

# What does it mean to be human? Revisiting the fossil record.

---

Rômulo Carleial, PhD

# What is this talk about?

- What distinguishes man from other animals?
- Did humanity evolve from a non-human ancestor?
- How to identify humanity from paleontological remains?



*Studia Gilsoniana* 11, no. 2 (April–June 2022): 249–287

ISSN 2300–0066 (print)

ISSN 2577–0314 (online)

DOI: 10.26385/SG.110210

Michael Chaberek  
Rômulo Carleial

**Human Origins Revisited:  
On the Recognition  
of Rationality and the Antiquity  
of the Human Race**

# What makes humans special?

## • OTHER ANIMALS

1. Hairy and thick skin
2. Fangs, claws, horns
3. Good climbers
4. Fly
5. Strong

## • HUMANS

1. Bare and thin skin
2. No fangs, claws, or horns
3. Poor climbers
4. Flightless
5. Relatively weak

# What makes humans special?

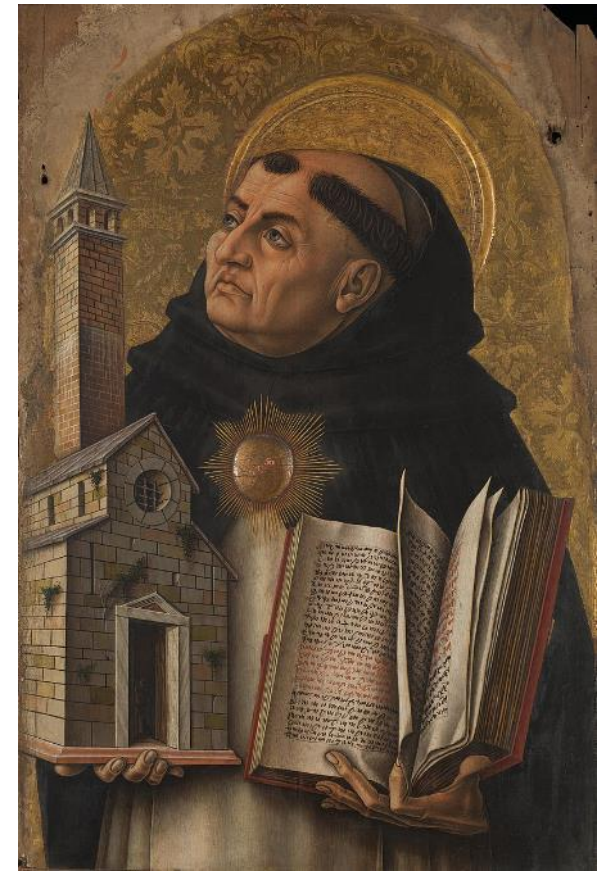
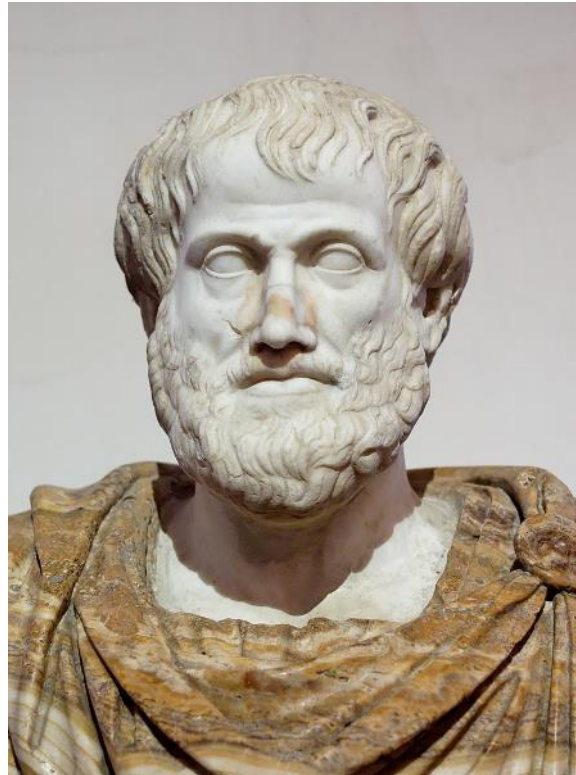
- Humans are rational creatures
- Because we are rational, we can produce weapons, shelter, submarines, planes, etc
- Our intelligence compensates for our relatively fragile body



# The intellect is immaterial

“Thus that in the soul which is called thought (by thought I mean that whereby the soul thinks and judges) is, before it thinks, not actually any real thing, for this reason it cannot reasonably be regarded as blended with the body;”

*Aristotle, De Anima 429a10-429b9*



“It must necessarily be allowed that the principle of intellectual operation which we call the soul, is a principle both incorporeal and subsistent.”

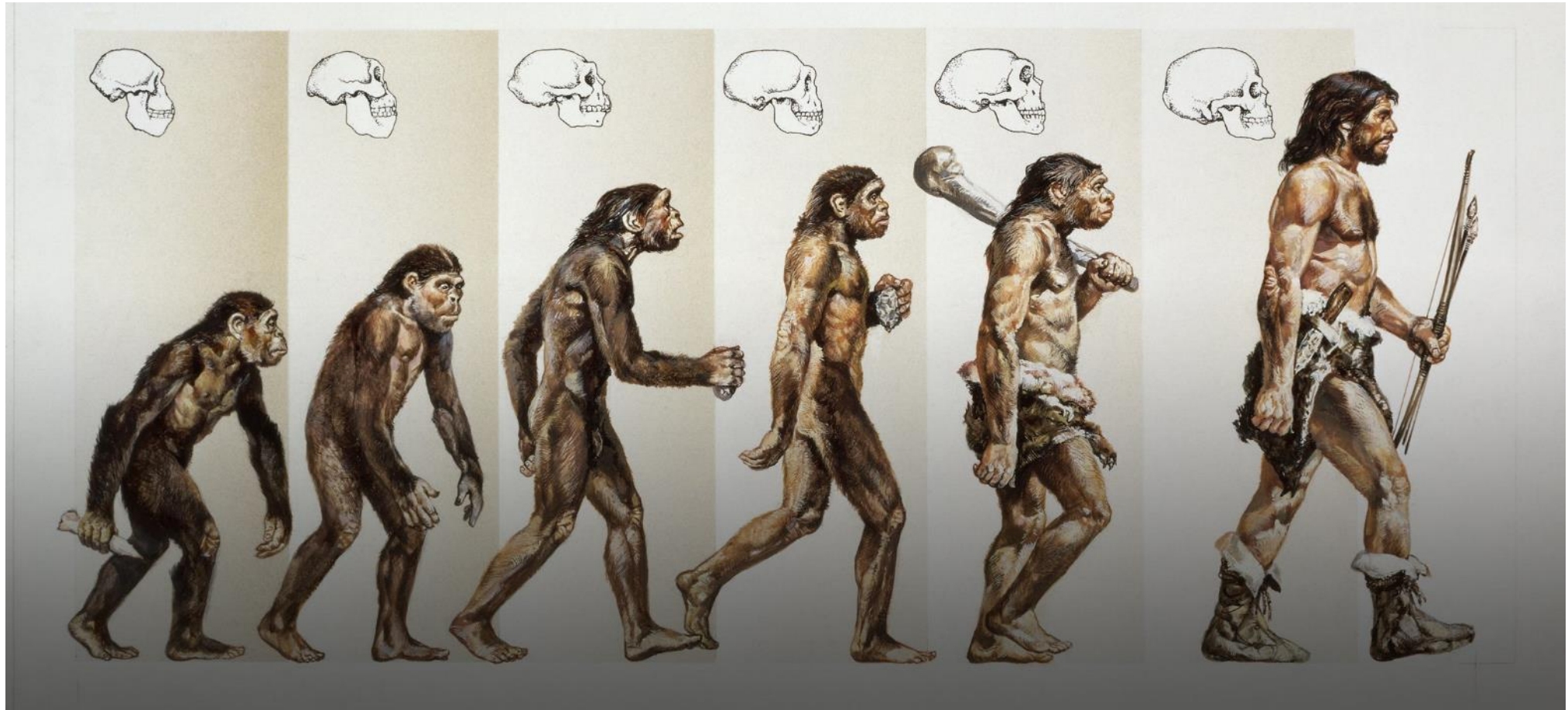
St. Thomas Aquinas, ST. 1,75,2



# The human soul

- “And the Lord God formed man of the slime of the earth: and breathed into his face the breath of life, and man became a living soul.” *Genesis 2:7*

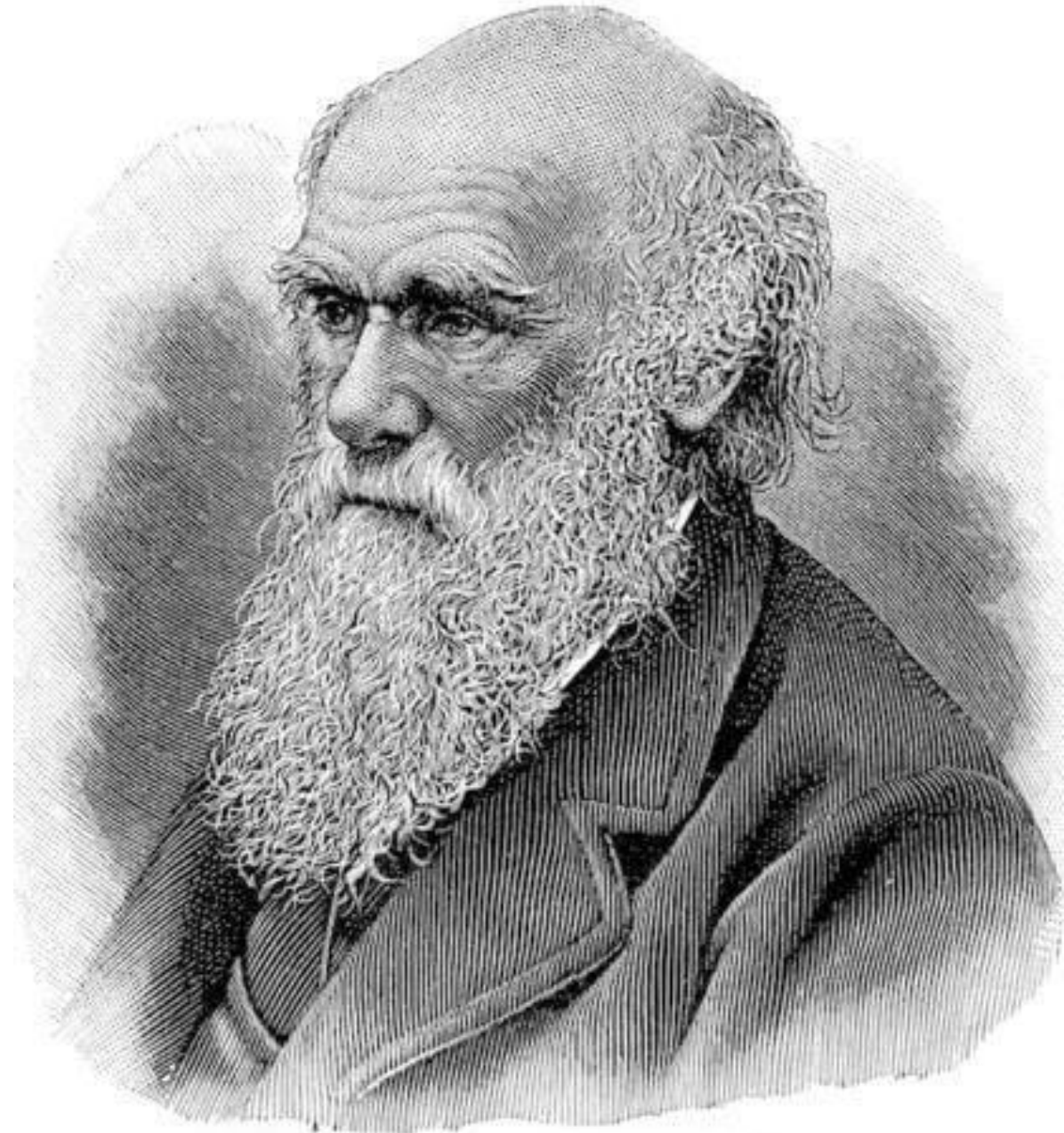
And then the evolutionists arrived



# Charles Robert Darwin

“The difference in mind between man and the higher animals, great as it is, is certainly one of degree and not of kind”

*The descent of man and selection in relation to sex. 1871. p. 105*





# Alfred Russel Wallace

“If the views I have here endeavoured to sustain have any foundation, they give us a new argument for placing man apart, as not only the head and culminating point of the grand series of organic nature, but as in some degree a new and distinct order of being.”

