

Bay Area Primates

SF Zoo

- Black and white ruffed lemur
- Ring tailed lemur
- Red ruffed lemur
- Black Lemur
- Lion Tailed Macaque
- Squirrel Monkey
- Black Howler Monkey
- Colobus Monkey
- Emperor Tamarin
- Pied Tamarin
- Francois Langur
- Patas Monkey
- Siamang
- Chimpanzee
- Western Lowland Gorilla

Oakland Zoo

- Ring tailed lemur
- Blue eyed lemur
- Cotton top tamarin
- Hamadryas Baboon
- Squirrel Monkey
- Vervet Monkey
- Siamang
- Chimpanzee
- White handed gibbon

Happy Hollow

- Black and White Ruffed Lemur
- Ring Tailed Lemur
- Red ruffed Lemur
- Capuchin Monkey
- Squirrel Monkey

Questions from last class?

- What new grade of primate appears in the Miocene?
- What characteristics do these animals show?
 - Where are they found?
 - Are they related to any extant species?
 - What are their diagnostic morphologies?

Who are the apes?

- What characteristics and trends define the apes?
- When were apes most common
- How many genera of apes are found today?
- How are they classified?

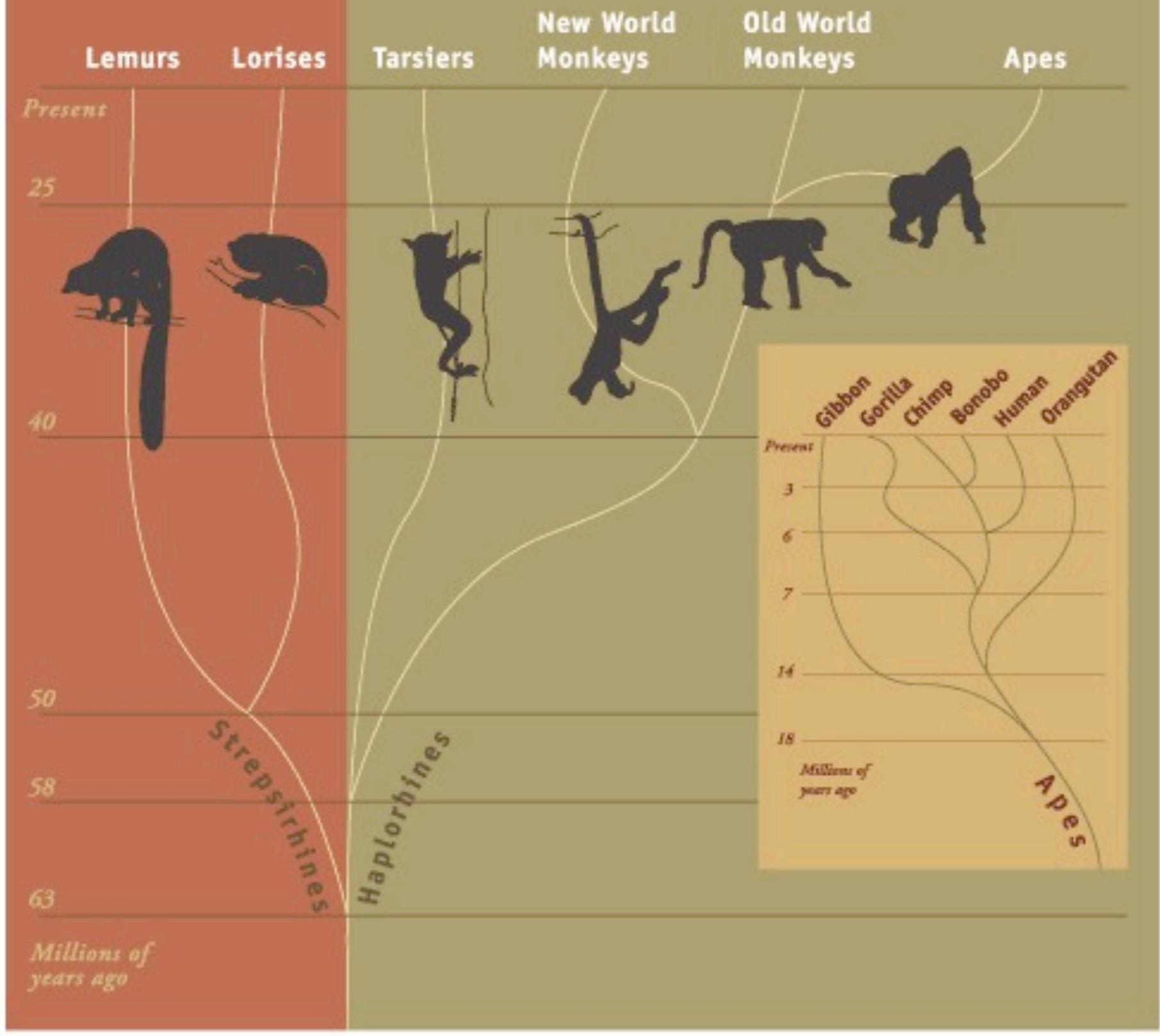
Ape Taxonomy

- Can you draw a tree of the living apes? Which are most closely related to which?
- What is the taxonomic problem with putting chimps in the Pongidae and humans in the Hominidae?
- What is a better classification?

Apes

- Which apes are the lesser apes? What is their family designation? What are their characteristics?
- Which apes are the great apes? What is or are their family designation(s)? What are their characteristics?
