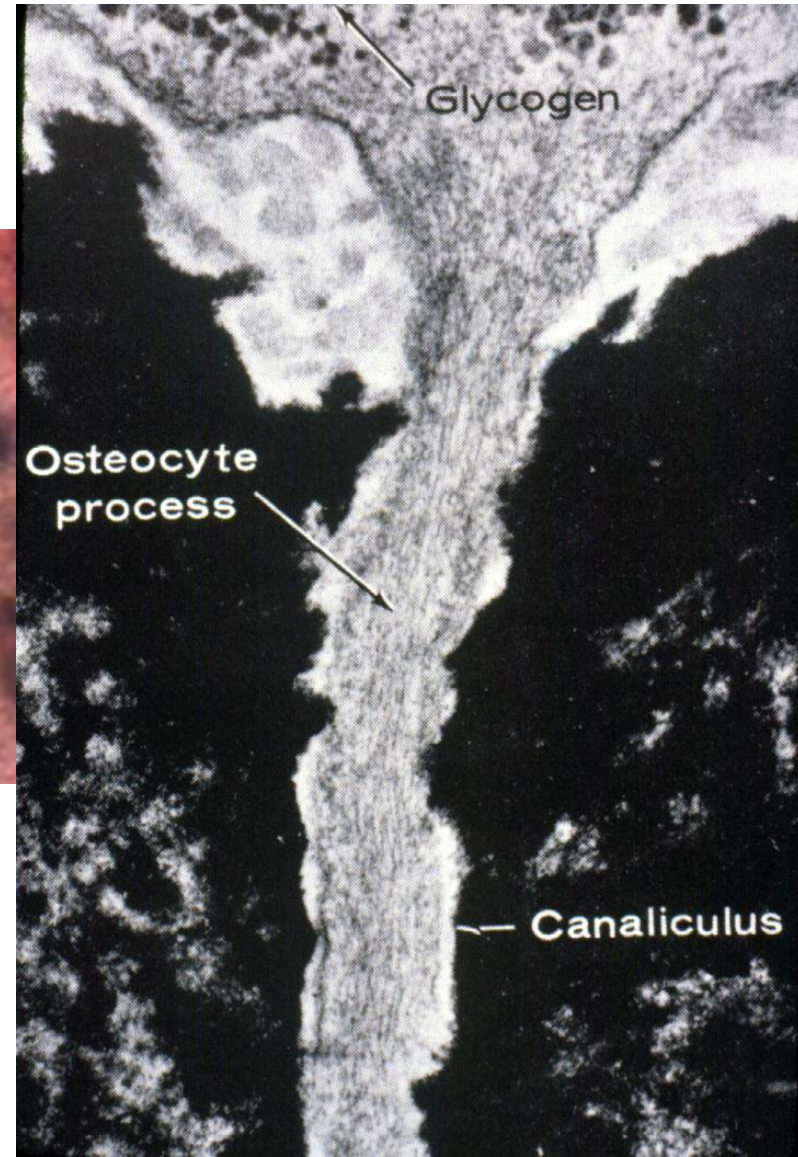
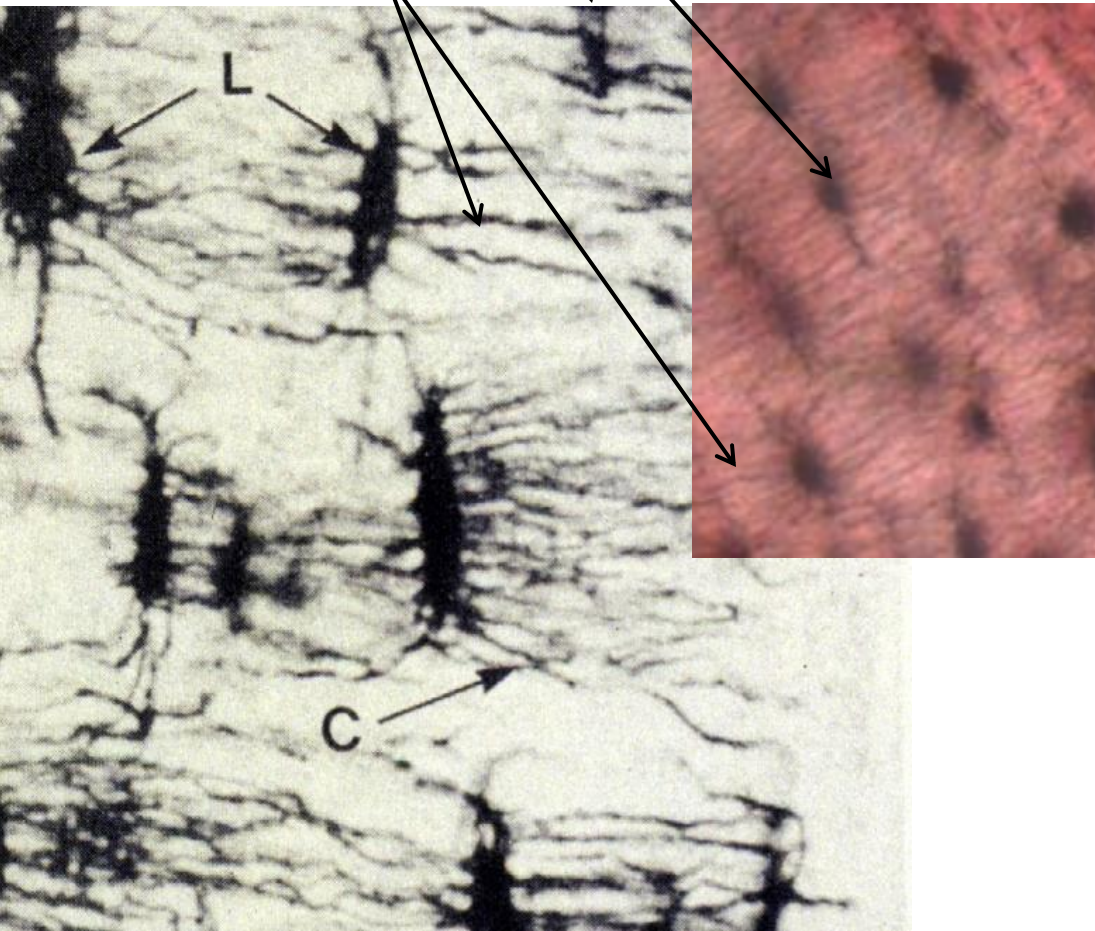
SECRETED by **POLARIZED**
OSTEOBLASTs

