

Last class

- What are all the species in the Australopithecines?
- Which are robust? Which are gracile? What are the differences between robust and gracile?
- When do they occur in time? Space?
- How did they live? What did they eat? Where did they live?
- What are the possible phylogenies of the Pliocene hominids?

A. sediba



http://www.wired.com/wiredscience/2011/04/australopithecus-fossils-human-evolution/?utm_source=feedburner&utm_medium=feed&utm_campaign=Feed%3A+wiredscience+%28Blog+-+Wired+Science%29

Last time...

- What defines the genus *Homo*?
- When does *Homo* first appear? Where?
- How do we identify these fossils as *Homo* rather than *Australopithecus*?
- How are *Homo habilis* different from the other hominids they are contemporaneous with?

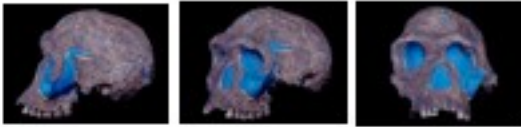
Homo habilis

- Where and when is *Homo habilis* found?
- What are its defining characteristics?
- Why is it considered *Homo* rather than *Australopithecus*?
- How is it similar and dissimilar from *Australopithecus sediba*?
- How is it similar and dissimilar from *Homo rudolfensis*?

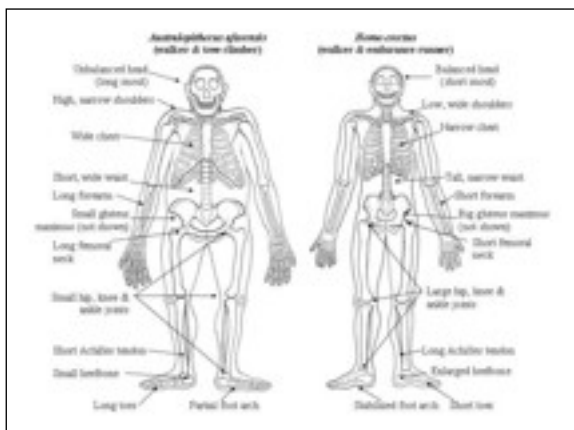
Defining *Homo*

- Rasmussen: Primate genus containing species of relatively small-toothed, big-brained, stone-tool-making hominids
- Walker: relatively large brain cases, completely modern limb proportions, and relatively small teeth
- Wolpoff: expanded cranial capacity, reduced canine size, precision grip

Homo habilis



Australopithecus v. *Homo habilis*



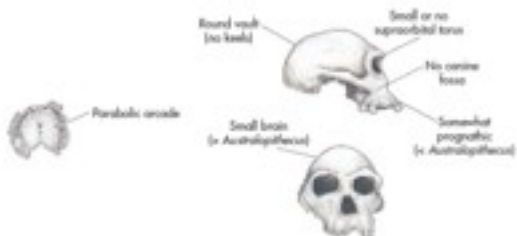
Homo

- brain size greater than 500 cc
- smaller, less prognathic face
- smaller teeth than the australopithecines
- more efficient bipedalism

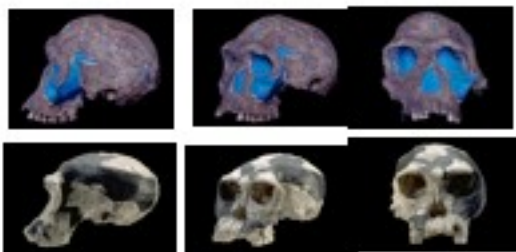
Homo species

- *Homo habilis*
- *Homo rudolfensis*
- *Homo georgicus*
- *Homo ergaster*
- *Homo erectus*
- *Homo floresiensis*
- *Homo heidelbergensis*
- *Homo rhodesiensis*
- *Homo antecessor*
- *Homo neandertalensis*
- *Homo sapiens*

Homo habilis



Homo habilis



Homo rudolfensis



Homo rudolfensis

- *Homo habilis* or something different?
- *A. rudolfensis*?
- larger body than *H. habilis*
- larger brain than *H. habilis*
 - but smaller EQ
- bigger teeth than *H. habilis*

Why *Homo*?

- What is the adaptive pattern of early *Homo*?
- Why were big brains and small teeth suddenly and strongly selected for?