- What are the 3 genera of living great ape? How are they related to each other? What differences do they show?

THE PRIMATE FAMILY TREE



Human



Humans

Suborder	Haplorhini
Infraorder	Catarrhini
Superfamily	Hominoidea
Family	Hominidae
Subfamily	Homininae
Genus	<i>Homo</i>
Species	<i>sapiens</i>

Homininae

- Homininae (subfamily)
 - Start to see some hominine traits in the latest Miocene - clear in the Pliocene
- What makes a hominin?
 - Bipedality and big brains
 - Bipedality comes first

Hominin Characteristics

- Cranial characteristics
 - Forwardly placed foramen magnum
 - Forwardly placed temporal origins
 - Canines small and incisiform
 - Mastoid process
 - Parabolic dental arcade



Forward placed foramen magnum

Wide flaring iliac blade; os coxae broad and short

Angled femur, center of gravity medial and forward, distal end indicates "knee locking"

Hallux (big toe) relatively nonabductable

Foot double-arched

Phalanges of toes 2-5 shortened

(a) Bipedal anatomy

Canines are relatively small and shaped like incisors

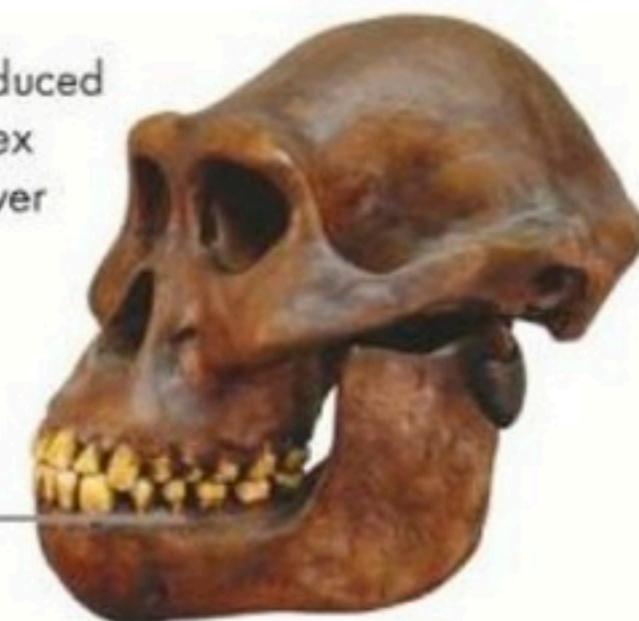
Sectorial premolar

Thick enamel on molars



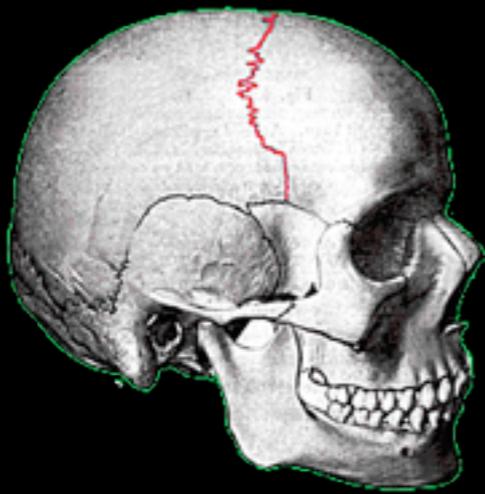
(b) Mandible

Dramatically reduced shearing complex between the lower premolar and upper canine



(c) Jaws

Cranial features



Mastoid process



Foramen Magnum position

Dental Characteristics



Comparison of Chimp (left), *A. afarensis* (middle), and human (right)

Parabolic
dental arcade
and canine
size



Johanson and Edgar, 1996: 123.