CALCIFICATION - ADDS
FIRMNESS, BUT
PREVENTS DIFFUSION
THROUGH MATRIX
MATERIAL



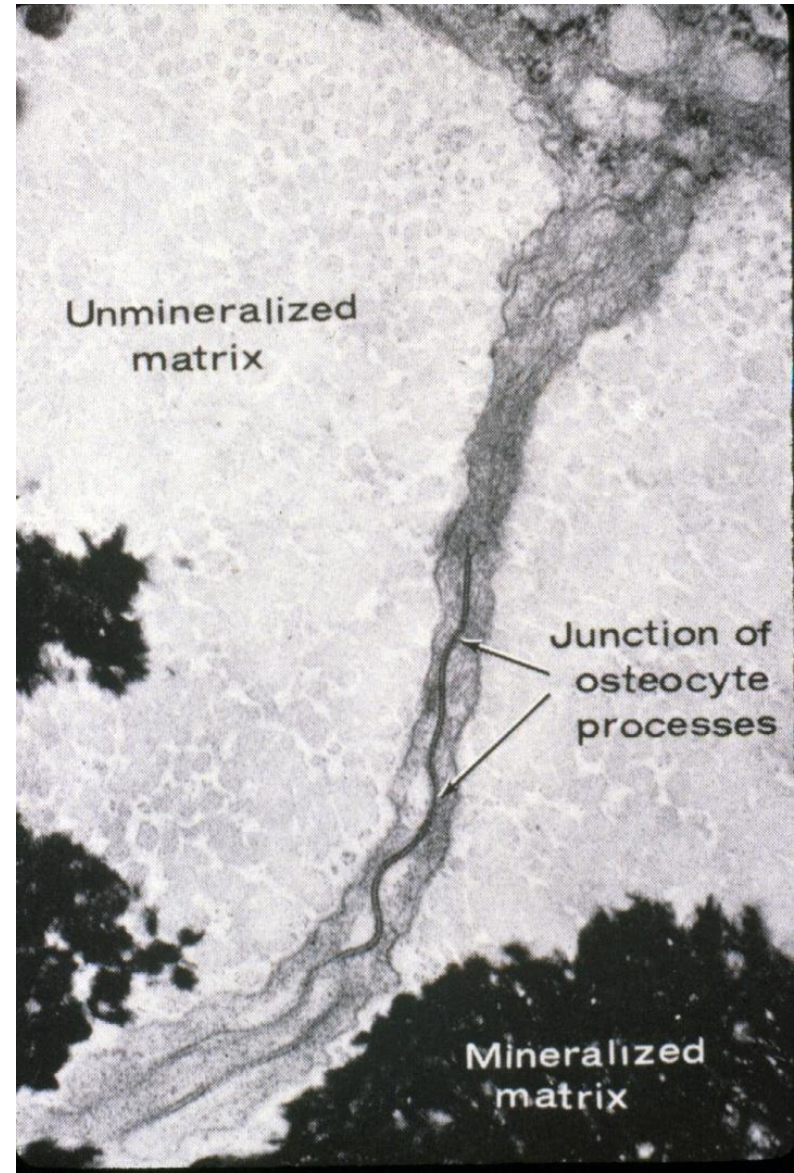
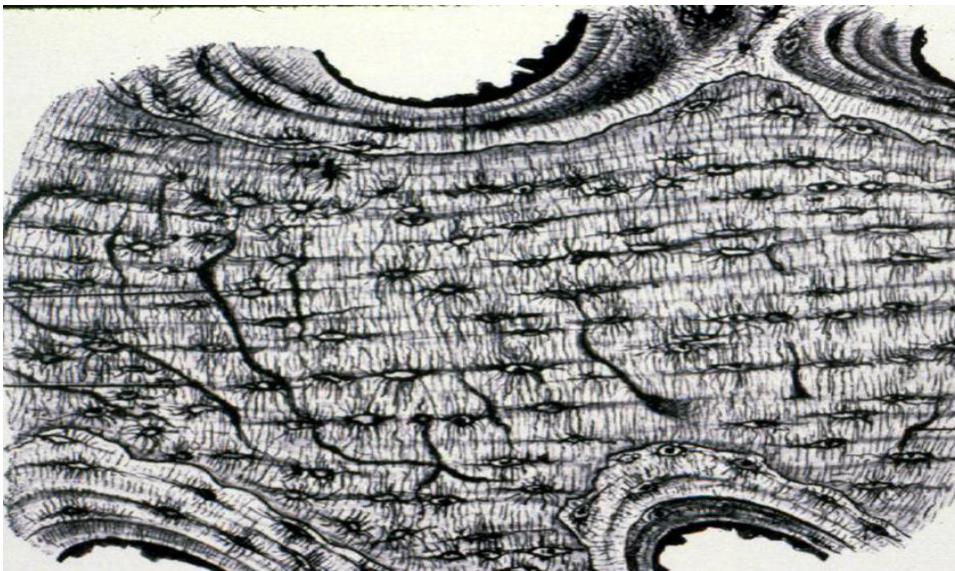
EXTRACELLULAR MATRIX OF BONE

