SKELETAL SYSTEM INTRODUCTION

10/22/81, rvsd 19 Oct 99, 16 Oct 00, 21 Oct 02, 15 Oct 03, 18 Oct 04, 15 Oct 08, 14Oct09
fr. S&M p 109-, Martini's 5th: p183-192, Martini's 7th: 180-201 ,8th: 185-194

Skeleton has 206 individual bones> Bones are living structures, capable of growth, adaptation and repair.

Functions:	support	vertebral column
	movement/leverage	humerus to ulna
	protection	calvarium of skull
	mineral reservoir	Calcium storage
	hematopoiesis	Red marrow creates blood

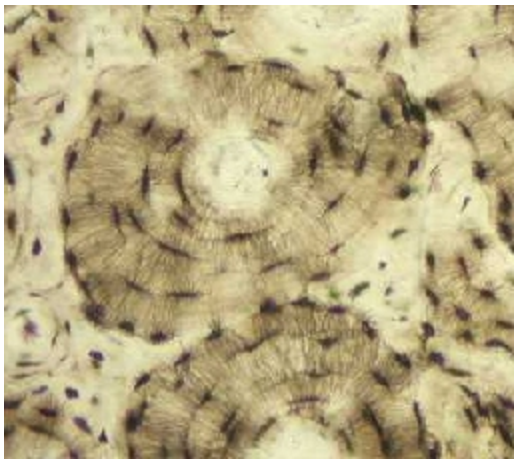
Types of bones: (p 186)	long	humerus
	short	carpals of wrist
	flat	parietal of skull
	irregular	vertebra

Bone anatomy: pages 188 (poor)

diaphysis (to grow between):	shaft
epiphysis (to grow upon):	ends
compact bone	outer portion, very strong
periosteum	dense irregular C.T., capsule-like
medullary cavity	hollow center, filled with yellow marrow
yellow bone marrow	fat storage
endosteum	connective tissue lines compact bone
spongy, **cancellous** (cancel: lattice)	bone filled with red marrow for hematopoiesis
epiphyseal cartilage or line	site of secondary ossification (elongation)
diploe (double in Gk)	cancellous bone

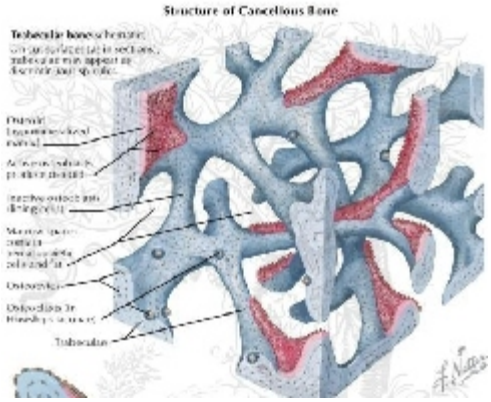
Microscopic anatomy: page 191, 192

Haversian system	Unit of structure
Haversian canal	central canal, carries blood vessel
lamellae	concentric rings of bone around central canal
lacunae	chambers in which osteocytes reside, define lamellae
osteocyte	bone cell
canaliculi	osteocyte protoplasmic extensions, maintain bone



Blood reaches by **Volkmann's canals** from periosteum or marrow.

Cancellous bone is not in concentric rings, rather **in line of stress**. (Page 188)



Composition:

Cells:	osteocytes
Matrix:	
Fibers:	collagen fibers,
ground substance:	hydroxyapatite: $3Ca_3 (P0_4)_2 \cdot Ca(OH)_2$

Similar in strength to reinforced concrete: strong not brittle