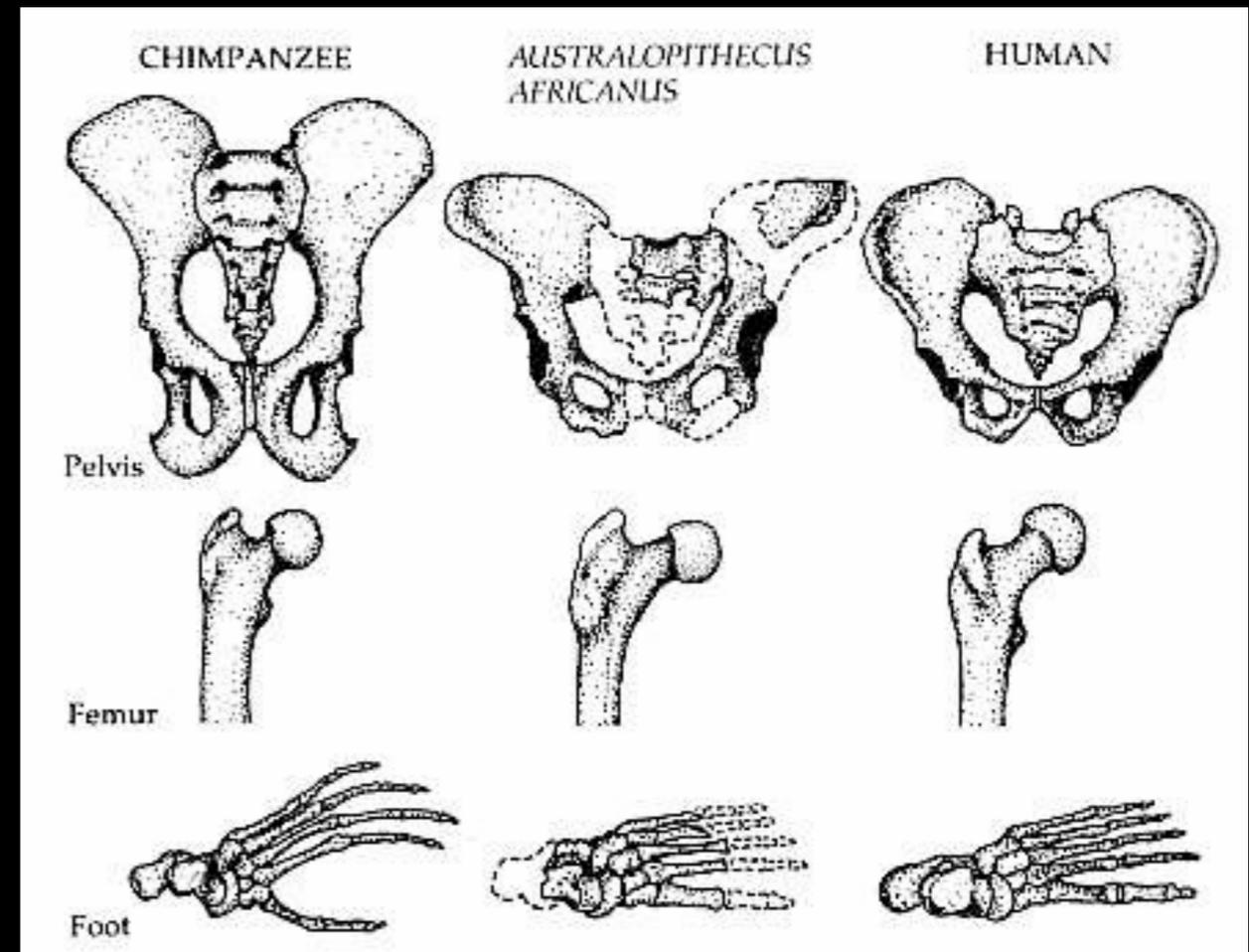