*Contributions to the theory of natural selection: a series of essays. 1870. p. 324*



# Theistic evolution

- Attempts to harmonize the notions of Creation and Evolution
- The human body evolves naturally
- God infuses the human soul in a hominid species at one point in history



OPTION 1

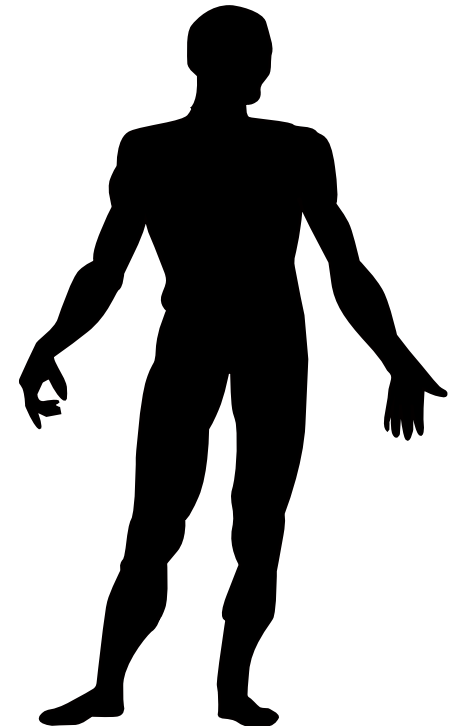
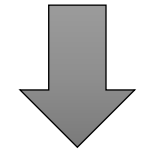
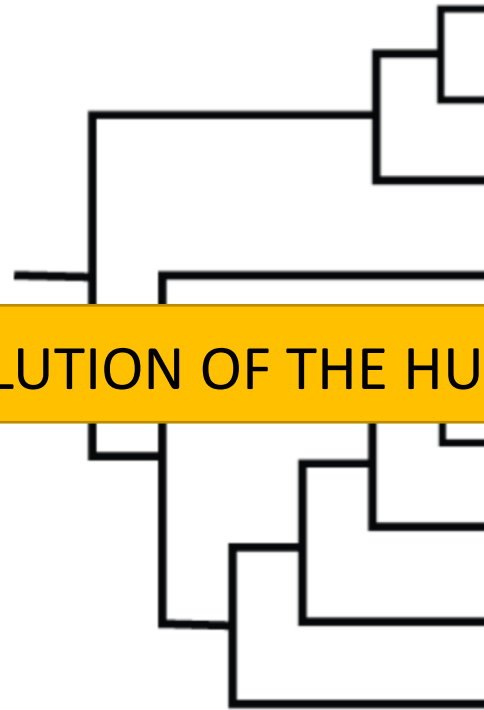
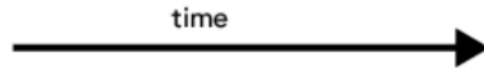
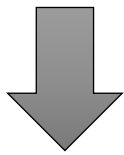
OPTION 2

OPTION 3

RATIONAL SOUL

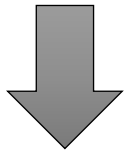
RATIONAL SOUL

RATIONAL SOUL



# OPTION 1

## RATIONAL SOUL



- An ape with a human intellect could lose its adaptative traits (e.g. by genetic drift; energy conservation) because the intellect would compensate for these losses
- Metaphysically untenable:
  - The soul and the body must be proportional to each other (i.e. matter must be disposed to receive the form)
  - According to St. Thomas, Adam's soul and body had to be created together

# The human intellect requires a human body

- Untapped potential:
  - We need our hands free in order to perform typical human activities
  - This in turn requires a multitude of adaptations (e.g. bipedalism) not to be found in an ape's body

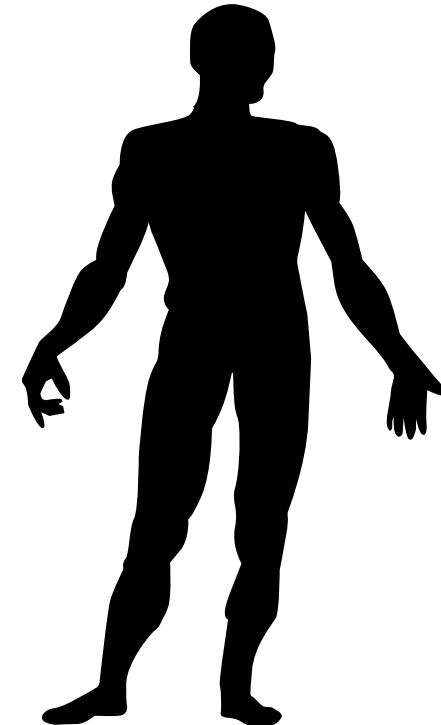
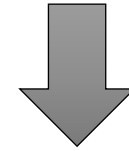


# Evolution of the human body

- If the human body evolved before his rationality, then adaptive “monkey” traits would’ve needed to be lost:
  - Thick and hairy skin
  - Tree-climbing traits
  - Fangs
  - Strength
  - Quadrupedalism
- No intellect to compensate for the losses
- Would be selected against

OPTION 3 (or 2)

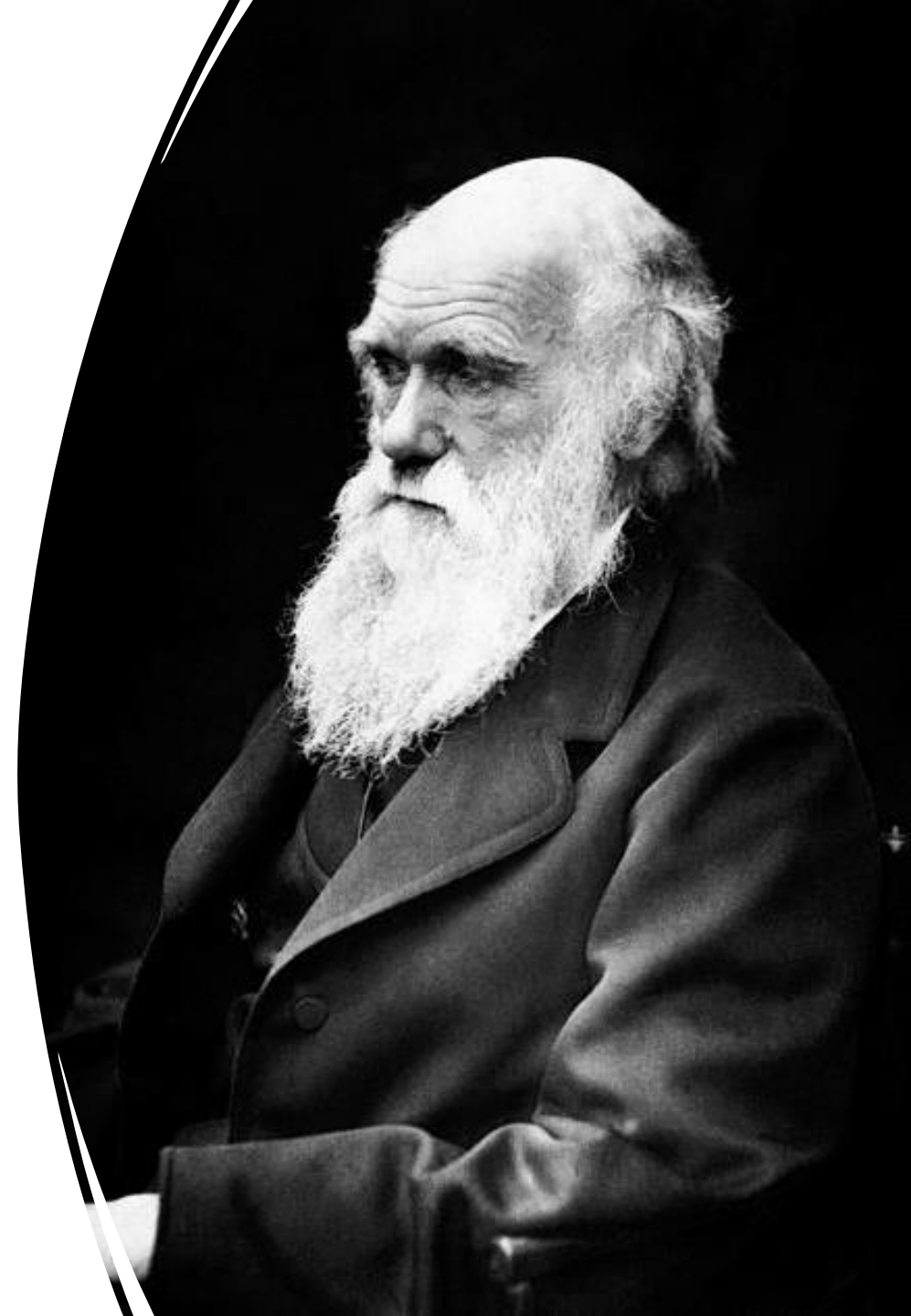
RATIONAL SOUL



Problem: selection requires profitable variations

“...any being, if it vary however slightly in any manner **profitable to itself**, under the complex and sometimes varying conditions of life, will have a better chance of surviving, and thus be naturally selected.”

(The origin of species, Introduction, my emphasis)



# Alfred Russel Wallace

“It seems to me, then, to be absolutely certain, that "Natural Selection" could not have produced man's hairless body by the accumulation of variations from a hairy ancestor. The evidence all goes to show that such variations could not have been useful, but must, on the contrary, have been to some extent hurtful.”

*Contributions to the theory of natural selection: a series of essays. 1870. p. 348*





# Catch-22 problem of hominization

“A body with human characteristics could not have evolved first, because it would have required the human soul to compensate for its weaknesses. But the human soul could not have been infused into a non-human body either, because the human soul is the substantial form of the human body. The first scenario is contrary to the assumptions of evolutionary theory, while the second is contrary to classic metaphysics.” Chaberek and Carleial 2022



Credit: Sarawut Aiemsinsuk

**CONCLUSION: HUMANS  
DID NOT EVOLVE!**

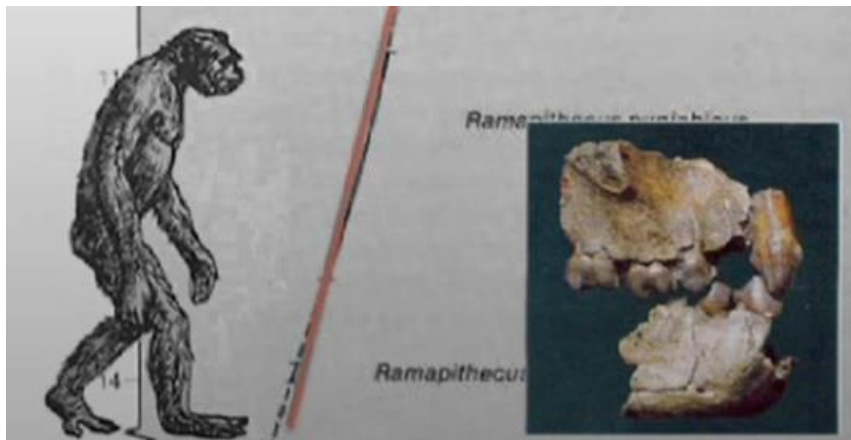
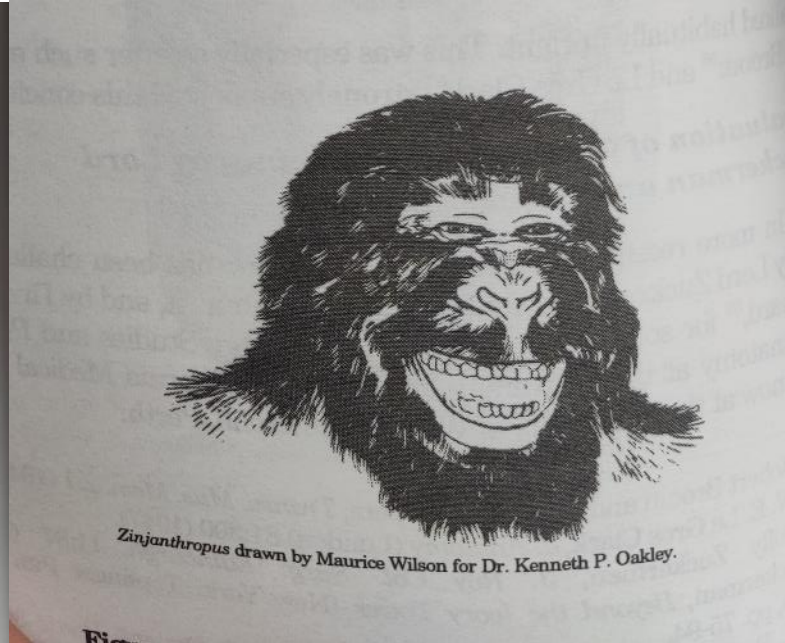
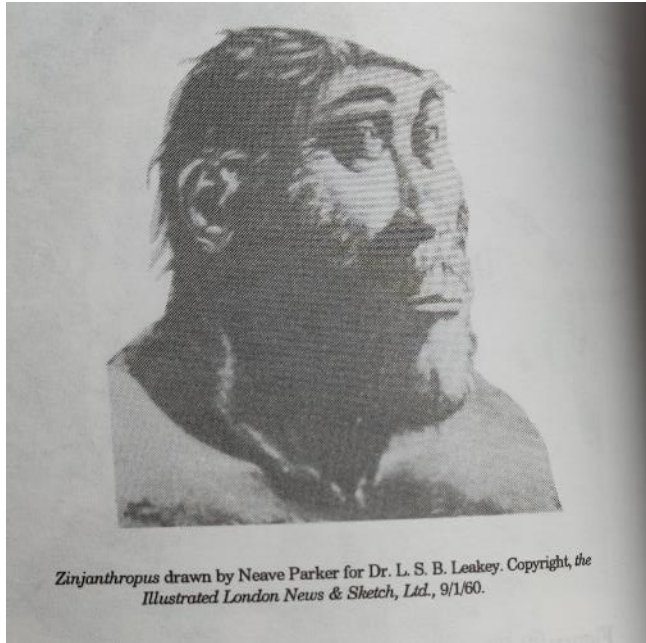
# Human evolution is controversial even among evolutionists!

- “When you look at the narrative for hominin origins, it’s just a big mess—there’s no consensus whatsoever, people are working under completely different paradigms, and that’s something that I don’t see happening in other fields of science.”

