

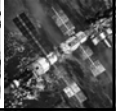
The Dawn of Man

## Human Evolution

- We are primates, great apes
- Primate lineage
- Divergence of the other great apes and humans
- Evolution of *Homo sapiens*

## Humans are primates, but with some unique traits:

- Bipedal, with non-prehensile feet
- Tool dependence
- Big brains relative to body mass
- Language
- Resource manipulation
- Ubiquity



## Primates – arboreal mammals

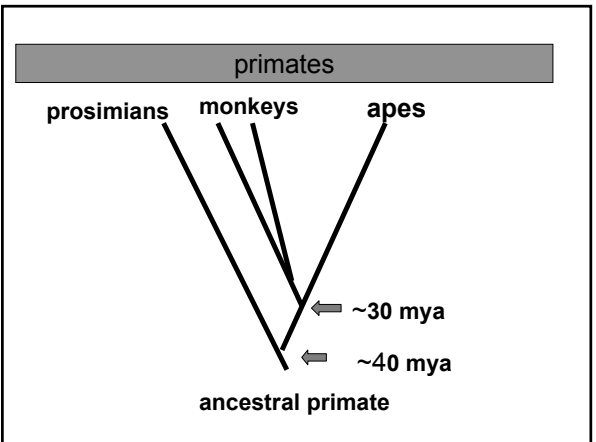
### Traits for arboreal life:

- climbing ability
- binocular vision (depth perception)
- hands and feet for grasping

Lack of dietary specialization

Large and complex brain

Tend to live in social groups



In comparison to prosimians, monkeys have

larger brains  
increased visual acuity  
color vision

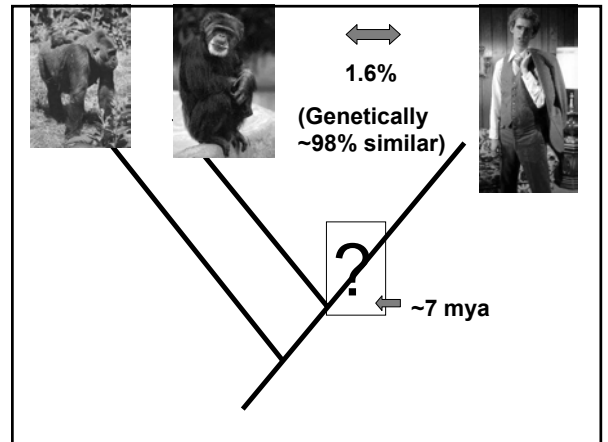
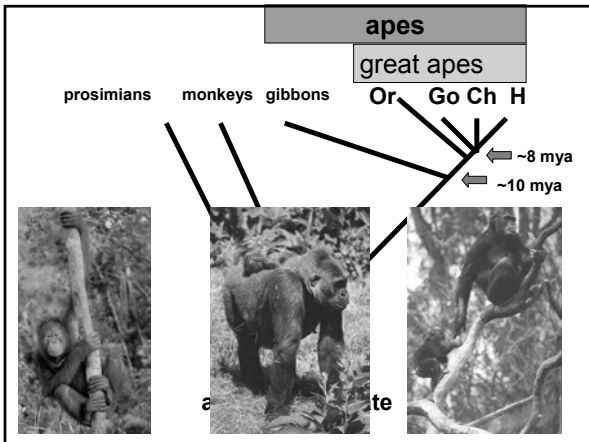
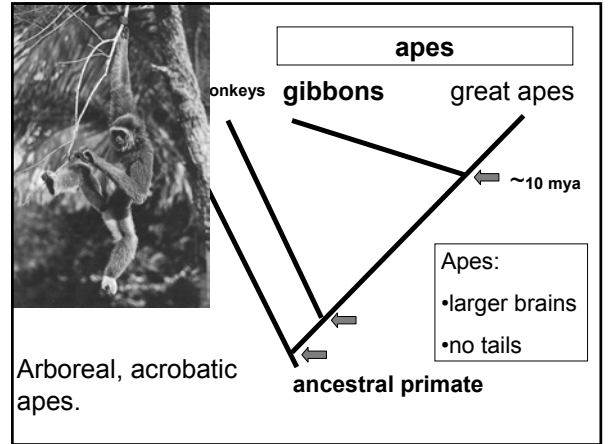


Lunch. New evidence suggests that primates evolved full color vision to detect tender red leaves rich in protein, munched on here by a black-and-white colobus.