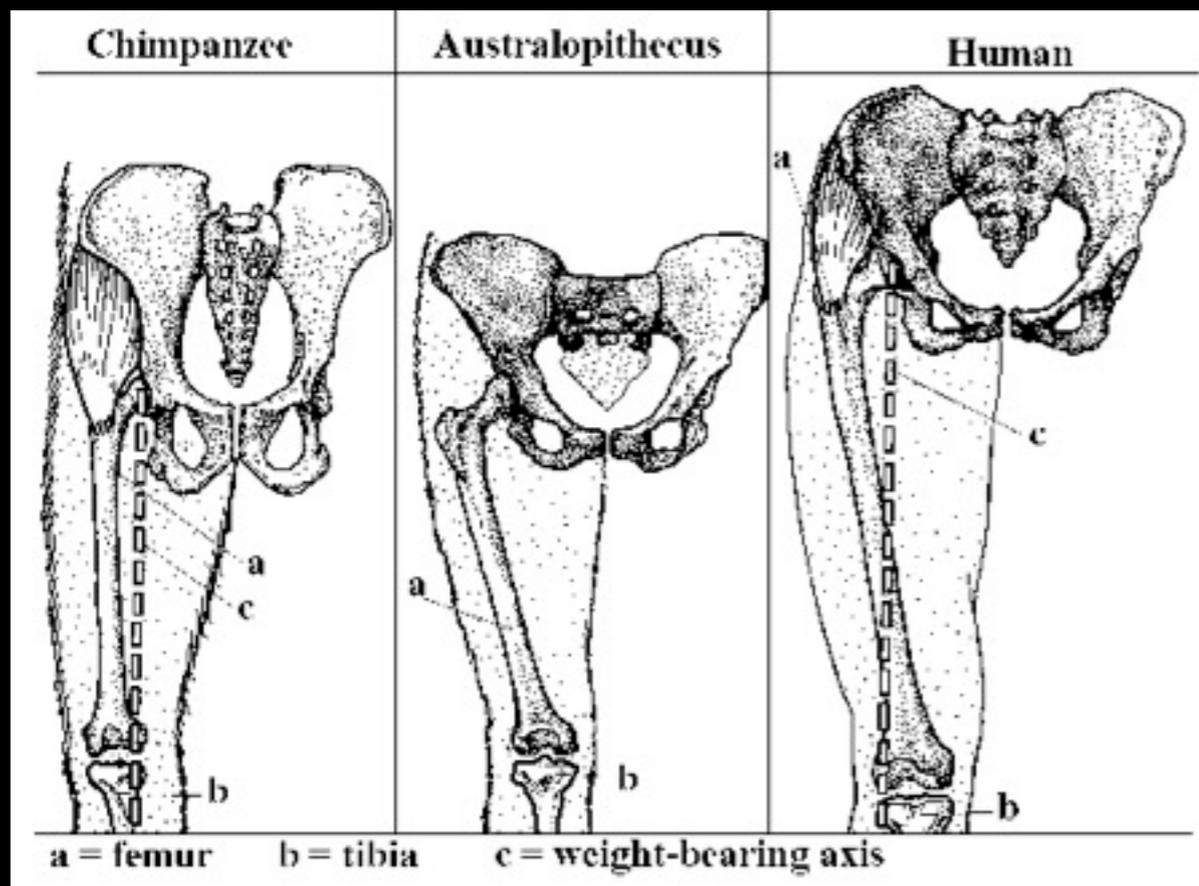
Non-sectorial premolar