Sergio Almécija, a senior research scientist in the American Museum of Natural History’s Division of Anthropology



# Human evolution is controversial



Artistic “freedom”

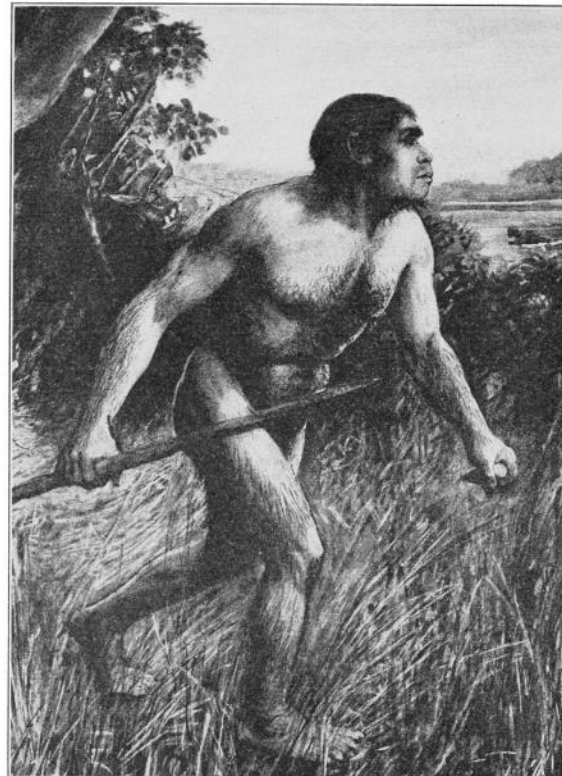
*Ramapithecus* is no longer considered a hominid



Lucy Goes on Tour, *Science*  
doi: 10.1126/article.33519

# Human evolution is controversial

- Fossils are constantly reclassified and the origin of humanity redated
- Frauds and absurdities are not uncommon
- Piltdown man: fraud consisted of a modern human cranium and an orangutan jaw with filed-down teeth.
- Nebraska man: a pig's tooth



Piltdown man: Unknown author - Popular Science Monthly Volume 82

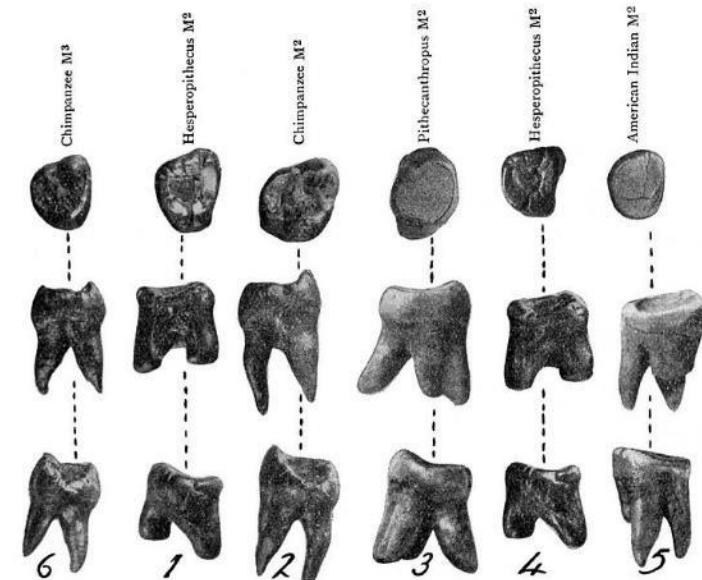
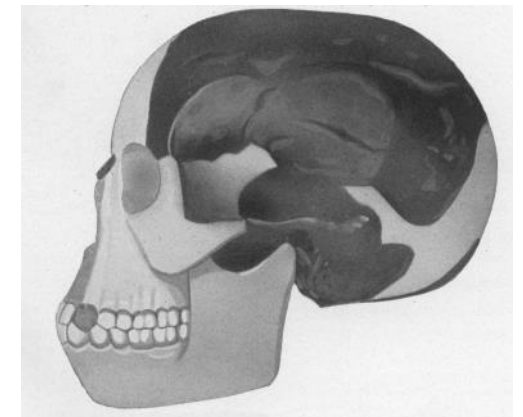


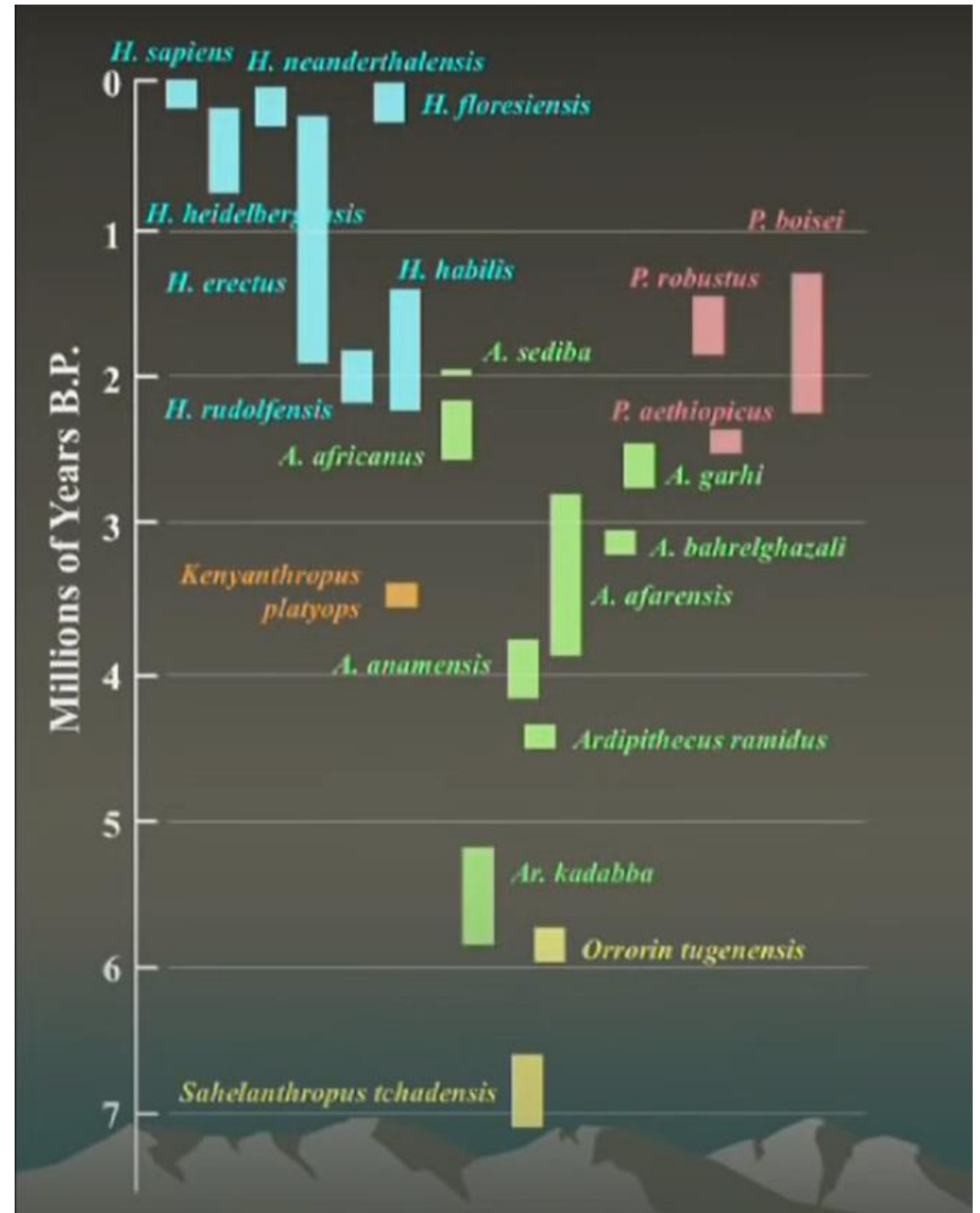
Fig. 2.—Comparison of the Second Superior Molars of the Right Side of the Upper Jaw in the Primates.  
 Upper row : crown views of the superior molars.  
 Middle row : anterior views of the same teeth.  
 Lower row : posterior views of the same teeth.  
 • (1) Hesperopithecus, the new Nebraska Primate, middle-aged.  
 (2) Anthropopithecus, a young chimpanzee.  
 (3) Pithecanthropus, adult Trinil Ape-man.  
 (4) Hesperopithecus (photographed in a different light).  
 (5) *Homo sapiens mongoloides*, aged North American Indian.  
 (6) Third superior molar of Anthropopithecus, a young chimpanzee  
 All photographed to the same scale and natural size.



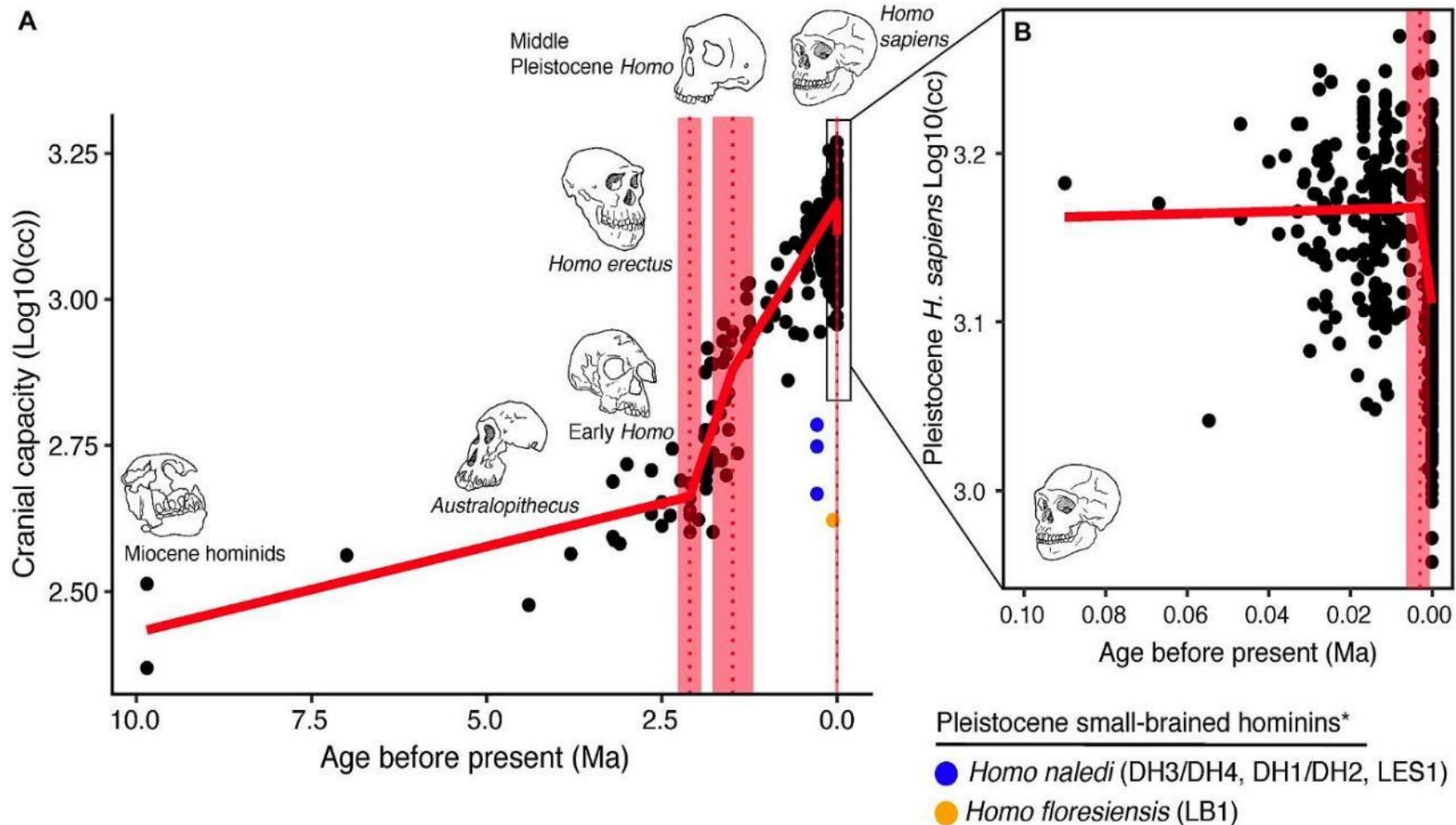
Piltodown man: J. Arthur Thomson, The Outline of Science, 1922

# When did humanity originate?

- Rationality defines man (*animal rationale*)
- Rationality is **immaterial** so it can only be indirectly inferred from ancient remains
- Most remains we have available are either **fossil bones** or **artifacts**
- Usually the specimen are fragmentary

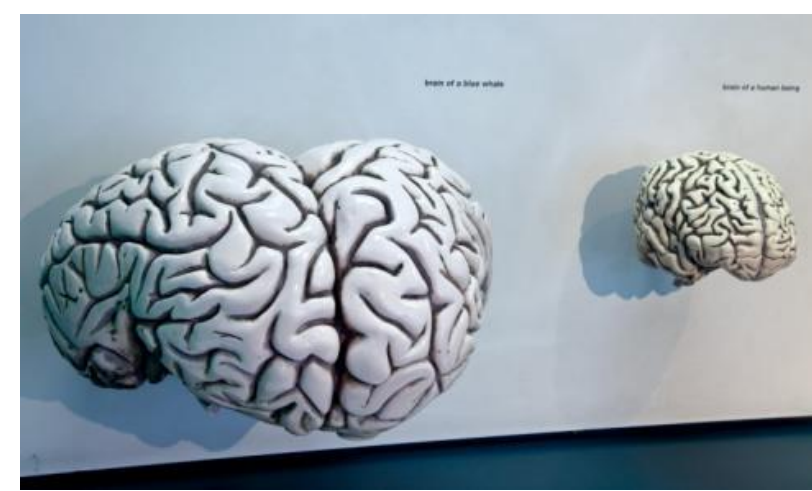


# Detecting humanity: cranial capacity?



- If what differentiate us is our rationality, isn't cranial capacity a good proxy for intelligence?
- Cranial capacity is often used by (a)theistic evolutionists to infer humanity
- Even ID folks use it!