FORMS **LACUNAE** AND
CANALICULI -

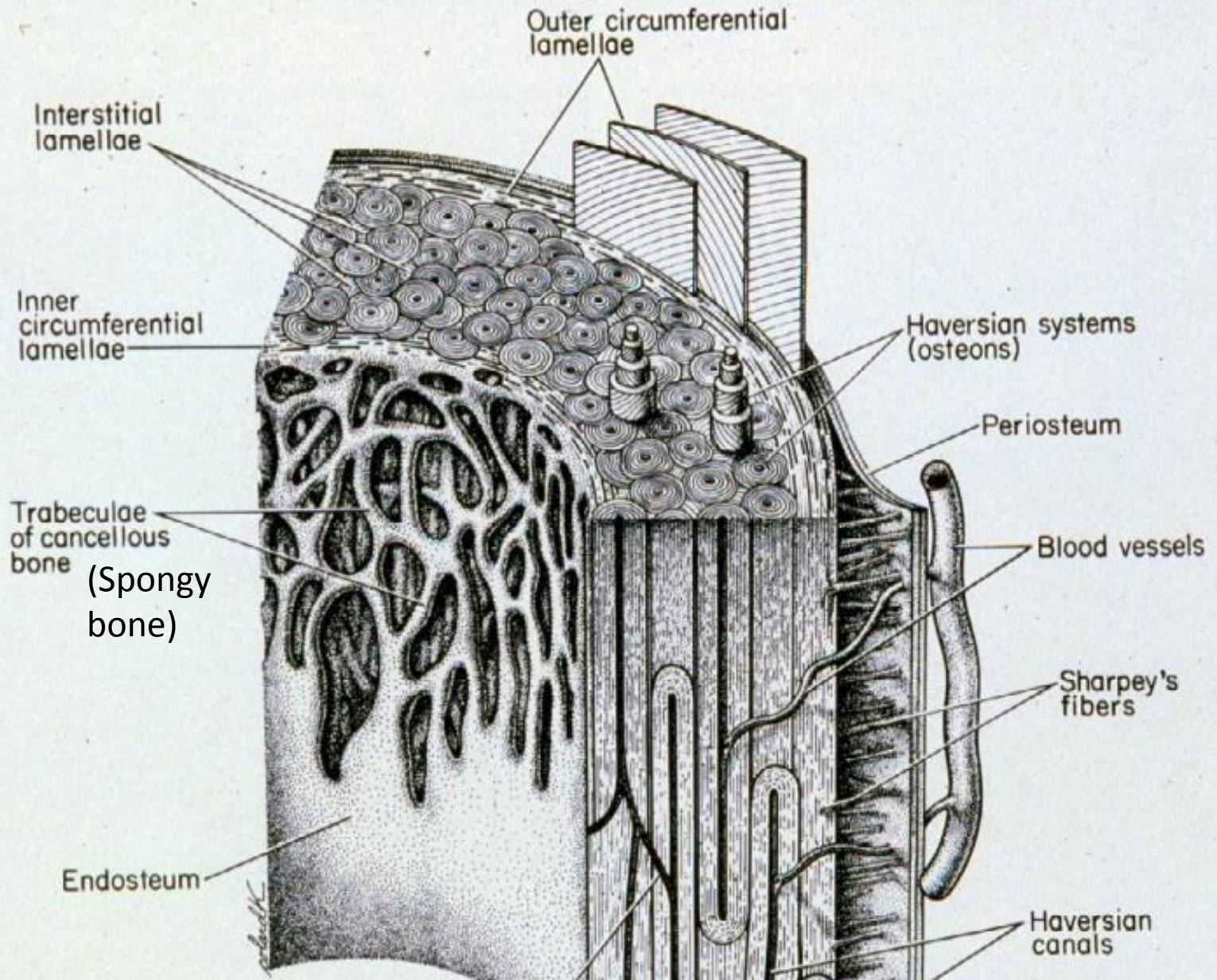
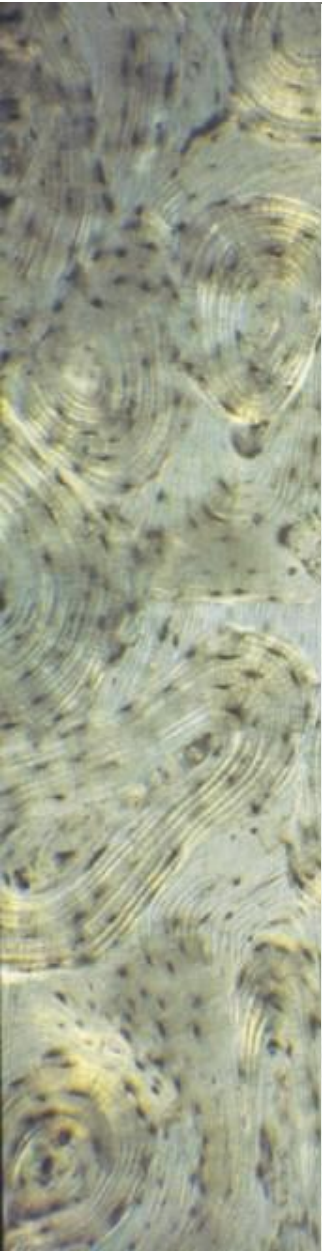