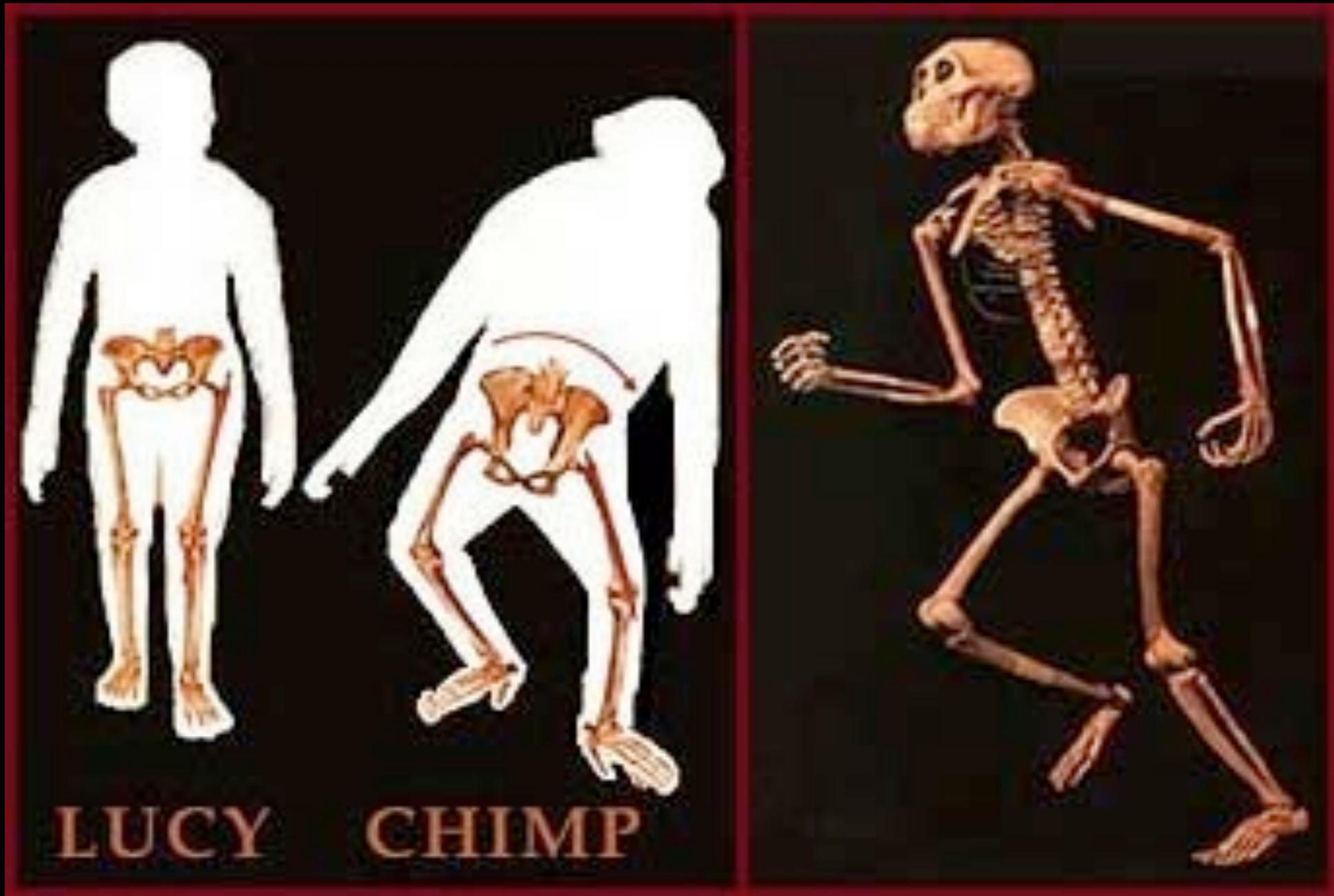


Hominin Characteristics

- POST-CRANIAL
 - Bipedal anatomy
 - pelvic girdle
 - lower limbs
 - upper arm
 - vertebral column