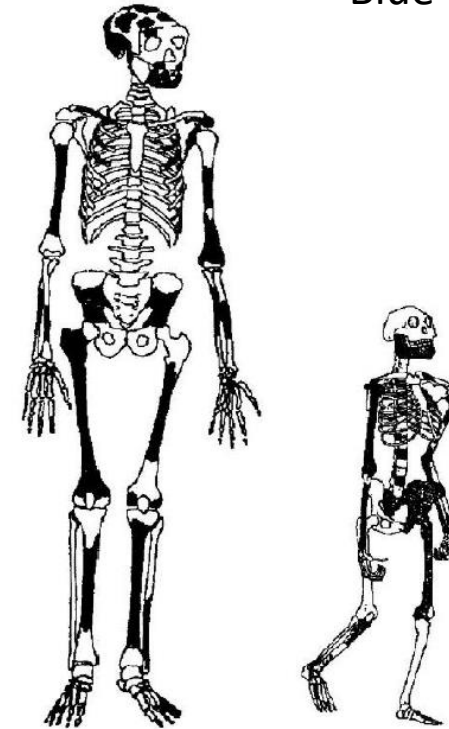
# Cranial capacity ≠ intelligence



**TABLE 14.1.** Cranial Capacities of Extant and Extinct Hominids. [165](#)

Taxon:	Cranial Capacities:	Taxon Resembles:
Gorilla ( <i>Gorilla gorilla</i> )	340–752 cc	Modern Apes
Chimpanzee ( <i>Pan troglodytes</i> )	275–500 cc	
<i>Australopithecus</i>	370–515 cc (Avg. 457 cc)	
<i>Homo habilis</i>	Avg. 552 cc	Modern Humans
<i>Homo erectus</i>	850–1250 cc (Avg. 1016 cc)	
Neanderthals	1100–1700 cc (Avg. 1450 cc)	
<i>Homo sapiens</i>	800–2200 cc (Avg. 1345 cc)	

Blue whale vs human brain



Luskin, Casey. "Missing Transitions: Human Origins and the Fossil Record." *Theistic Evolution: A Scientific, Philosophical, and Theological Critique* (2017): 437-474.

**FIGURE 14.2.** Comparison of Lucy (right) to early Homo (left). Black bones indicate those which have been discovered. The original caption states, "The first members of early *Homo sapiens* are really quite distinct from their australopithecine predecessors and contemporaries."

CREDIT: Figure 1, Hawks et al., "Population Bottlenecks and Pleistocene Human Evolution," *Molecular Biology and Evolution*, 17:2–22, copyright 2000 by Oxford University Press. Used with permission.

# Phenotypic plasticity and pathologies

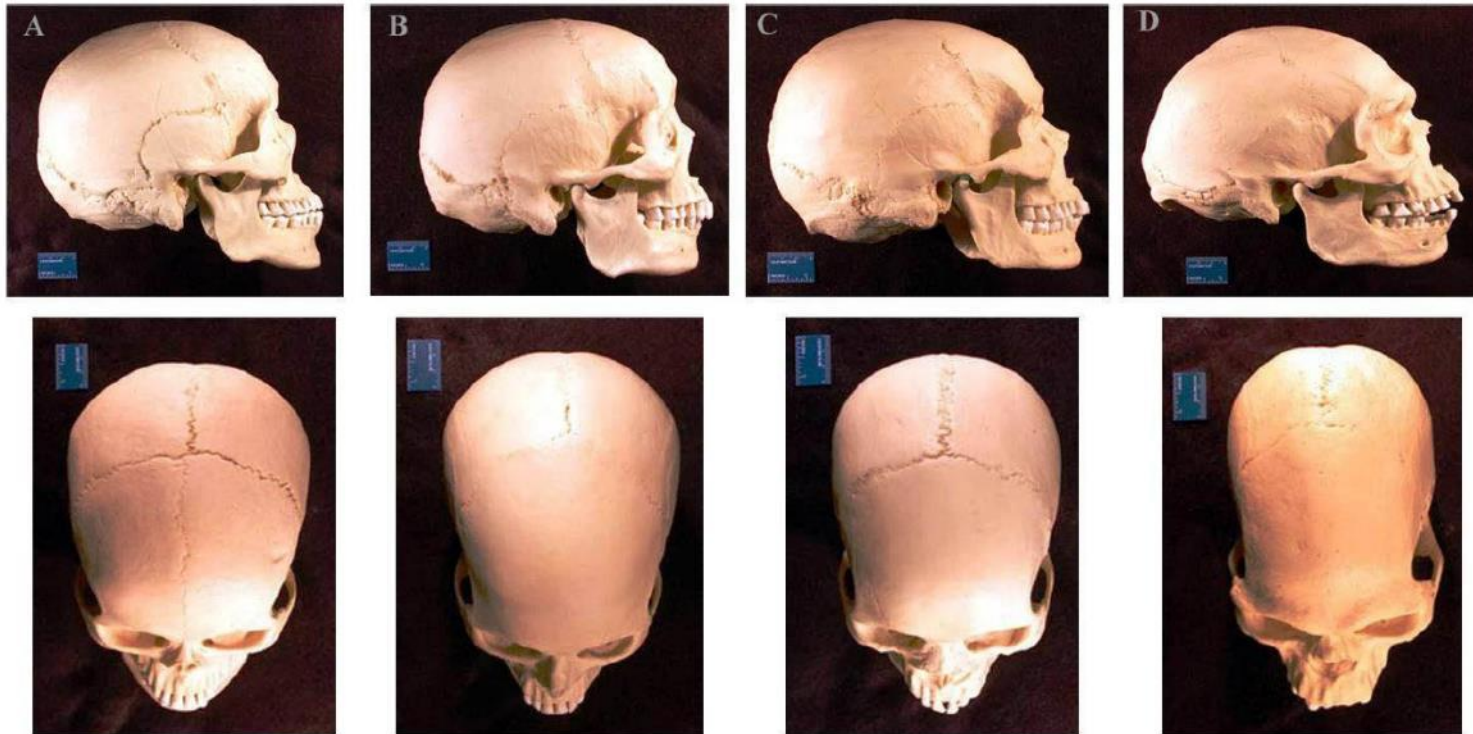
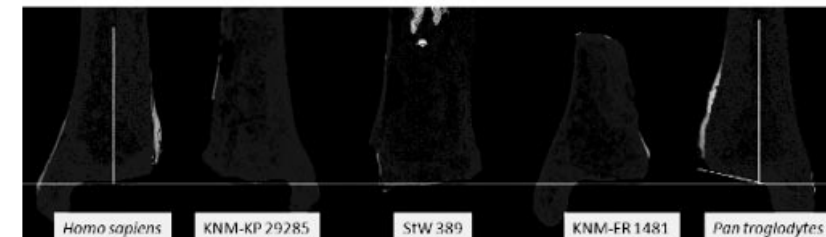
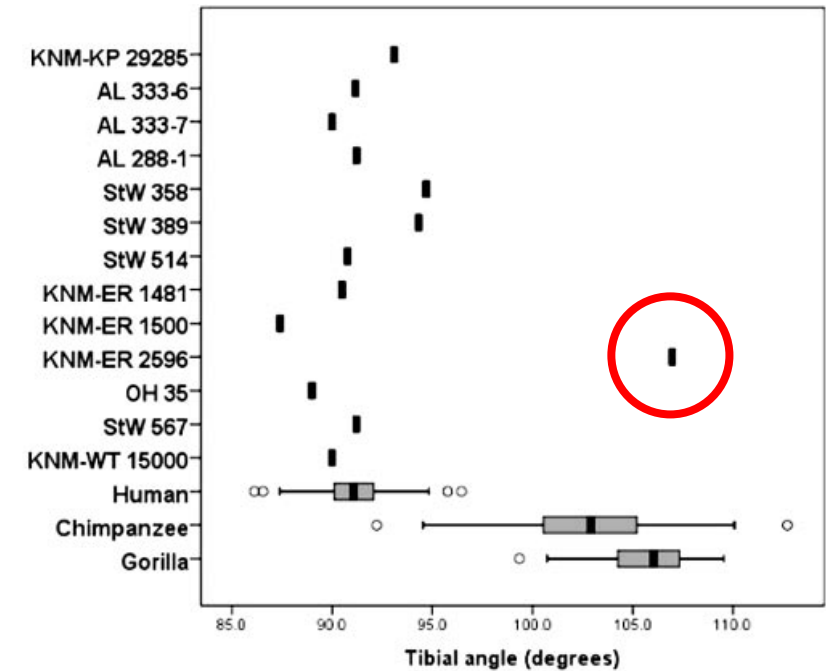


Figure 1: Photographs of Phenotypic Variability in Skull Shape by Geographic Region. Photographs

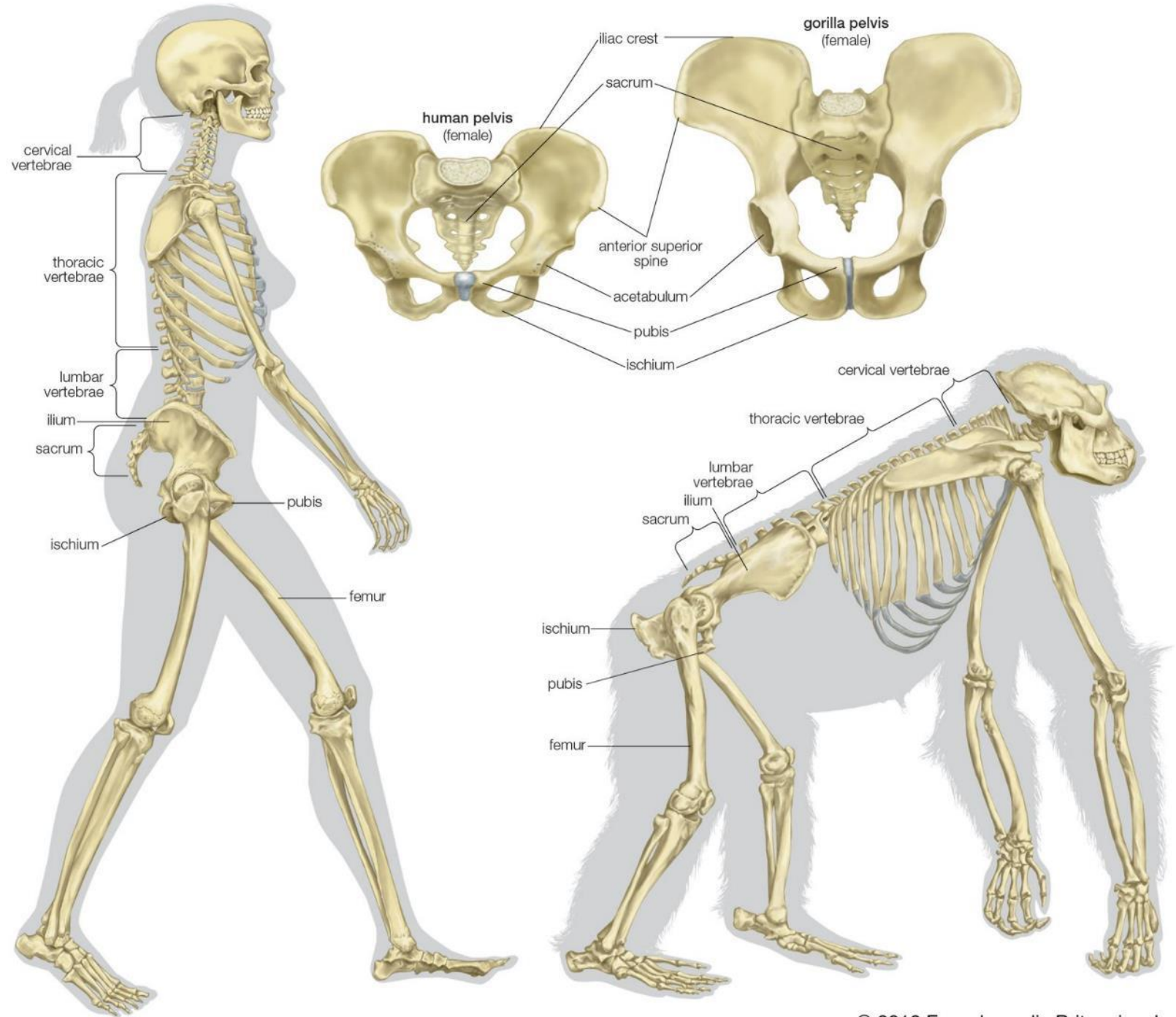
Cray Jr, J.J., 2009. (Doctoral dissertation, University of Pittsburgh)



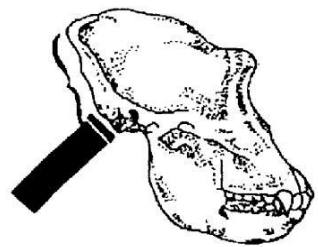
DeSilva, J.M., 2009. Functional morphology of the ankle and the likelihood of climbing in early hominins. PNAS, 106(16), pp.6567-6572.