EXTRACELLULAR MATRIX OF BONE

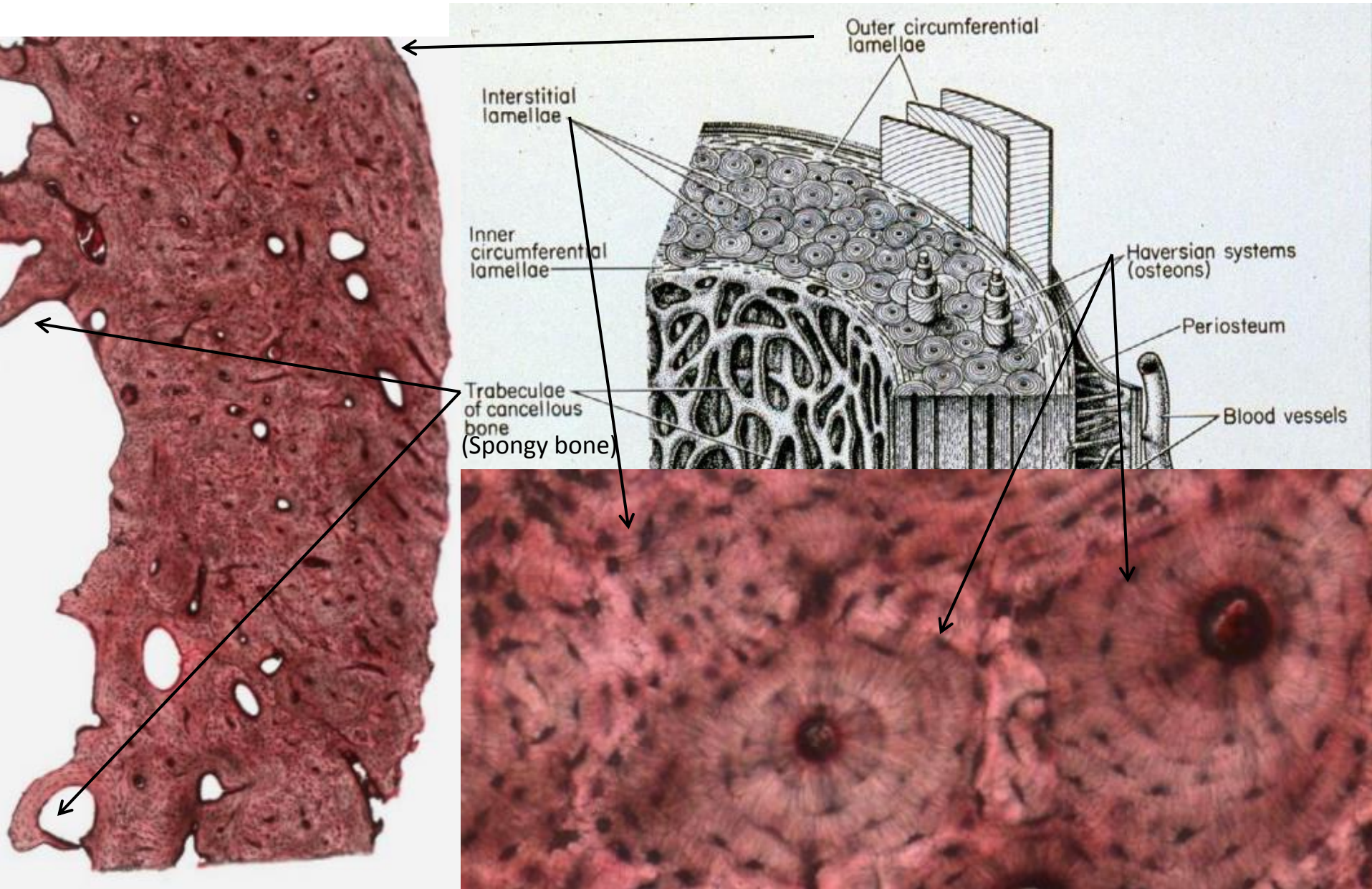
FORMS LACUNAE AND
CANALICULI - CAUSES THE NEED
FOR **NUTRIENTS** TO PAST
THROUGH THE MANY **GAP**
JUNCTIONS BETWEEN
OSTEOCYTES VIA CANALICULI