Lower limb adaptations





Thorax and Back

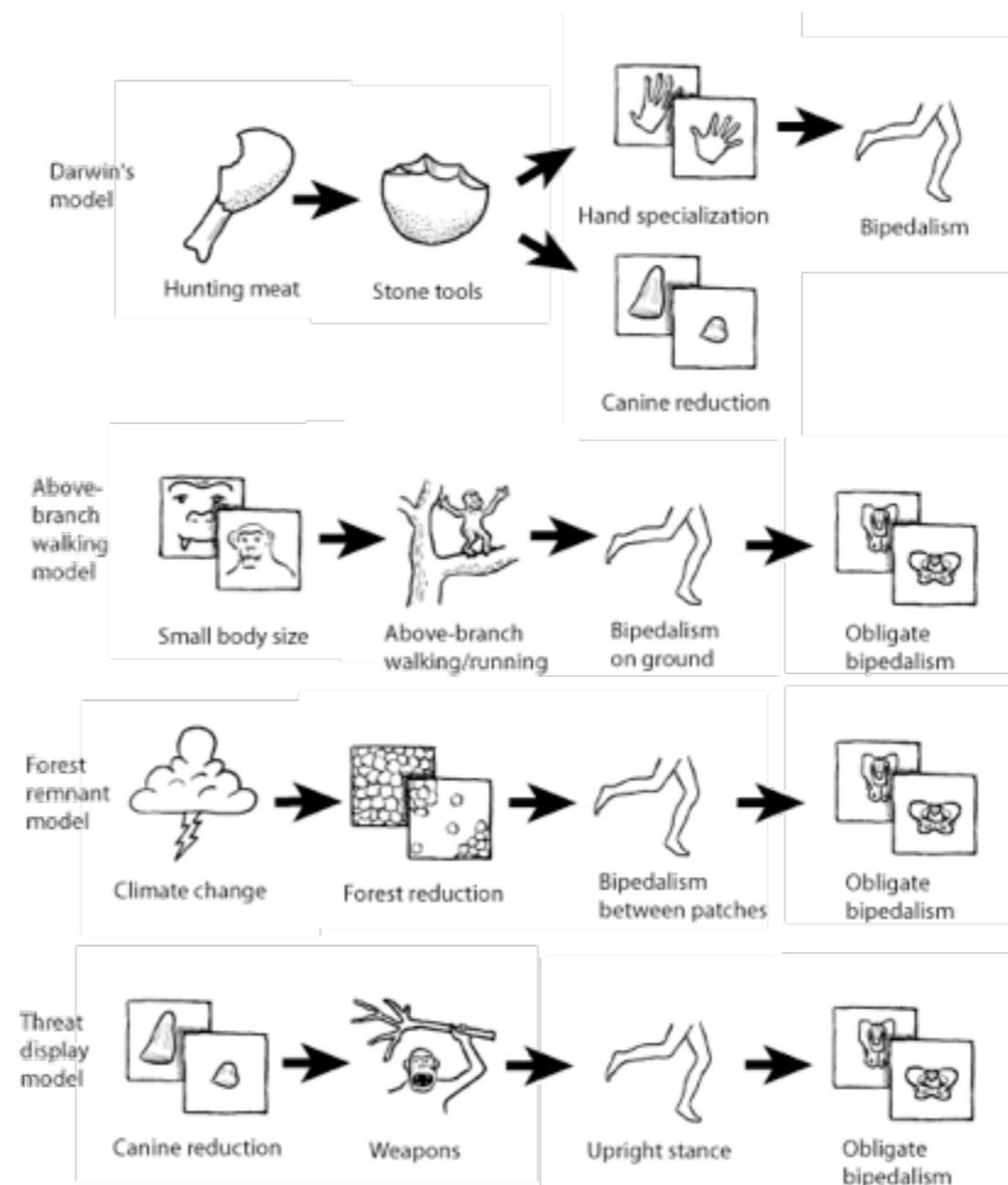


Ambam

- http://www.youtube.com/user/KentAnimalPark#p/u/0/kva_HIMk498



Why Bipedalism?