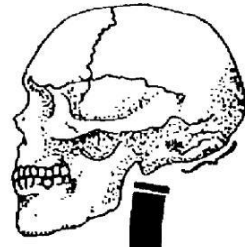
# HUMAN BIPEDALISM



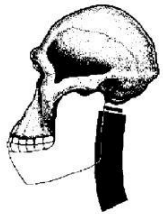
# Diagnosing bipedalism with morphology



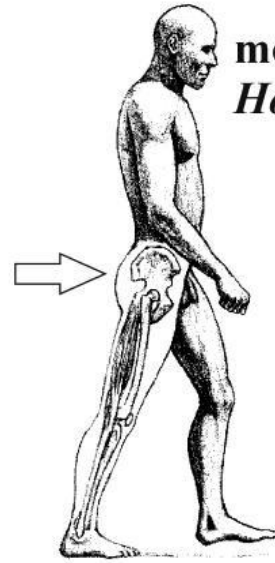
chimpanzee



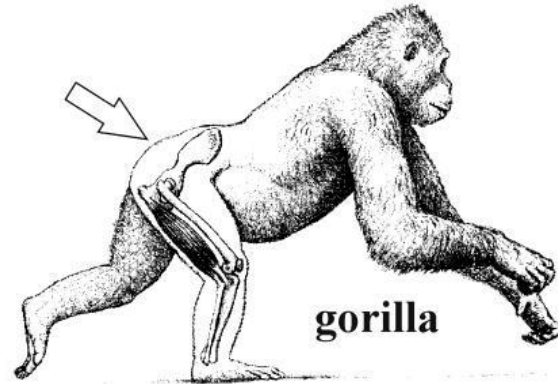
modern *Homo sapiens*



*Australopithecus*



modern *Homo sapiens*



gorilla

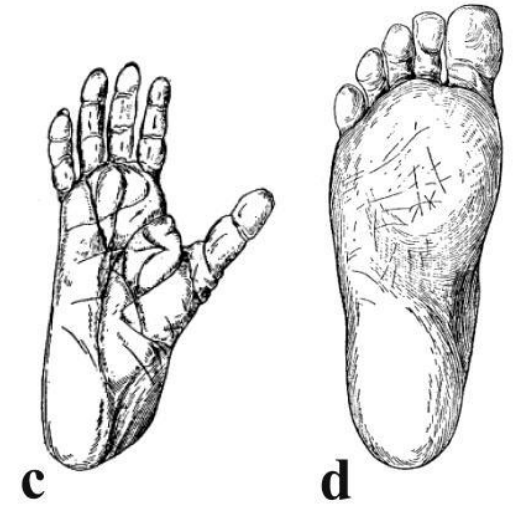
orientation of pelvic bones



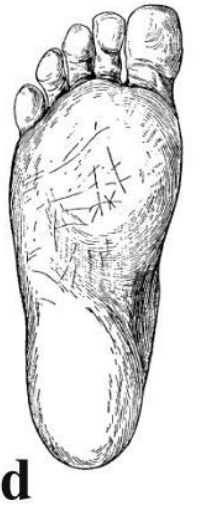
a



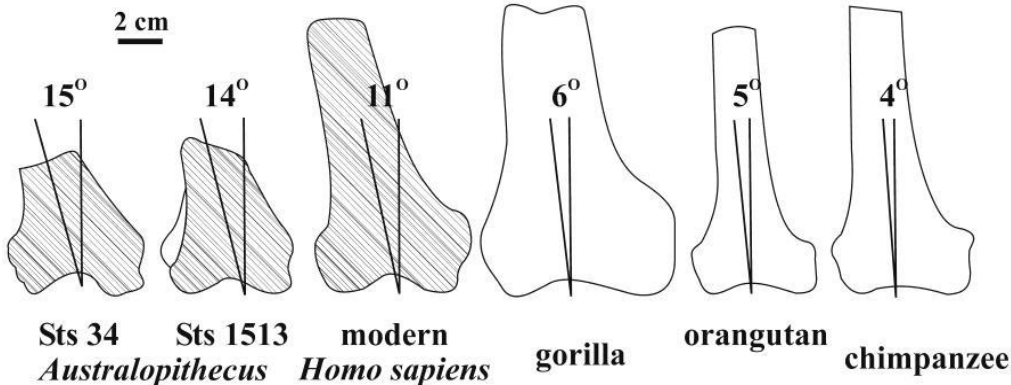
b



c



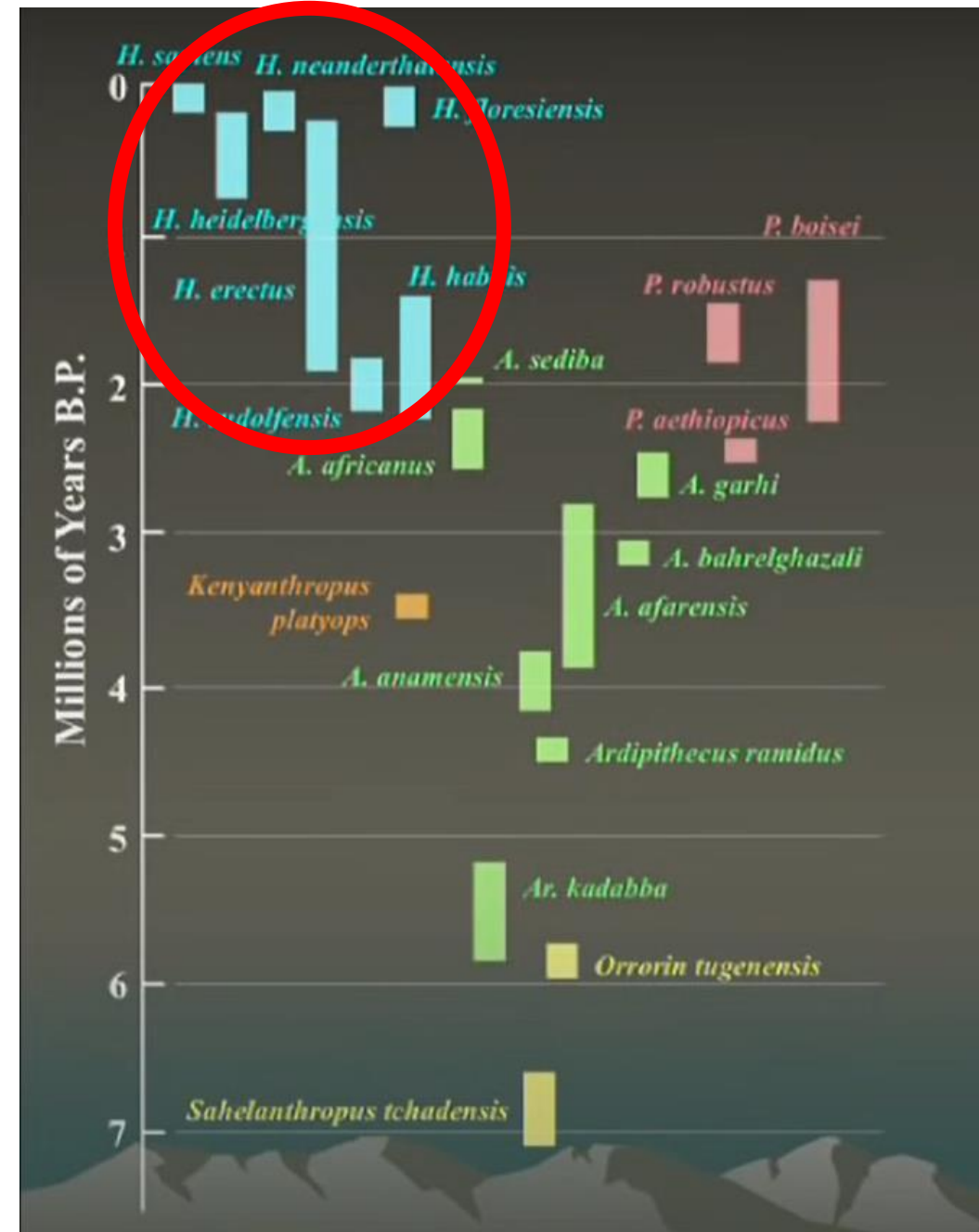
d



The locomotion of the hominids, Piotr Lenartowicz SJ, *Studies on comparative aesthetics. Vol. 2. Rhythms and Steps of Africa*, 2011, pp. 41-54.

# Bipedalism in *Homo* spp.

- *Homo*: ~2.3mya to present
- Scientific consensus that all “species” of the genus *Homo* were bipedal
- Genetic evidence of interbreeding between “species”
- Plenty of artifacts, art, burial sites, fire-making
- Verdict: humans!

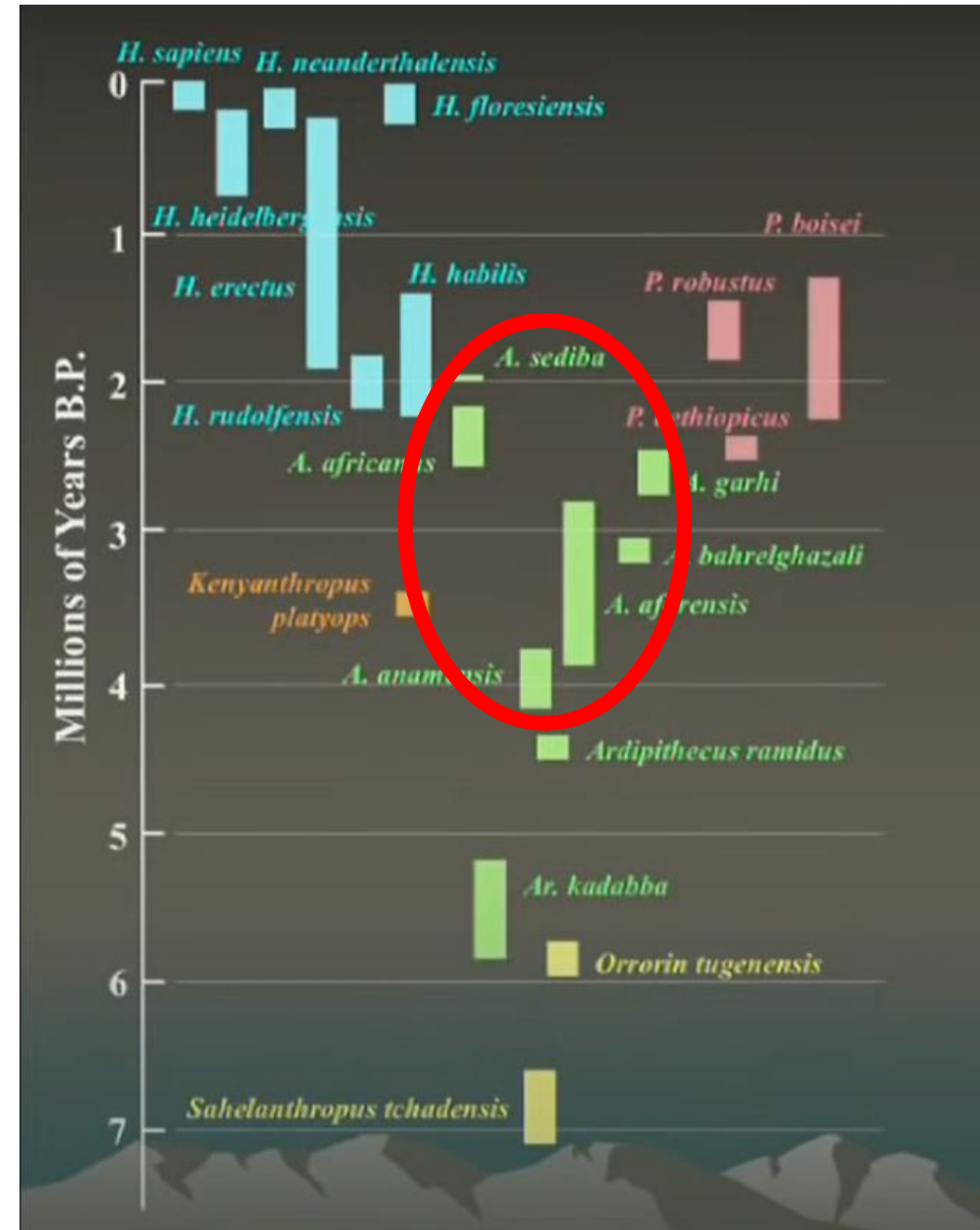


# Were australopithecines humans?

- Often portrayed as “semi-human” simpletons
- Long-lasting discussion on the nature of australopithecines’ bipedalism
- Older studies affirming a “facultative” bipedalism
- More recent studies affirm bipedalism equivalent to *Homo* spp.



A reconstruction of Lucy (*Australopithecus afarensis*)  
Travis S./Flickr



# *Australopithecus* - femur

“No feature is found which is not fully commensurate with completely bipedal locomotion.”