COMPACT BONE, REMODELING

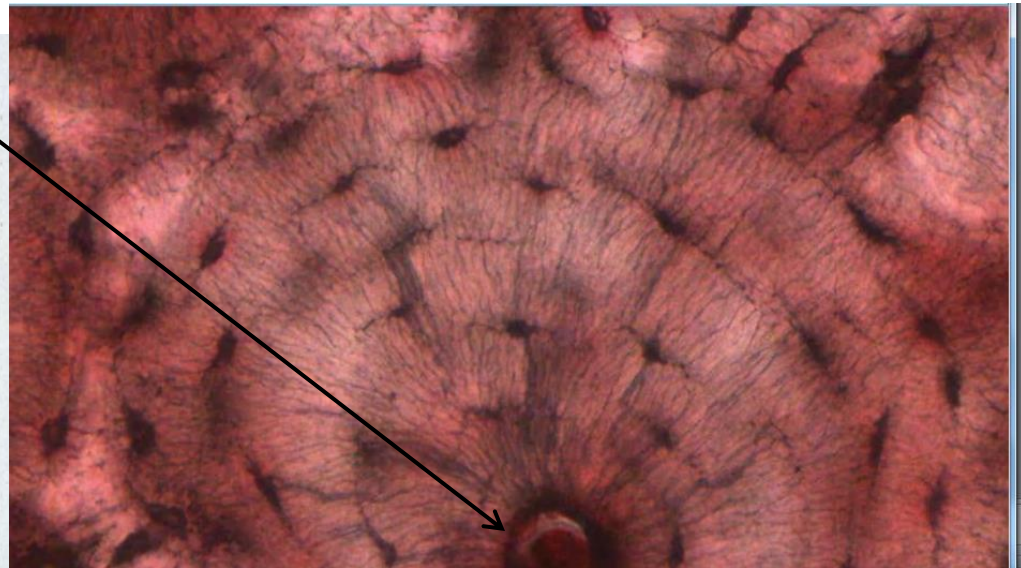
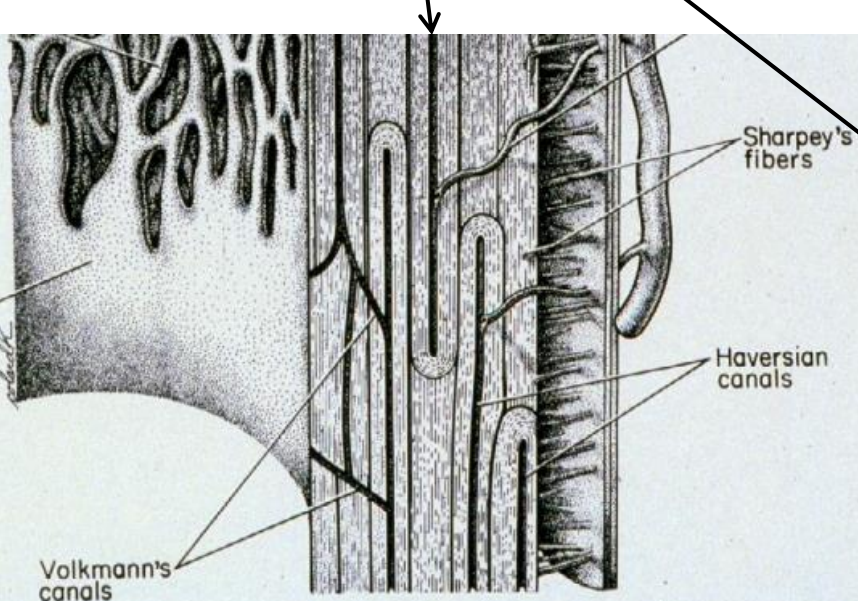
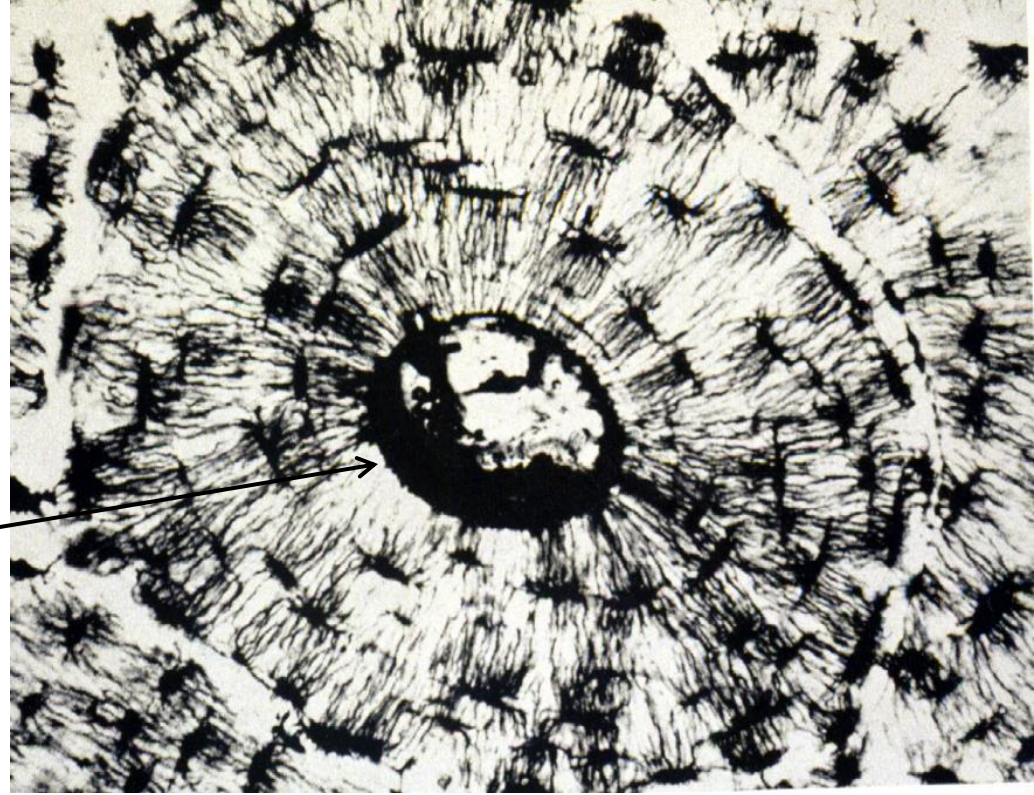