### Old World Monkeys

tail – not prehensile



### How are humans different from apes?

- bipedal
- little sexual dimorphism
- thick enamel on teeth
- humans are only hand graspers

### How are humans similar to apes?



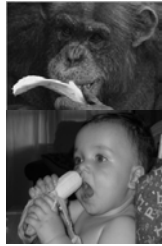
Tool use  
Learning  
Culture  
Warfare  
Hunting



Red and White Eyed Vireos  
– same GENUS



Chimps and Humans –  
different FAMILIES



*Pan sapiens? Homo troglodytes?*

**-WANTED-**

**FIRST  
DEAD  
HOMINID**

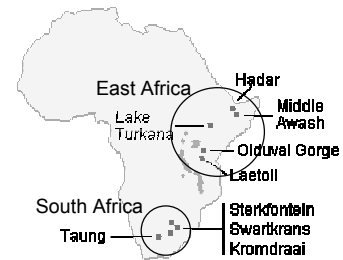
## Hominids

- Bipedalism
- Increased brain size
- Toolmaking ability
- Quantity, not quality
- Elaboration and dependence

## Who is the First Hominid?

- mosaics of ape and hominid characters
- situation is deliciously complex and confusing
- many new finds in the last 8 years
- need complete skeletons to be sure

## Hominid Sites



**The Contenders.....**

### ***Ardipithecus*** ('root ape')

### contenders

- described in 2001
- 5.2-5.8 myo
- Bipedalism but tree climbing too



### ***Sahelanthropus***

### contenders

- 6-7 myo, desc. 2002
- brain size = chimp
- Teeth pattern similar to Homo



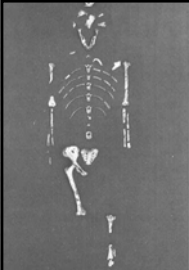
## ***Orrorin*** ('original man') contenders

- described 2001
- 6 myo
- Bipedalism tree climbing too)
- Teeth similar to chimp

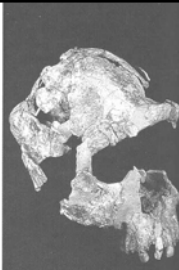


## Later Hominids

*Australopithecus* - the first non-*Homo* hominid to be recognized



"Lucy"  
1974



***Australopithecus afarensis*,**  
 ~3.2 myo                      1 meter tall  
 walked fully erect        human-like hands

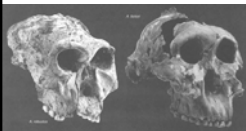
## *Australopithecus* Locomotion

- Footprints at Laetoli → Bipedalism
- But still shows some arboreal traits:



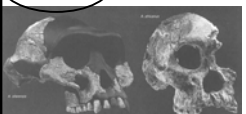
## Two Lines of *Australopithecus*

- ~~Robust~~ large teeth → eating hard plant matter



robustus    boisei

- **Gracile** more carnivorous diet and hunting skills

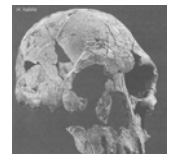


afarensis                      africanus

*Australopithecus afarensis* (gracile)



genus *Homo*



## *Homo habilis* is the oldest known member of genus *Homo*

- 1.5-2.5 mya
- larger brain size
- Brain development for outgoing language
- back teeth smaller
- used tools

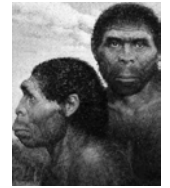
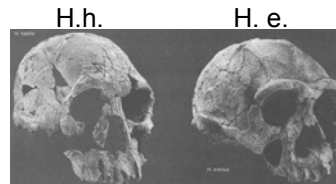


## *Homo erectus* replaced *Homo habilis*

1.8 m -300,000 years ago

still larger brain

Further brain development for language



## *Homo erectus*

First hominid species to leave Africa

(Israel, Java, Georgia, Spain, China +)



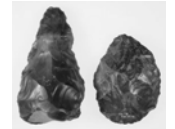
## *Homo erectus*

clothing, shelters

great tools – foresight

standardization

Hunting, scavenging and gathering plants



## Did they bury their dead?

- No evidence
- No other symbolic objects, either.

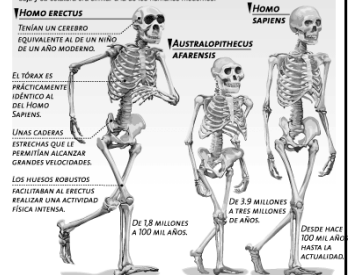


## *Homo erectus*: Body Size

- As big as us (or bigger)
- Sexual dimorphism
- Extremely robust body form

### *Homo erectus*: casi como nosotros

Se han encontrado restos de esta especie en Asia, África y en Europa. Su cavidad craneal era baja y su estatura era similar a la de los humanos modernos.

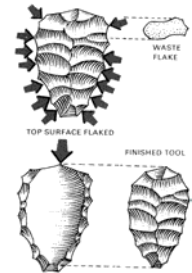


## Archaic *Homo sapiens* appeared ~500,000 ya

- culture and spiritual evidence for the first time (burials, ceremonials)

## Archaic *Homo sapiens* Culture

- Less use of bone, tools more sophisticated
- Levallois technique



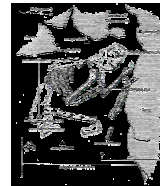
## The Neandertals

- Only in Europe and Middle East, 130-10kya
- *Homo sapiens neandertalensis*, or, *Homo neandertalensis*?
- Coexisted with AM *Homo sapiens*

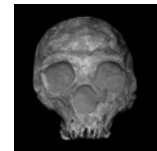


## Shanidar Cave, Iraq – 2 Imp. Burials

- Withered arm, bad legs
- Flower burial



Shanidar IV



Shanidar I



## Neandertal Symbolic Behavior

- Physically capable of speech
  - But how important it was is unknown
- Other symbolic behavior?
  - Possible bone flute



## New Hominid! *Homo floresiensis*

- Indonesia, Flores
- 7 individuals, with tools and animal bones
- 1 m tall
- Not disease, and not *H. sapiens*



*H. floresiensis* and *H. sapiens*



Artist's reconstruction

## New Hominid! *Homo floresiensis*

- 90- 18kya
  - 10kya after Neandertals
- Descended from *H. erectus* !!!