## The Distal Femoral Anatomy of *Australopithecus*

KINGSBURY G. HEIPLE AND C. OWEN LOVEJOY  
Division of Orthopaedic Surgery, School of Medicine, Case Western Reserve University, Cleveland, Ohio 44106 and Department of Anthropology, Kent State University, Kent, Ohio 44242

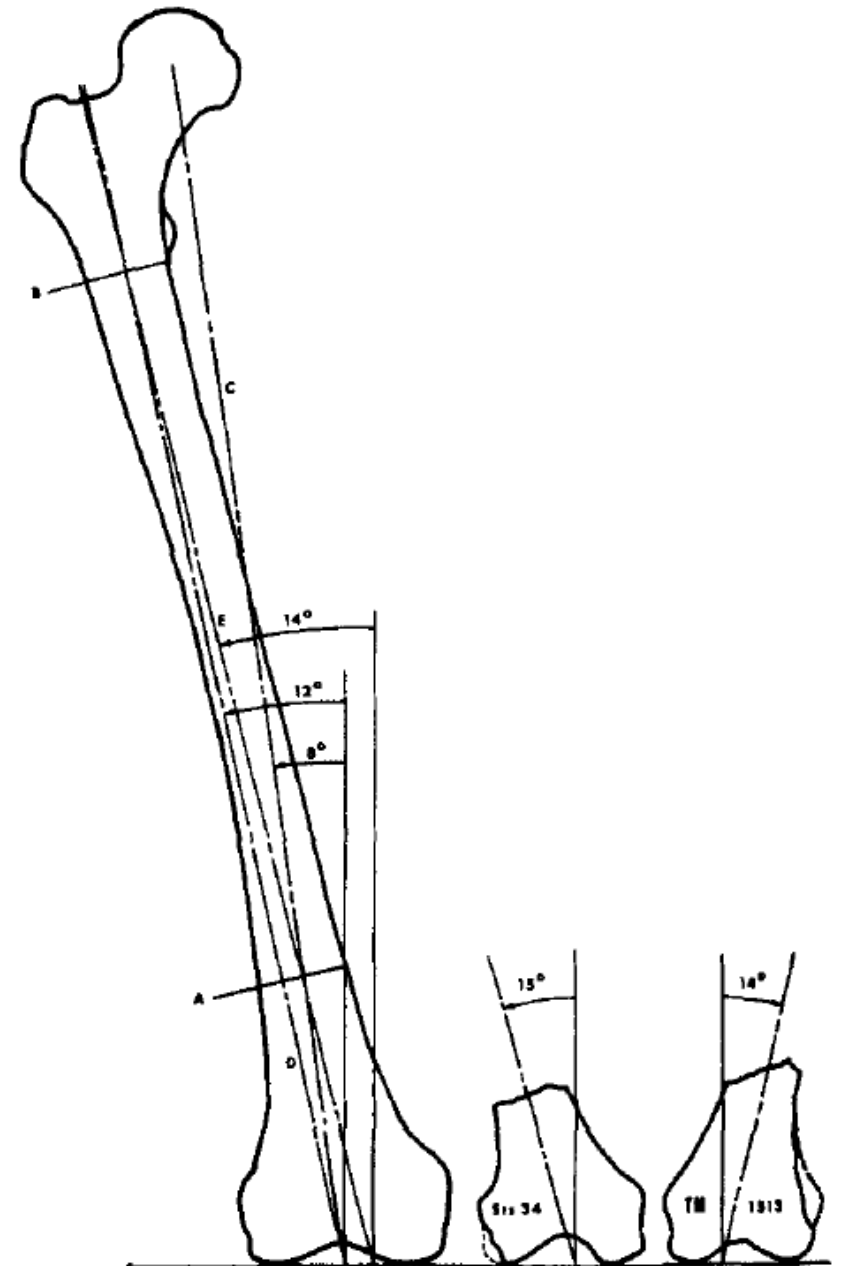
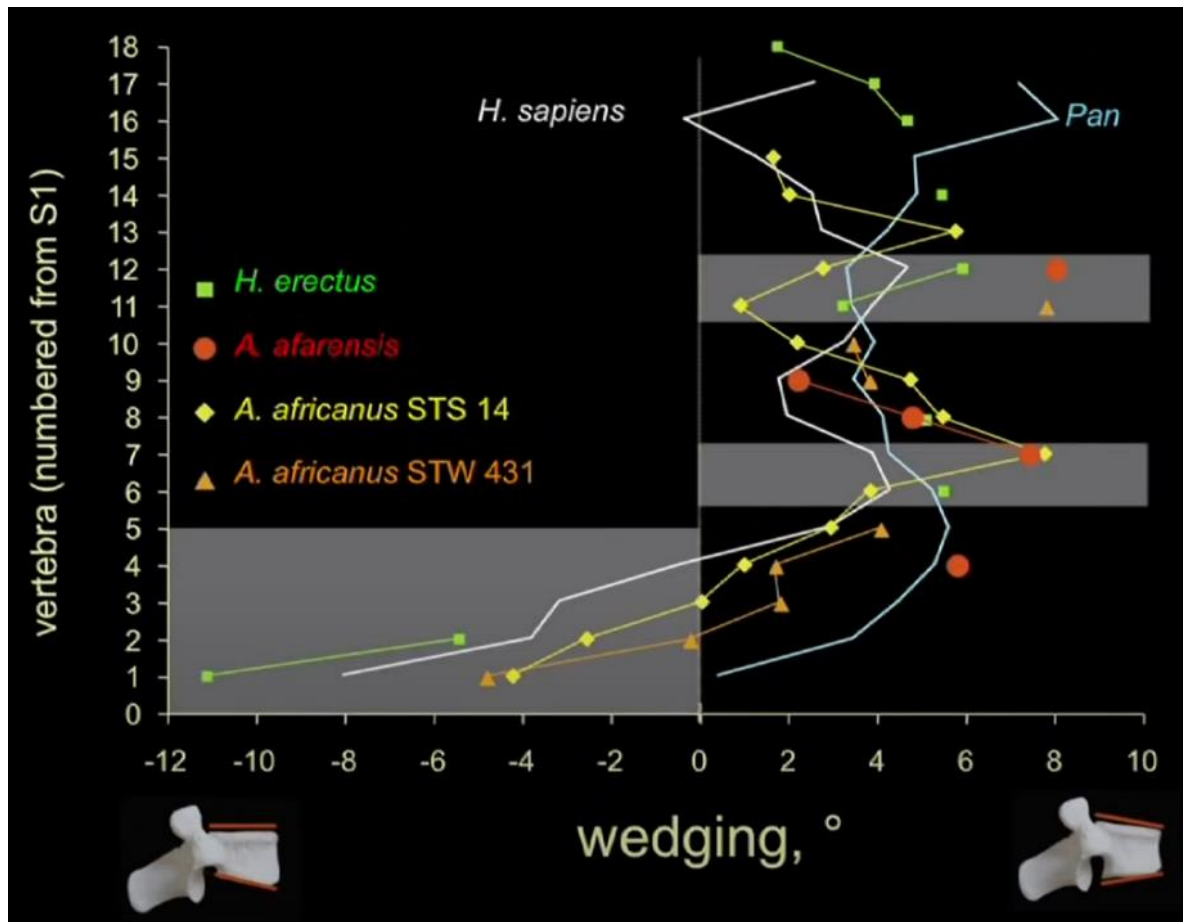


Fig. 1 Mensuration of the Bicondylar Angle of the Femur. A femur of a small *Homo sapiens*

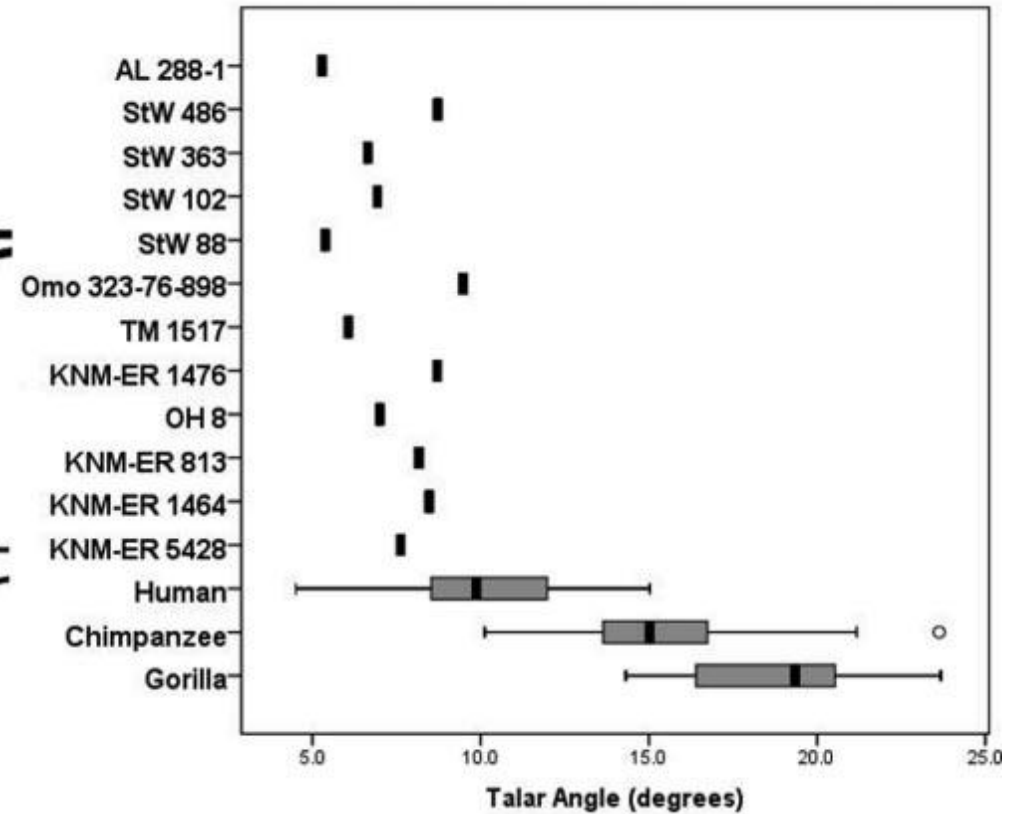
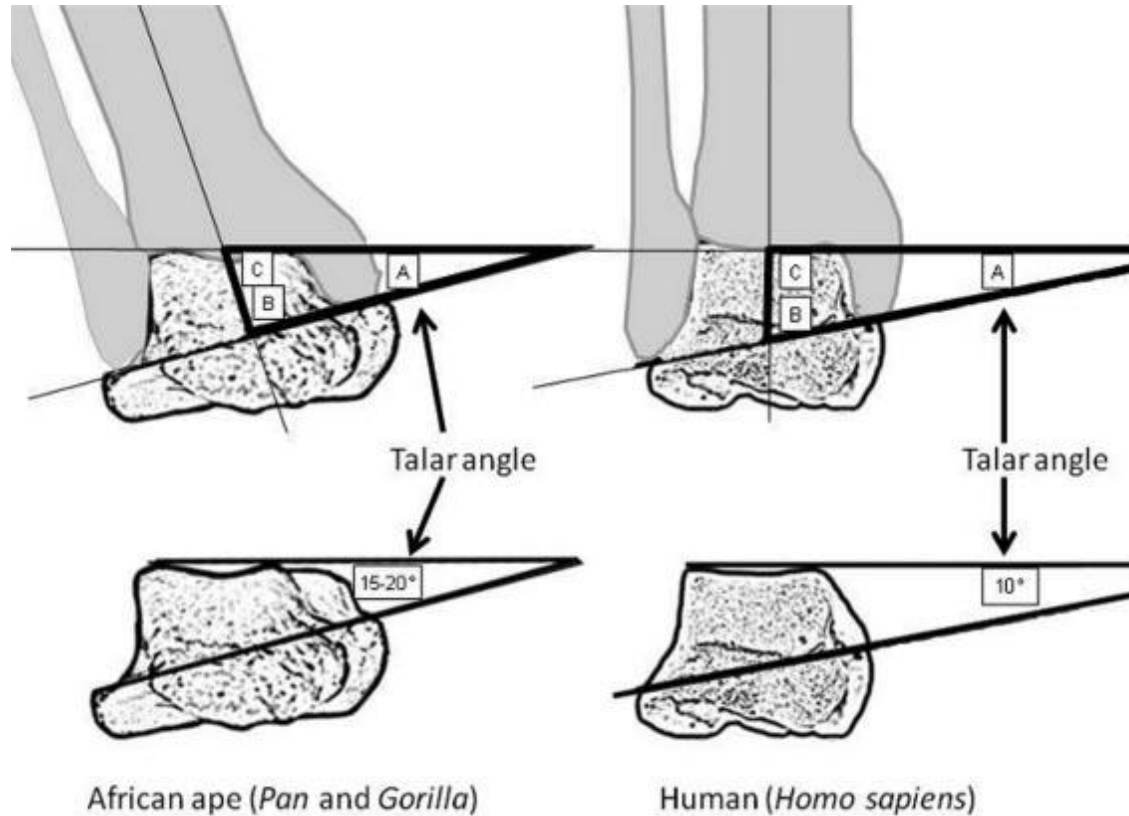
# *Australopithecus* - spine



Carol Ward – “Early Hominin Body Form” (University of California Television)