COMPACT BONE, REMODELING



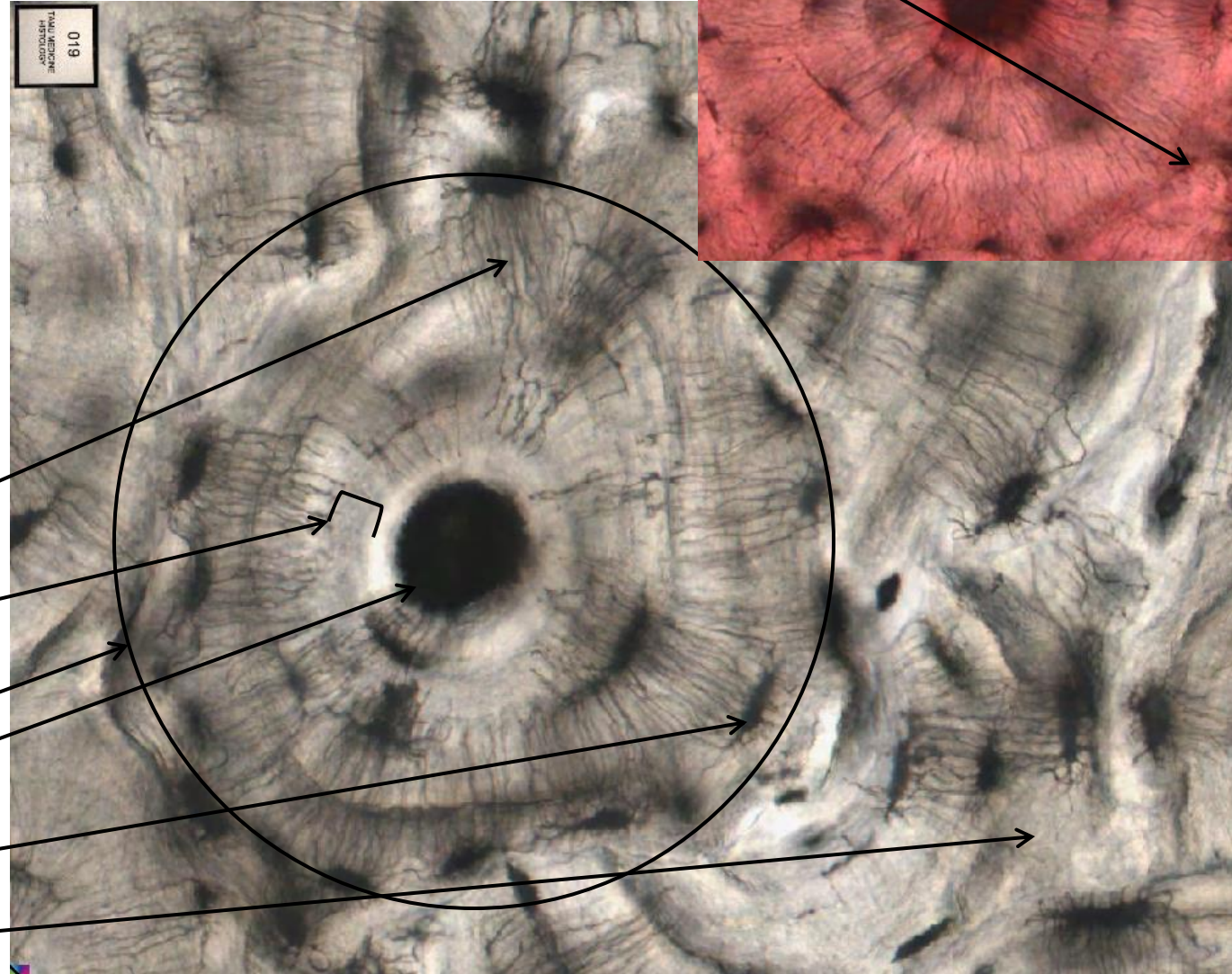
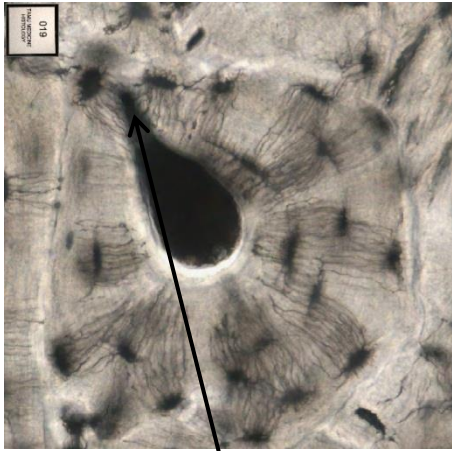
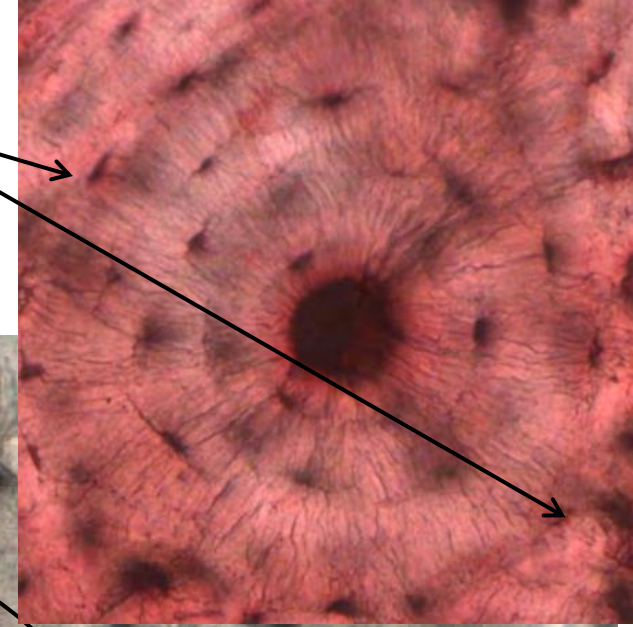
COMPACT BONE

HAVERSIAN SYSTEMS - LAMELLAE OF BONE AROUND HAVERSIAN CANAL



Compact bone (ground cross section)

