

# ANTHROPOGENY: THE PERSPECTIVE FROM AFRICA

## Glossary

**Acheulean (Mode 2) Tools:** A stone tool type characterized by oval or pear-shaped bi-faced "hand-axes" and are typically associated with *Homo erectus*. ~1.76 mya -130 kya. See image, page 2.

**Archaic *Homo sapiens*:** Earlier forms of *Homo sapiens* who were anatomically and behaviorally distinct from modern humans.

***Australopithecus*:** A genus of extinct **hominins** dating ~4 mya to 2 mya, and found primarily in eastern and southern Africa. ***Homo*** may have evolved from a late australopithecine. Australopithecine brain size is ~35% of the size of the modern human brain. Most species were short in stature, although sexual dimorphism was pronounced. Some examples of australopithecines:

***A. anamensis*:** Kenya and Ethiopia. ~4 mya.

***A. afarensis*:** Eastern Africa. Most famous example is "Lucy." ~3.9 mya to 2.9 mya.

***A. bahrelghazali*:** Central Africa. ~3.6 mya

***A. africanus*:** Southern Africa. ~3.3 mya to 2.1 mya.

***A. garhi*:** Ethiopia. Possible transitional stage between *Australopithecus* and *Homo*. ~2.5 mya.

***A. boisei*:** East Africa. Robust australopithecine. There is debate as to which genus they belong, *Australopithecus* or ***Paranthropus***. ~2.4 to 1.4 mya.

***A. sediba*:** South Africa. Possible transitional stage between *Australopithecus* and ***Homo***. ~2 mya.

**Behavior:** The way in which individuals acts or conducts themselves, especially toward others.

**Clade:** A group of organisms consisting of a common ancestor and all descendants on a particular lineage. Represents a single branch on the "tree of life."

**Cladogram:** A branching diagram used to show hypothetical relations among groups of organisms and their hypothetical most common ancestors. It is not an evolutionary tree as it does not show how ancestors are related to descendants, nor does it show evolutionary distance or time.

**Culture:** Behavior and norms that are shared, learned, and socially transmitted. Human culture includes institutions and the creation of shared meaning.

**Denisovans:** An extinct hominin population contemporary with Neanderthals **that hybridized with ancient humans and Neanderthals**. Knowledge of Denisovan morphology is limited to two small fossils found in Siberia.

**Djurab Desert:** Northern Chad. A fossil rich desert that is most famous for the discovery of ***Sahelanthropous tchadensis*** (Toumai) in 2001.

**Ecology:** The interaction of organisms with their physical environment, along with other organisms.

**Falémé Valley:** Eastern Senegal. Excavations have led to the the discovery of paleolithic occupations from different periods, cultures, and lithic technologies.

**Foraging:** Searching for wild food or provisions as opposed to

cultivating food crops or keeping livestock.

**Genus:** A taxonomic rank used in biological classification of living and fossil organisms to group closely related species. In binomial nomenclature, the genus name plus species name forms the binomial species name (e.g. *Homo sapiens*).

**"Great Apes":** A taxonomic family that was once incorrectly used to denote chimpanzees, bonobos, gorillas and orangutans, but not humans.

**Holocene:** The current geological epoch, from about 11.7 kya to the present.

**Hominid:** A classification comprising all modern and extinct **"Great Apes"** and humans.

**Hominin:** A classification of species comprising humans and extinct relatives (ex. ***Australopithecus***, ***Paranthropus***, and ***Ardipithecus*** - not all are ancestral to humans) following the split with the common ancestor with chimpanzees.

***Homo*:** The genus that comprises the species *Homo sapiens*, as well as several extinct species classified as ancestral to, or closely related to, humans.

***Homo erectus*:** An extinct hominin species with fossil evidence from 1.9 million (possibly earlier) to 70 thousand years ago and found from Africa to Indonesia. May have been the first hominin to leave Africa. *H. erectus* DNA may be retrievable from other species due to archaic admixture.

***Homo habilis*:** An extinct archaic species of the genus ***Homo*** dating to ~2.1 to 1.5 mya. *H. habilis* means "handy man" and was named so because of its association with stone tools. *H. habilis* has intermediate morphology between ***Australopithecus*** and ***Homo erectus***. There is ongoing debate if *H. habilis* should be moved to the ***Australopithecus*** genus. Initial discovery was made by Mary and Louis Leakey at Olduvai Gorge in Tanzania between 1962 and 1964.

**Howiesons Poort:** A lithic technology cultural period in the **Middle Stone Age** in Africa named after the Howieson's Poort Shelter archeological site near Grahamstown, South Africa. Dates range from ~65.8 kya to 59.5 kya. Examples include composite weapons hafted with ochre and gum compound glue and microlith blades, bone arrows, and needles.

**Hunter-Gatherer:** A human living in a society in which most or all food is obtained by foraging (collecting wild plants and pursuing wild animals), in contrast to agricultural societies, which rely mainly on domesticated species. *Given the higher contribution from gathering, perhaps they should be called Gatherer-Hunters.*

**Immediate Return Hunter-Gatherers:** Those who do not store food, but consume it within a day or two of obtaining it. This means there is no opportunity to accumulate surplus.