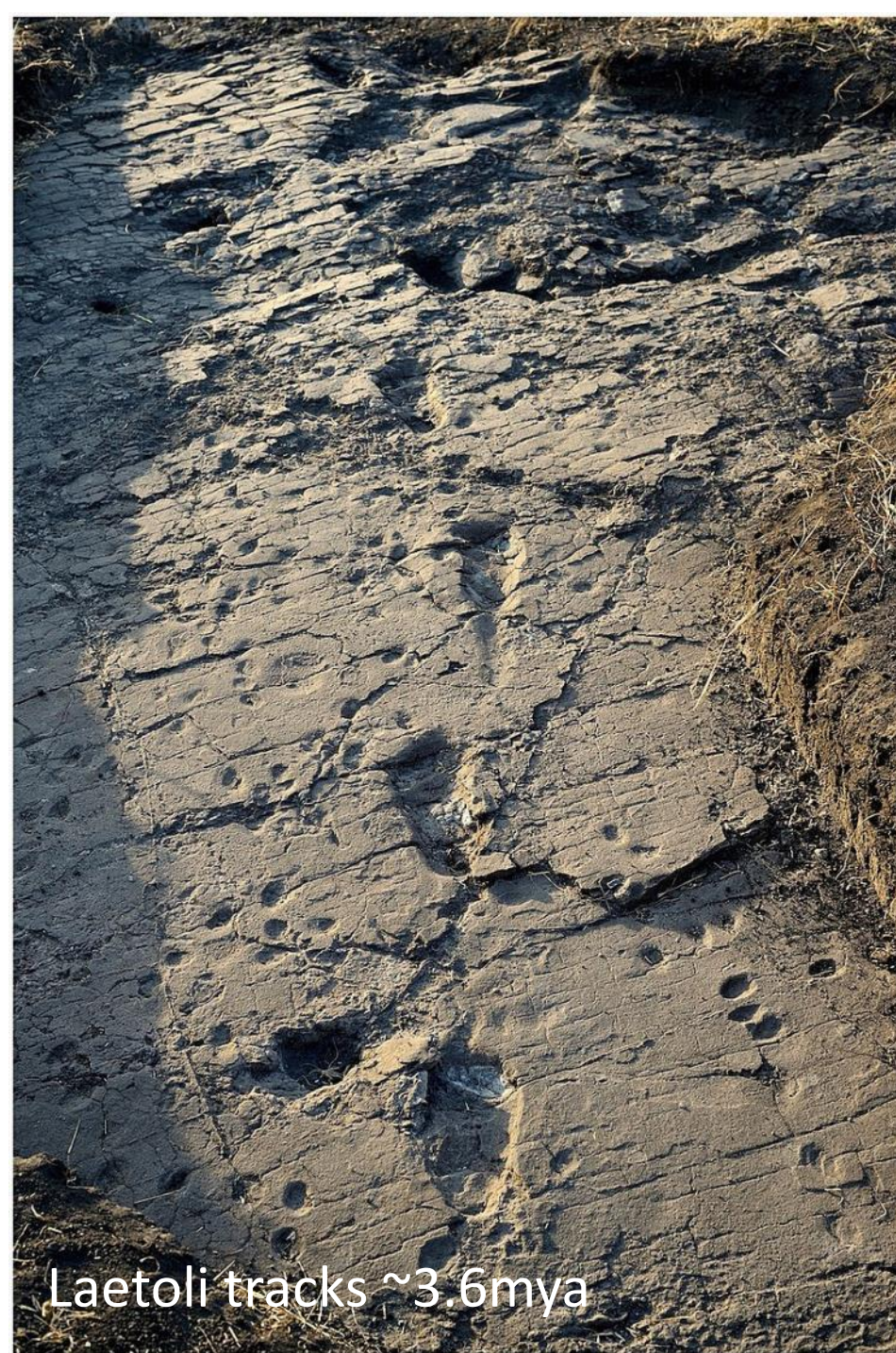
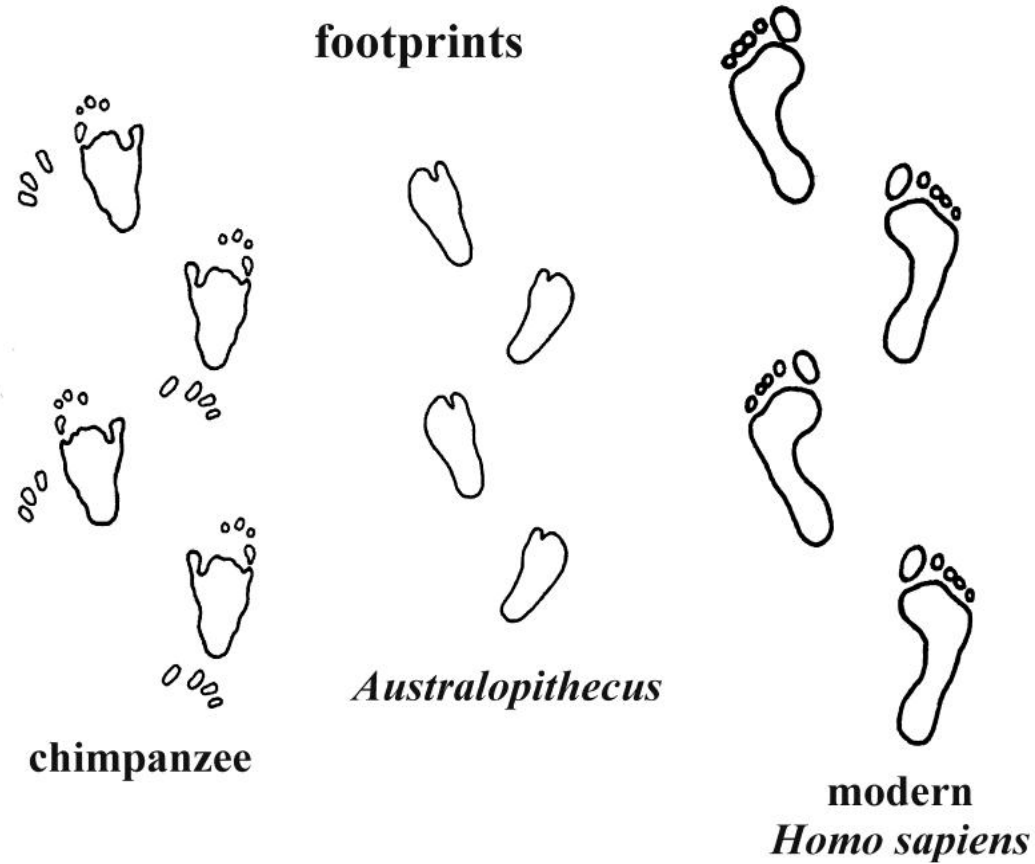
[CARTA: The Upright Ape: Bipedalism and Human Origins -Footprints Body Form and Locomotion - YouTube](#)

# Australopithecus - ankle



DeSilva, J.M., 2009. Functional morphology of the ankle and the likelihood of climbing in early hominins. PNAS, 106(16), pp.6567-6572.

# *Australopithecus* - tracks



The locomotion of the hominids, Piotr Lenartowicz SJ, Studies on comparative aesthetics. Vol. 2. Rhythms and Steps of Africa, 2011, pp. 41-54.

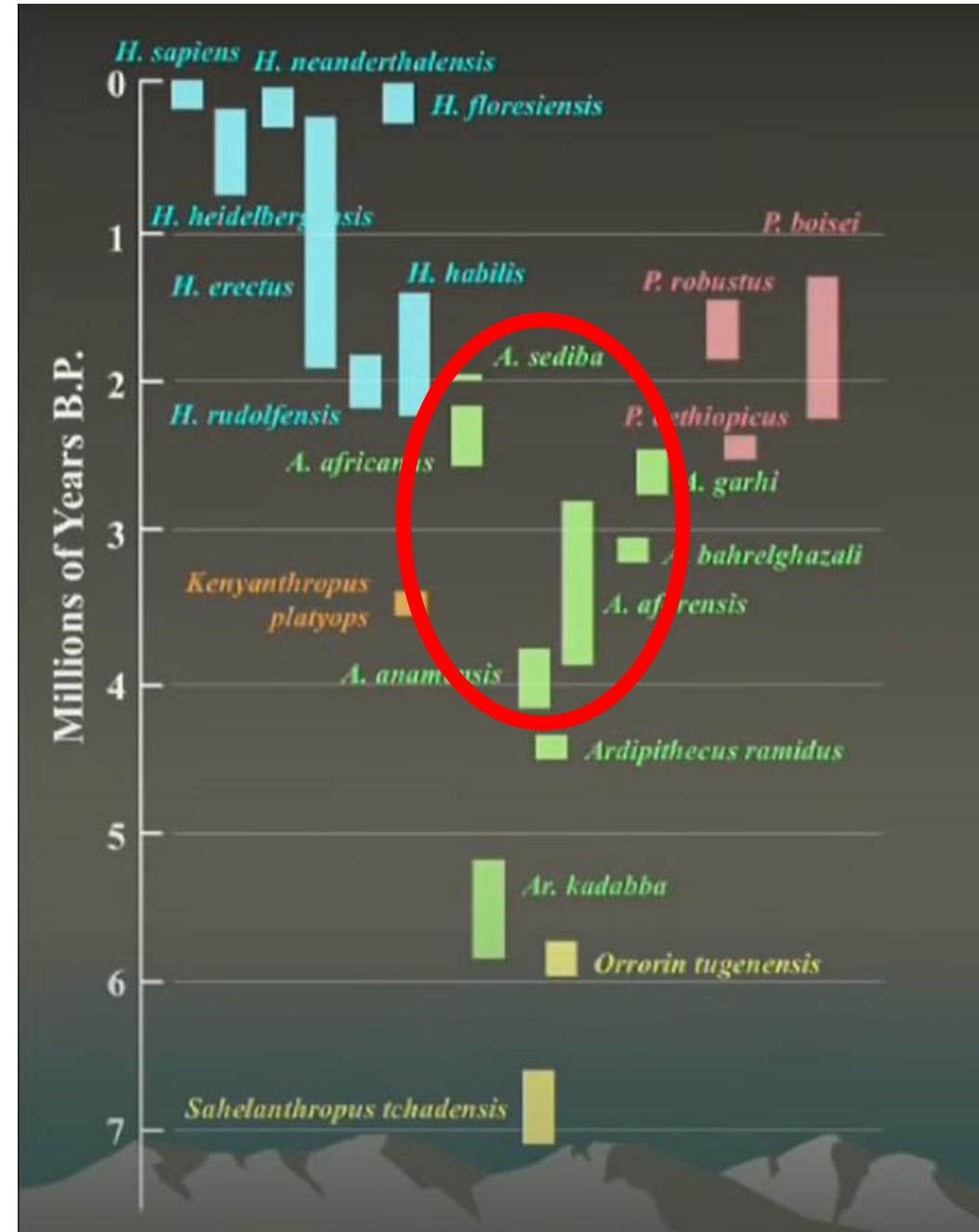


# Were australopithecines humans?

• **YES!**



A reconstruction of Lucy  
(*Australopithecus afarensis*)  
Travis S./Flickr

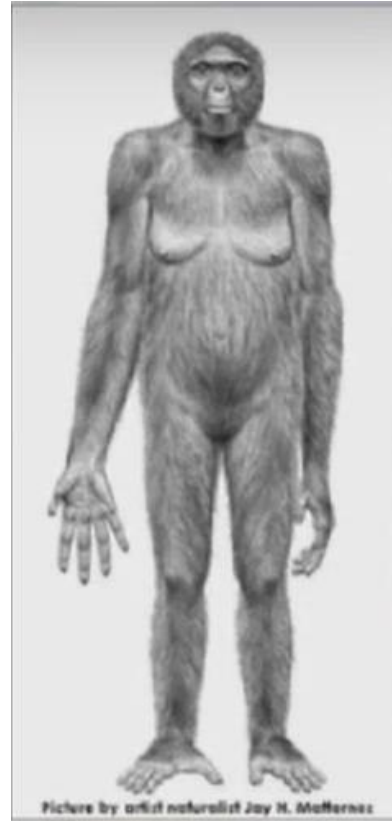


# False flags - *Ardipithecus*

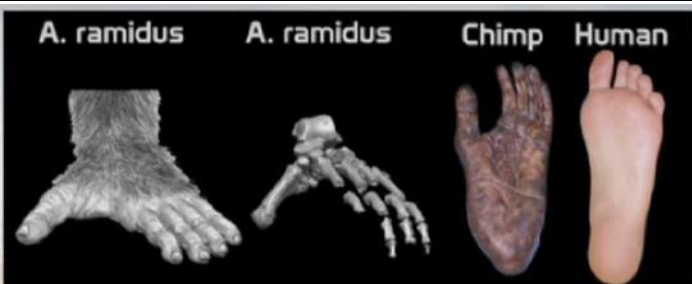
## *Ardipithecus ramidus*

- Aramis, Ethiopia
- 4.4 million years old

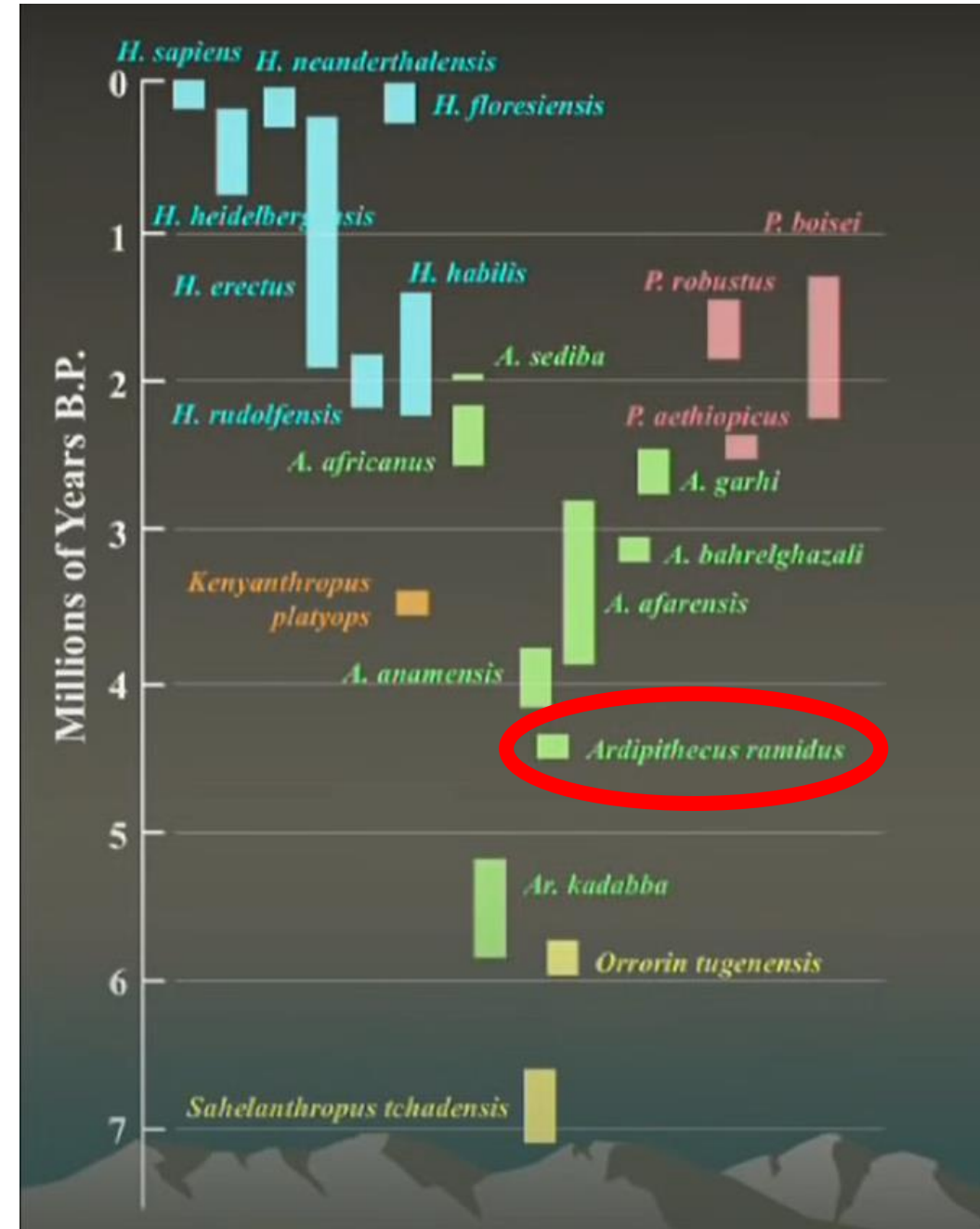
White et al., 2009  
Lovejoy et al., 2009