Osteon or
Haversian systems



Volkman's canal

Canaliculi

Concentric lamellae

Osteon/ Haversian systems

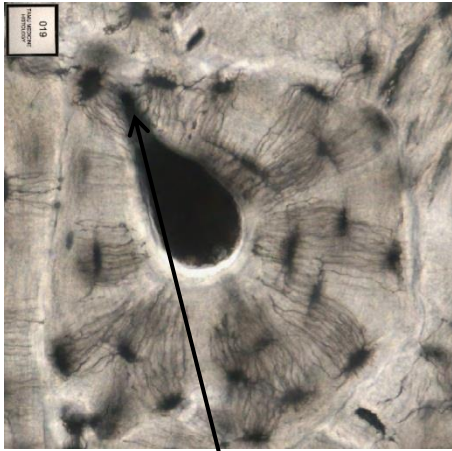
Haversian canal

Lacunae containing
osteocyte

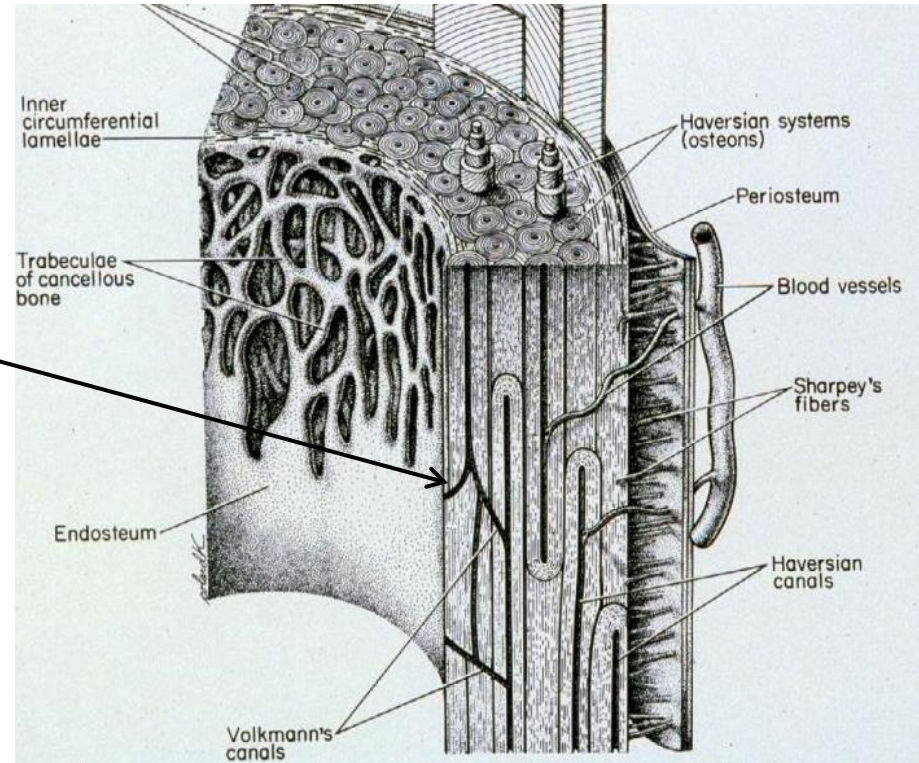
Interstitial lamellae

Compact bone (ground cross section)

Connecting adjacent osteons, perforating (Volkmann's) canals provide communication for osteons and another source of