Artist's reconstruction

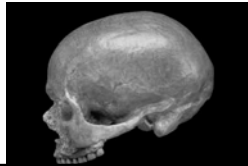
**Our species not alone  
in recent times.**



archaic                      modern  
*Homo sapiens*

## Anatomically modern *Homo sapiens* appeared ~40,000(?) ya

- By 30,000 had spread throughout the world.
- Essentially the same in biology, genes, and probably behavior
- Abbreviated: AMH
- 



## AMH

1. Elaborate tools
2. Grinding/polishing techniques
3. Personal adornment (exotic materials)
4. "Art"
5. Diet specialization
6. Increased population density, and seasonal social gathering
7. Greater regional variation

## Burials

- Burials common 35kya
- Europe: flexed, red ochre, ornaments, **grave goods**

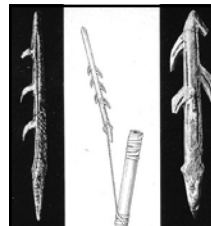


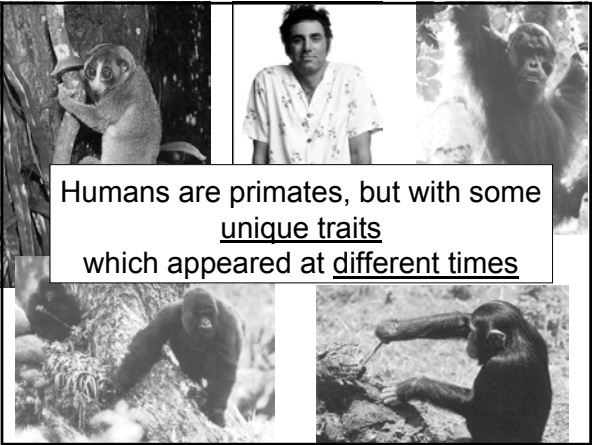
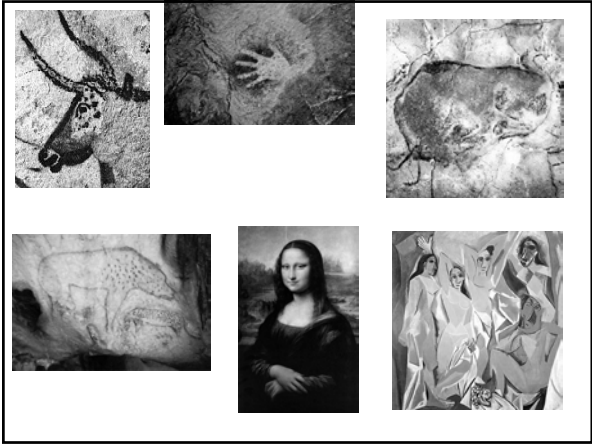
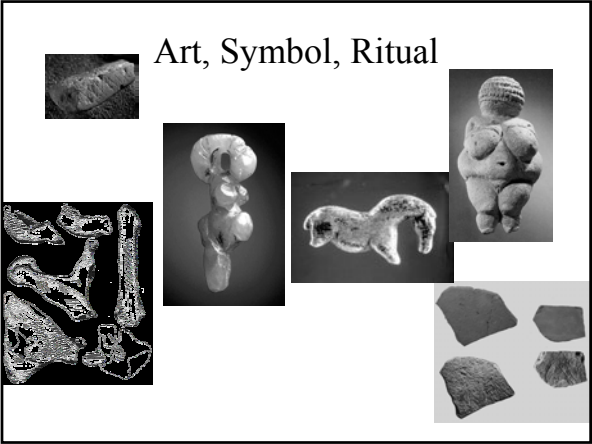
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Sungir



## Elaborate Tools





Features of humans appeared at different times, not all at once					
	Brain size	Bipedal	Language	Tools	Years ago
Apes	2-300cc	No			6 my
Ardipithecus	?	<u>Yes</u>			
Praeanthropus + Australopithecus	~400	Yes			2.5-6.5 my
H. habilis	500-800	Yes	<u>Broca</u>	Yes	1.5-2.5
H. erectus	750-1225	Yes	Broca + Wernicke	Tools, use fire	.3-1.8 my
Archaic sapiens	1250-1330	yes	Some speech	Make fire, complex tools	28k-500k
Modern sapiens	<u>1350</u>	yes	Speech	Complex tools	40,000-now