Pictures by artist naturalist Jay H. Matternes



Just because it is included in the human “family tree”, doesn’t mean it is human



# Bipedalism at 7mya?

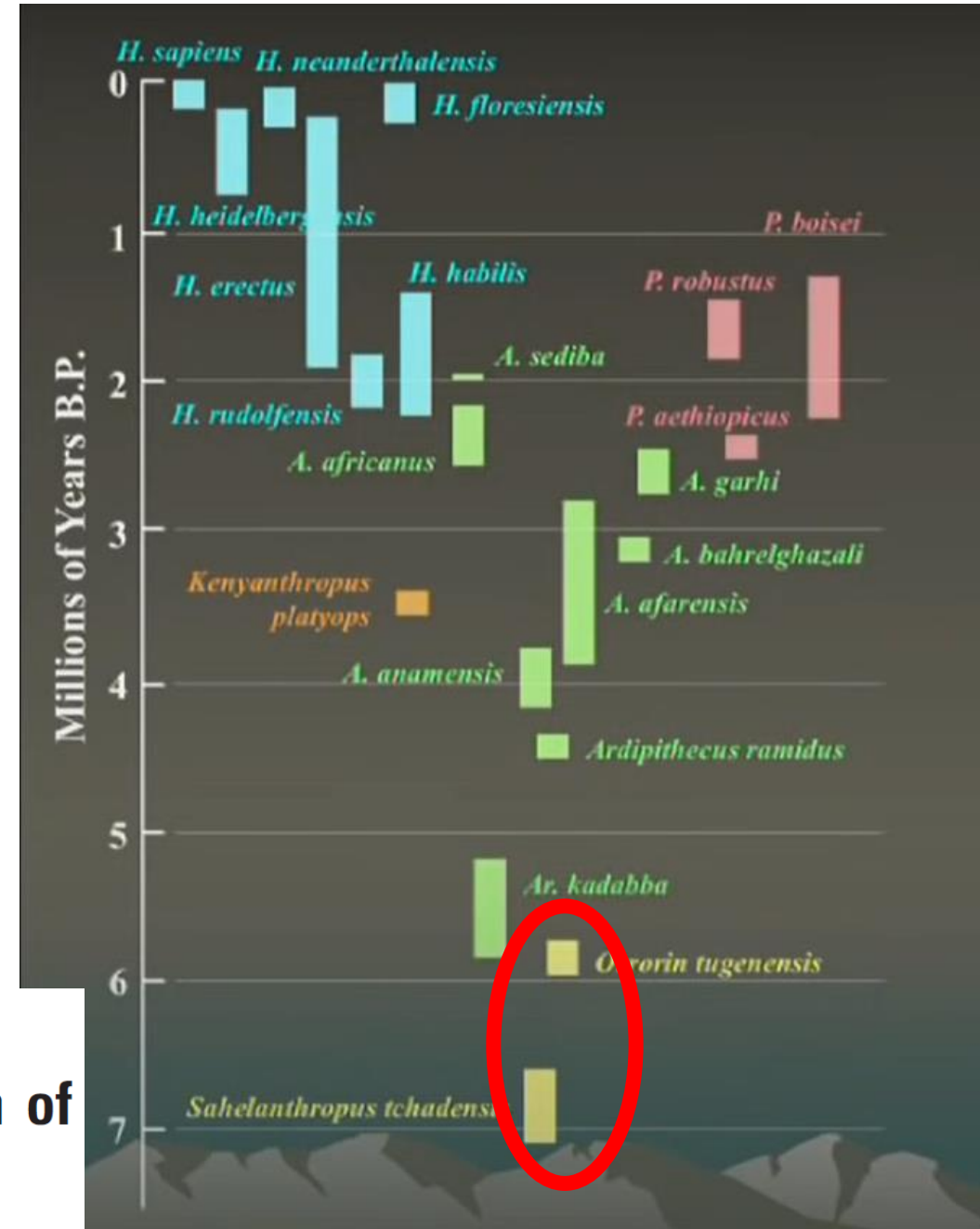
- Recent suggestions place bipedalism at much older ages
- If confirmed, it would demolish the genetic human-chimp common ancestor hypothesis (molecular clock, 6.4mya)



Cast of the *Sahelanthropus tchadensis* unreconstructed holotype cranium

## *Orrorin tugenensis* Femoral Morphology and the Evolution of Hominin Bipedalism

Brian G. Richmond<sup>1,2\*</sup> and William L. Jungers<sup>3</sup>



# ARTIFACTS

- Evidence from bones place humanity at ~ 4mya (*Australopithecus* spp.), or perhaps even earlier (~7mya)
- How about evidence from artifacts?
- **Problem:** don't animals also make artifacts?



Credit: 2023 Dorling Kindersley Limited.



Credit: Tiago Falotico, University of Sao Paulo

# Artifacts vs animal “tools”

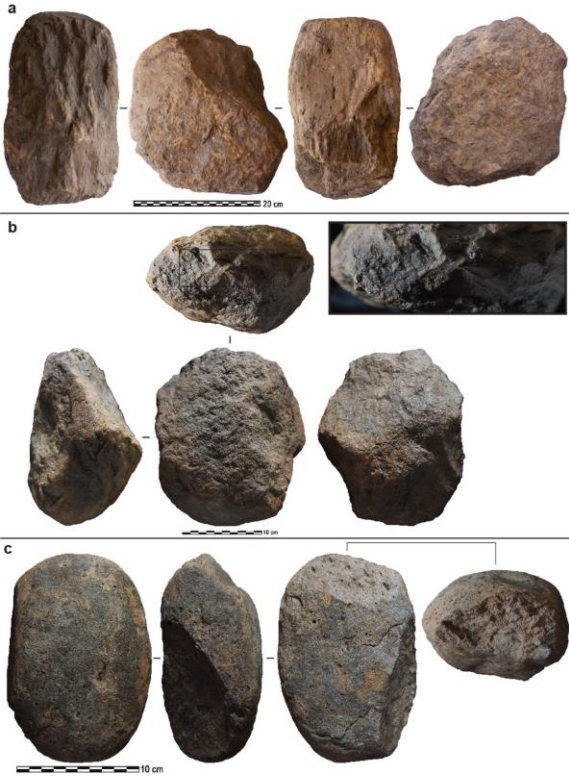
1. Animals use natural objects whereas humans make artifacts. Human tools need to be specially prepared in an action that is disconnected (in time and space) from the use of the tool itself. The clearest and sufficient condition for establishing that the tool has been prepared is identifying whether its preparation required another tool.
2. Humans, unlike other animals, use tools universally, i.e., in different applications and space-time contexts. In other words, humans use one tool for different purposes.
3. Humans store tools for further use and carry them to distant sites.
4. The production and use of tools must be regular and natural rather than occasional or induced by very specific circumstances (e.g., by conditioning in a laboratory).

# Animal “tools”



1. Use objects found in nature, but don't produce tools by using other tools
2. Not used universally (e.g., probe is only used to catch termites)
3. “Tools” are not stored or transported to different sites
4. Not all populations use the same “tools”

# ARTIFACTS

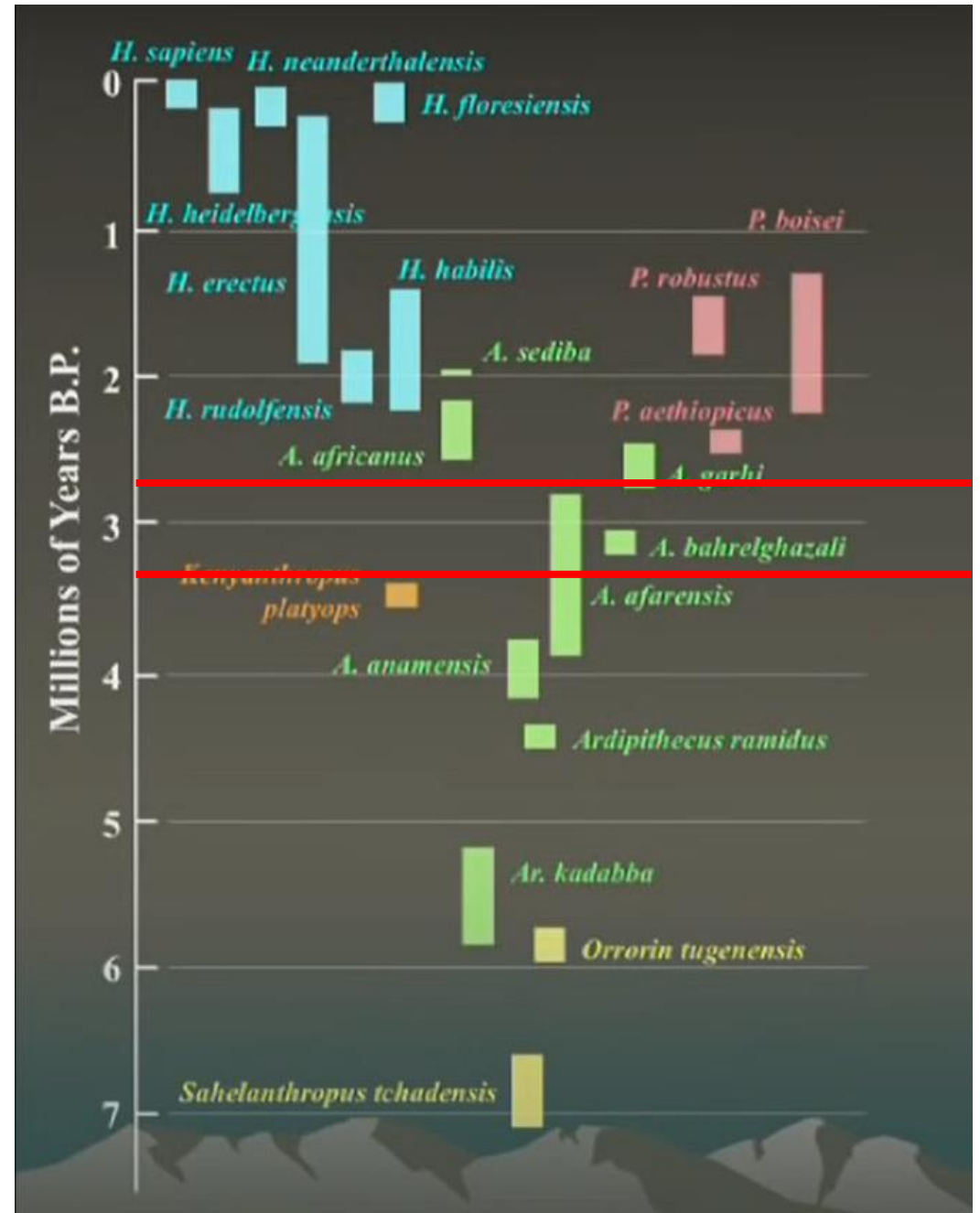


Lomekwi tools ~3.3 mya

Harmand, S., Lewis, J., Feibel, C. et al. 3.3-million-year-old stone tools from Lomekwi 3, West Turkana, Kenya. *Nature* 521, 310–315 (2015).



Oldowan tools ~2.9-1.7 mya



# ARTIFACTS



Oldowan tools  
~2.9-1.7 mya

1. Hammerstones found at archeological sites were used to create percussion fractures on another rock such as to create sharp blades (stone flakes) and stone cores.
2. The flakes served as blades to cut skin and meat but also to cut bones and access the marrow.
3. Tools were transported for many km (>10).
4. Were used often (e.g., show signs of wear).

**Conclusion:** these tools were made by humans.

The only hominid “species” around when the tools were made were *Australopithecus* spp.

Tools and bones tell the same story.



# Why is this topic so important?

- Ancient humans (e.g., *Australopithecus*) are often depicted as half-ape simpletons
- Modern human tribes do not differ in technological achievement from these putative human ancestors
- The dignity of our ancestors and these modern tribes is therefore under attack
- Historical precedent of scientific racism, eugenics, and even genocides



Reconstruction of a largely hairless male *A. sediba* by Adrie and Alfons Kennis at the Neanderthal Museum, Germany

# Social Darwinism



- Ota Benga – pigmy exhibited in a cage at a New York Zoo
- Ethnic extermination of the Herero>Nama/San people in Africa by the German empire (1<sup>st</sup> genocide of the 20<sup>th</sup> century)

# Conclusions

- Human beings are defined by their immaterial intellect (i.e., soul)
- An ape's body cannot receive a human soul
- The evolution of the human body, prior to receiving the soul, goes against the premises of evolutionary biology
- Bipedalism is an autapomorphy of man (*proper accident*)
- Fossils and artifacts can be used to infer bipedalism and therefore rationality
- The evidence is convoluted by evolutionary bias (e.g. frauds, artistic bias, etc)
- *Australopithecus spp.*, *Homo spp.*, and perhaps even older "Hominids", were most likely human and should have their dignity preserved

THANK YOU

[r.carleial@kew.org](mailto:r.carleial@kew.org)