Theories

- Carrying



- Hunting



- Upright Reaching



- Visual Surveillance

- Sexual display



- Long distance walking



- Male provisioning



- Thermoregulation

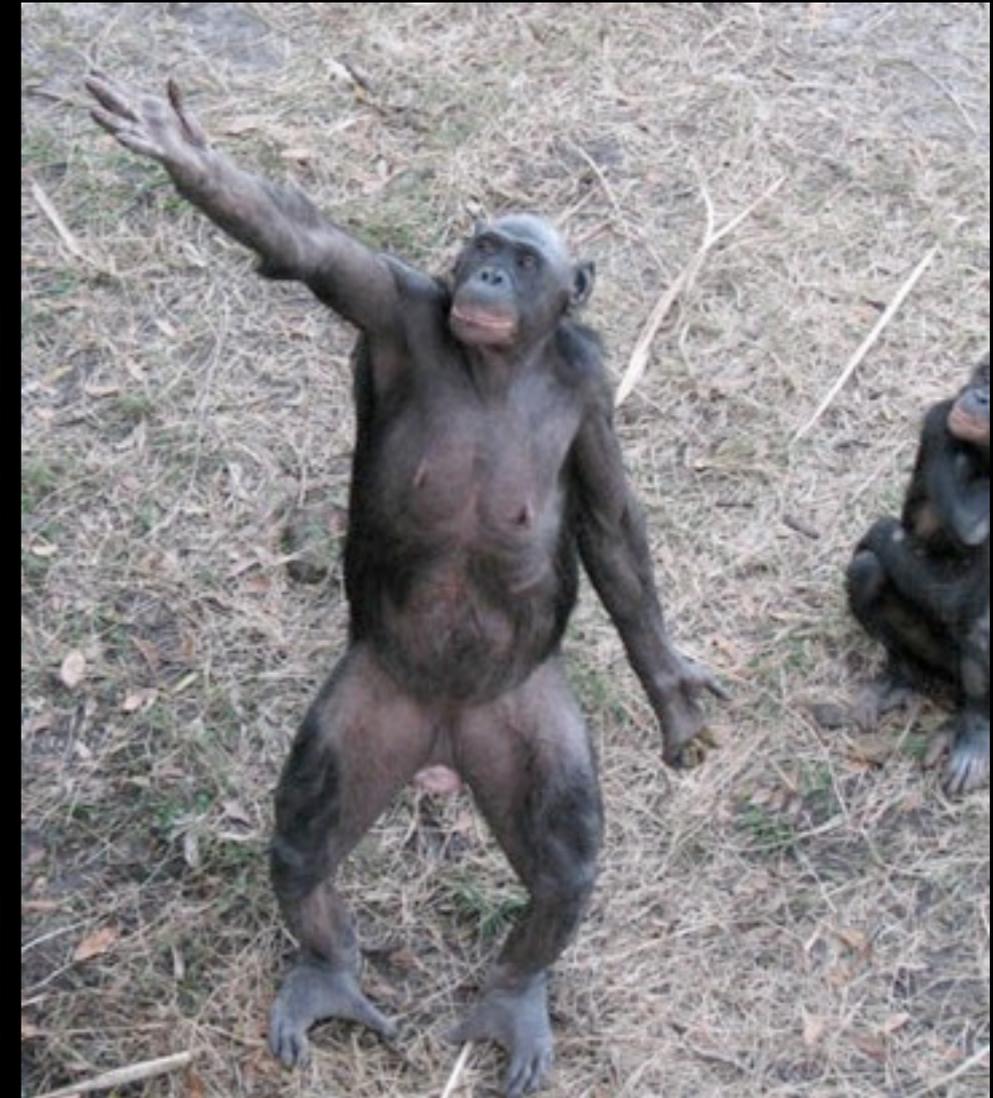
- Aquatic ape



Carrying



Upright reaching



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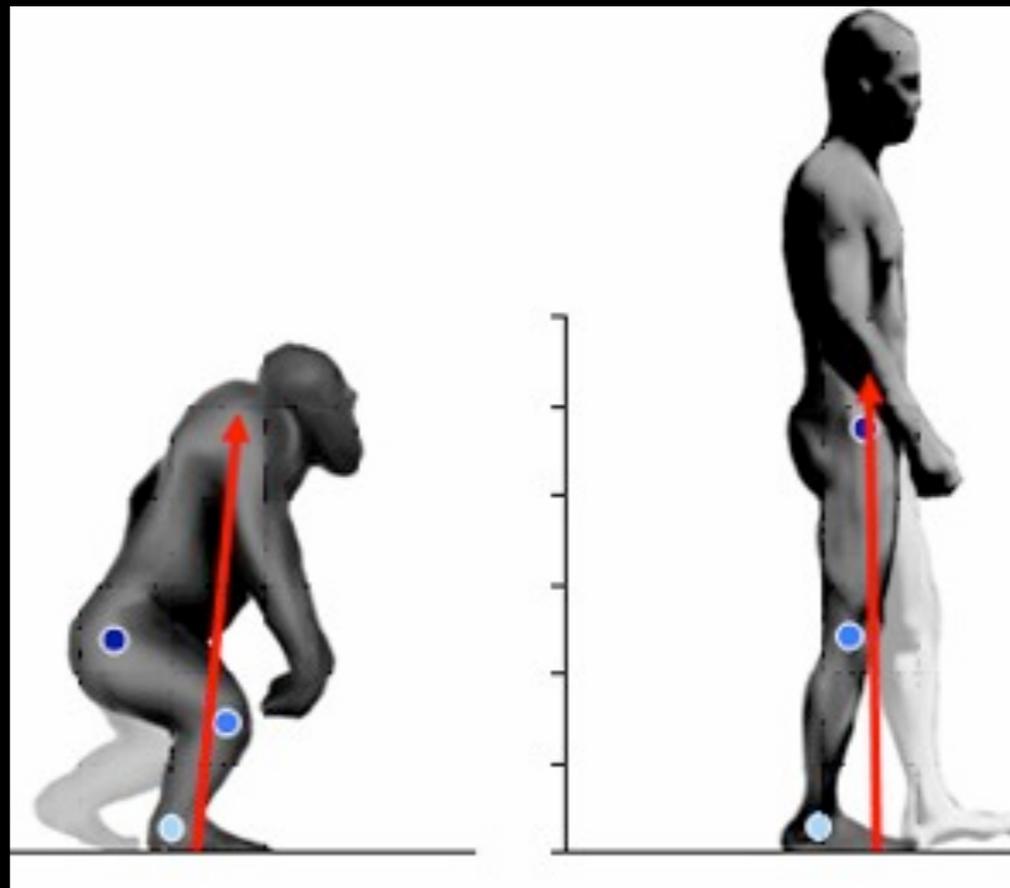
Visual surveillance