Savanna-Woodland





Olduwan Chopper



How to make an Olduwan Chopper



Kanzi



- <http://www.youtube.com/watch?v=1z5SH9LUQzQ>

Olduwan tools



Homo erectus

- an extinct species of relative large African and Eurasian hominids characterized by a modern post-cranium, slightly projecting face, pronounced superorbital torus, and medium sized brain (by hominid standards)

22

Homo erectus

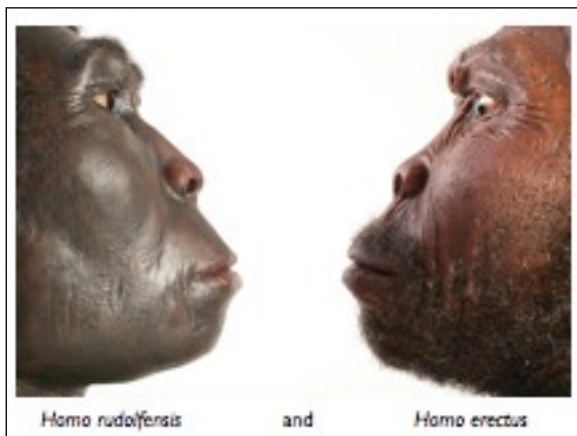
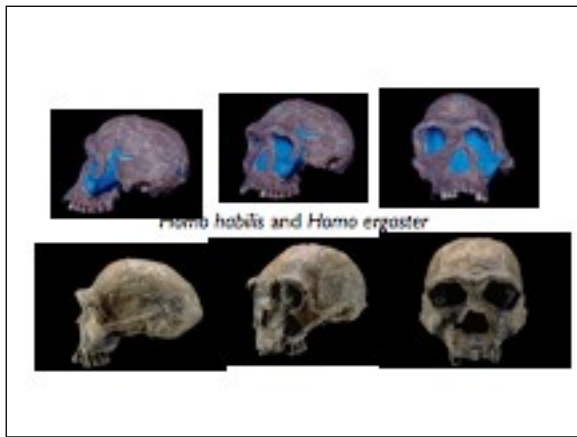
- sagittal keel
- long, low skull
- nuchal torus
- supraorbital torus
- broad, flat nasal bones
- large mandibles, no chin
- shovel-shaped incisors



23

Homo ergaster (erectus)





OH 9 - African *Homo erectus*
1.8-8 mya



28

Homo erectus



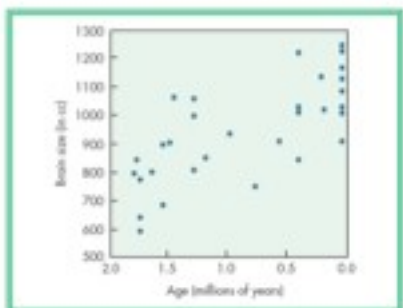
29

Changing adaptive pattern

- Expanding brain size
- Expanding home range
- Changing diet
- Changing metabolism
- Extended life span
- Changing social behavior?

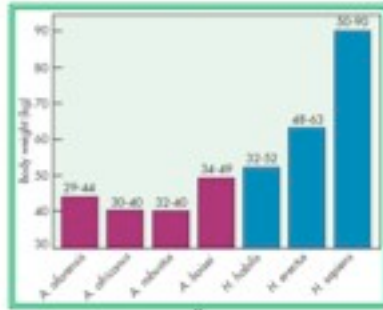
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Brain size over time

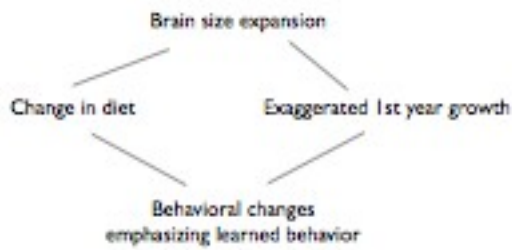


31

Body size



Feedback loop



Homo erectus lifeways

- tool technologies that reflect advanced cognitive skills
- Dietary shift to a more heavily meat-based diet than its predecessors



Leave Africa?

- Predation?
- Technology?
- Migrating herds?
- Anatomical changes?

27

Dmanisi - *H. georgicus*

1.6-1.2 mya



28

Dmanisi vs *A. sediba*



29

Javan *Homo erectus*
1.6-1.2 mya



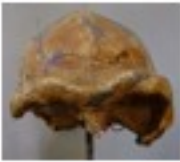
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Sangiran



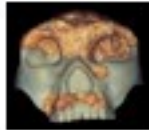
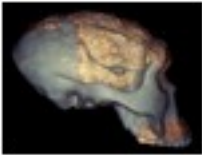
41

Chinese Homo erectus
1.0-3 mya



42

Lantian H. erectus
1.0 - 0.7 mya



43

How do you interpret the evolutionary record?