**Klasies-River:** A river and cave system in the Tsitsikamma coast, Humansdorp district, Eastern Cape Province, South Africa. Evidence for middle stone age-associated human habitation has been found in the nearby cave system dating to ~125 kya.

**Konso-Gardula:** A palaeoanthropological area in the southern Main Ethiopian Rift that was discovered 1991. The Konso-Gardula sediments span ~1.9 mya to 1.3 mya. Early **Homo** fossils and **Acheulean** stone tools have been found here.

**KYA:** Thousand years ago.

**Morphology (Biology):** The branch of biology interested in the form and structure of organisms and their specific structural features.

**Mitochondrial DNA (mtDNA):** Maternally inherited DNA found only in the mitochondria, the energy producing organelles of eukaryotic cells.

**MYA:** Million years ago.

**Neanderthals:** An extinct Eurasian hominin species that existed from 500,000 to 30,000 years ago and interbred with ancient humans and **Denisovans**.

**Oldowan (Type 1) Tools:** A stone tool characterized by simple "choppers" for pounding, breaking, and bashing. ~2.6 mya - 1.7 mya. See image, bottom of this page.

**Paranthropus:** A genus of extinct bipedal hominins dating to ~2.6 mya to 1.1 mya that lived throughout eastern and south Africa. Their robust cranial/dental anatomy suggests an adaptation to a diet of tough vegetation. Possible tool use is indicated by hands adapted for precision grasping. They probably descended from the gracile australopithecine hominids (**Australopithecus**) ~2.7 million years ago, hence their alternative name, robust australopithecine, and ongoing debate on genus.

**Phenotype:** Observable traits of an organism (result from interactions between genes and environment).

**Phylogenetic Tree:** A diagram showing the evolutionary relationships among biological species, or other entities, based on their physical or genetic characteristics.

**Pleistocene:** A geological epoch from ~2.5 mya to 11.7 kya characterized by a period of repeated glaciations. The end of the Pleistocene corresponds with the end of the last glacial period and also with the end of the Paleolithic age used in archaeology. Subdivisions:

**Early (Lower) Pleistocene:** ~2.588 mya to 781 kya.

**Middle Pleistocene:** Emergence of **Homo sapiens**. 781 kya to 126 kya.

**Late (Upper) Pleistocene:** 126 kya to 11.7 kya.

**Primates:** A group of mammals that include humans, apes, monkeys, and prosimians.

**Scavengers:** Organisms that search for and feed on carrion, dead plant material, or refuse.

**Sahelanthropus tchadensis (Toumai):** An extinct archaic species of hominin dating close to the split between the chimpanzee-human split, ~7 mya. A probable ancestor to *Orrorin tugenensis* and may have walked bipedally.

**Stable Isotope:** Isotopes that do not decay into other elements. These isotopes, found in biological material, including fossils, and can be used to study paleo-diet and ecology.

**Stone Age:** The prehistoric period during which stone was used to make tools and weapons and is synonymous with the paleolithic. ~3.4 mya - 10 kya.

In African archaeology, stone age chronology is divided into *Early Stone Age (ESA)*: ~2.6 mya to ~300 kya; *Middle Stone Age (MSA)*: ~300 kya to ~50 kya; and *Later Stone Age (LSA)*: ~50 kya to ~39 kya.

**ESA** is characterized by the development of the first African stone tools, such as **Oldowan** technology used by Australopithecines, and the more advanced **Acheulean** technology, utilized by **Homo erectus**.

**MSA** is characterized by a transition from **Acheulean** to Levallois technology and the earliest known modern human behavior.

**LSA** is characterized by microlithic industries and punch-struck blades and fully modern human behavior.

**Variation (Biology):** The differences among the individual of the same species.

**Y-chromosome DNA:** In mammals, paternally inherited DNA. The Y-chromosome is one of two sex chromosomes (allosomes) and is the sex-determining chromosome. Absence or presence of the Y-chromosome in the sperm fertilizing the egg determines the sex of the resulting offspring (female or male, respectively). In humans, the Y-chromosome consists of ~59 million base pairs. Y-Chromosome DNA is used to make paternal haplogroup (discrete sections of non-recombining dna) lineage inferences. The Y-chromosome is passed paternally to sons only and it is one of the fastest-evolving (read: mutation rate) parts of the human genome.



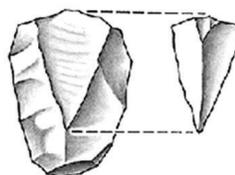
**Oldowan  
(Mode 1)**

~2.6 mya - 1.7 mya



**Acheulean  
(Mode 2)**

~1.76 mya - 130 kya



**Mousterian  
(Mode 3)**

~315 kya - 30 kya



**Aurignacian  
(Mode 4)**

~43 kya - 28 kya



**Microlithic  
(Mode 5)**

~35 kya - 3 kya



*This glossary is the product of the Anthropogeny Graduate Specialization students, Anthropogeny faculty, CARTA staff, and the symposium speakers.*