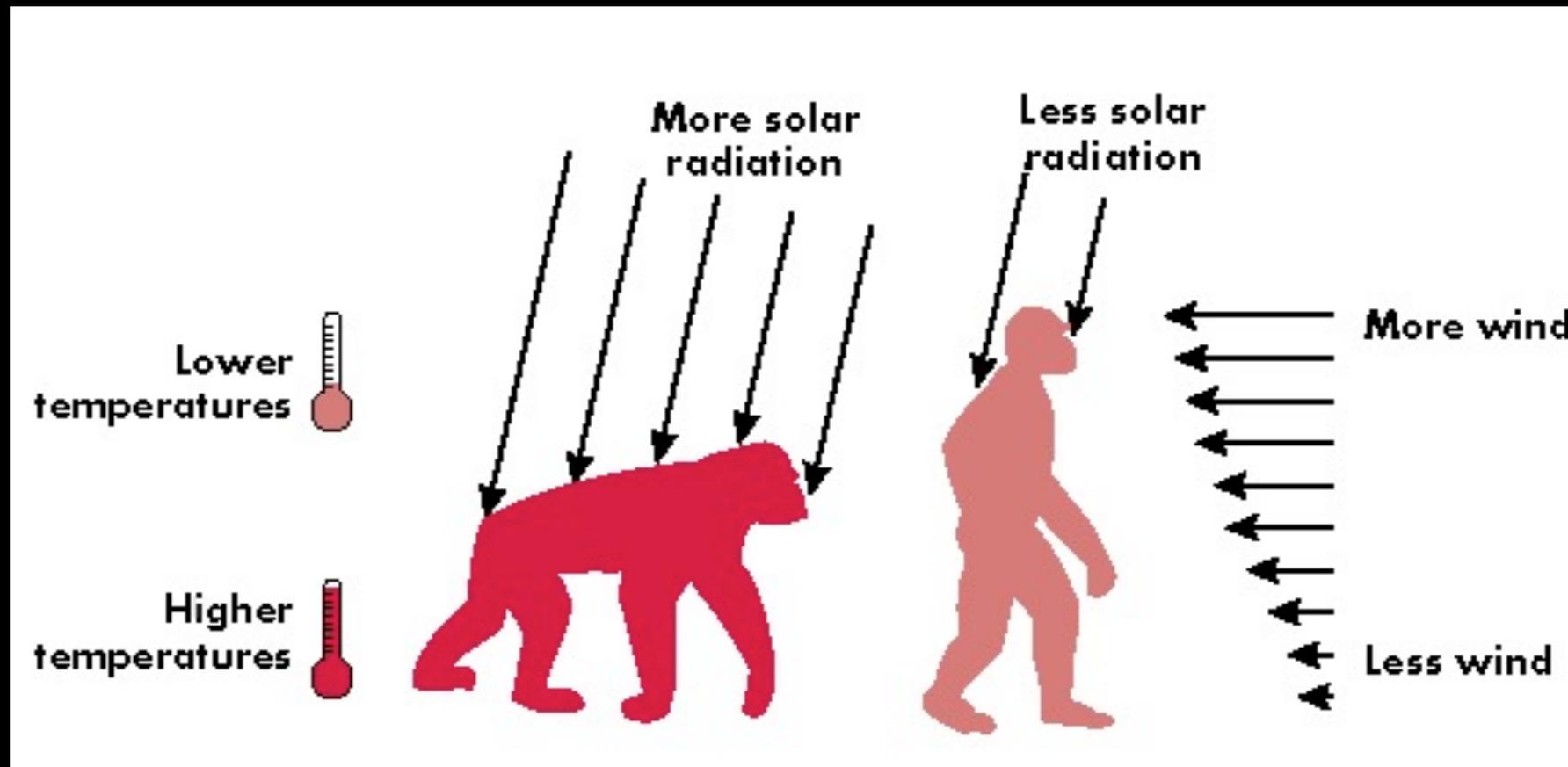
Sexual Selection?



Efficiency of long-distance walking



Thermoregulation



Aquatic ape