microvasculature for the central canals of osteons (nutrients, blood, etc.).



Volkmann's canal



Download actual images at

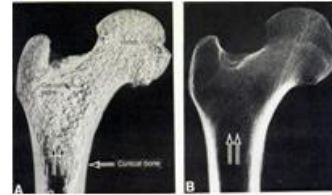
- Bone 36726 –

<http://viewer.serenusview.com/LinkHandler.axd?LinkId=bfeae008-4430-49a9-8deb-200690e3f484>



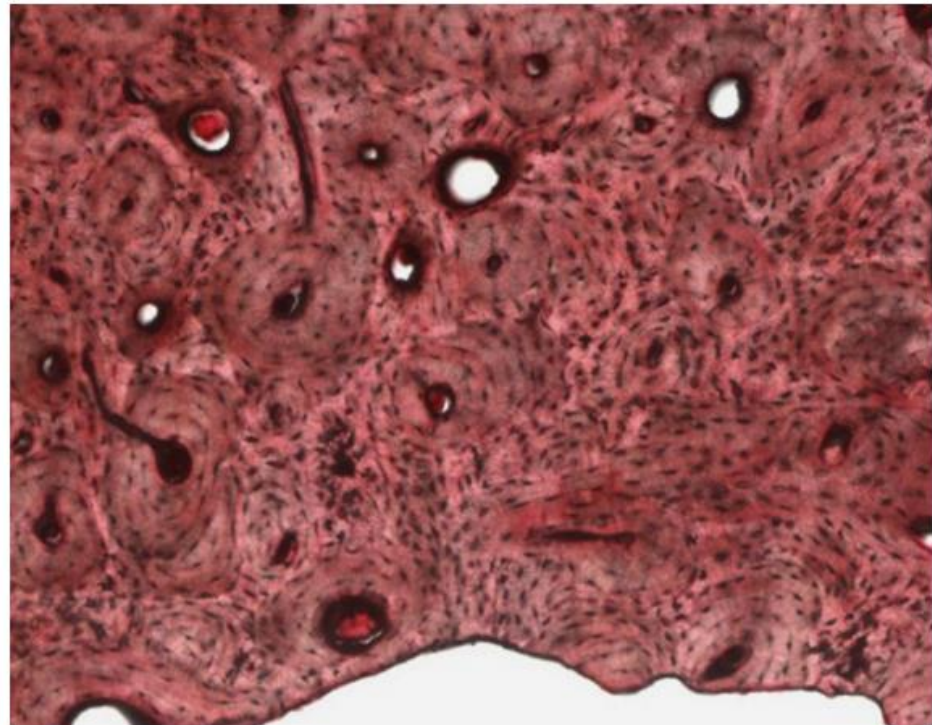
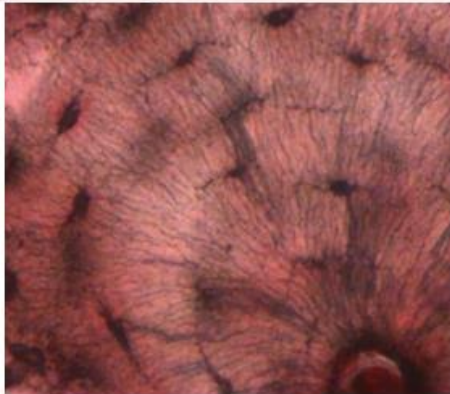
The End

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