

GENERAL INFORMATION ABOUT HOMINIDS

Fossil hominid materials found throughout Africa, Asia and Europe are housed in museums in those respective countries. It is from this multitude of fossil fragments that noted paleoanthropologists study and accumulate knowledge about man's often disputed evolution to modern *Homo sapiens*. As more hominid fossils are found, accepted theories concerning the candidates for direct ancestry to the first hominids are either reinforced or changed. For a variety of reasons, reconstructions of hominid material are very difficult for the general public to obtain.

The Skullduggery hominid series was sculpted to provide educators with a visual comparison between those species thought to be the beginnings of the human race. From various casts, photographs, published diagrams and text describing hominid fossil material and their reconstructions, sculptor Larry Williams has created the hominid series for Skullduggery. Each sculpture exhibits the general characteristics of its respective species. *These sculptures should be used for visual comparison only, and not for comparing exact measurements among the various species.*

Anthropologists uncover fossil material from the various levels of the Earth's strata. The relative age of a fossil can be determined by testing the composition of mineral deposits absorbed from surrounding soil in which it was found. In many sites, the deeper strata contain the older material. Erosion and upheaval of the Earth's surface can combine and even overlap these layers, making the determination of the age of a fossil very difficult. One system used for determining a more exact age of fossil material is called the radiometric dating method. This method, along with other new scientific techniques, is used to pinpoint more closely the date which living material died. As a result of extensive research and many tests performed on original fossil material, it has been determined that the first hominid emerged about 4 to 4.5 million years ago. Some of the fossil finds from that time period indicate that these creatures walked on two legs (bipedal) instead of four. This characteristic played a large part in placing these beings in the hominid category.

All fossil hominid material found to date can be placed within two genera, the genus *Australopithecus* and the genus *Homo*. Australopithecines are thought to have been small ape-like, bipedal creatures with a small brain and large face and teeth. There are four species in the genera *Australopithecus*: two gracile forms, *A. afarensis* and *A. africanus*, and two robust forms, *A. boisei* and *A. robustus*. Most anthropologists agree that the robust Australopithecines, *A. boisei* and *A. robustus*,

represent two species which became extinct. There is considerable controversy among anthropologists as to whether to include *A. africanus* in the direct line of evolution to *Homo* or with the two robust species which became extinct. *A. afarensis*, the oldest known Australopithecine, was a common ancestor to both gracile and robustus species.

The first hominid fossil material classified as *Homo* is dated approximately 2 million years old. Some characteristics which separate the genus *Homo* from the genus *Australopithecus* are the increase in brain size and a reduction in the size of the face and the teeth. Within the genus *Homo* there are three species, *Homo habilis*, *Homo erectus* and *Homo sapiens*. Whether *Homo habilis* was the direct ancestor of *A. afarensis* or *A. africanus* is still very much debated. While *Homo habilis*' material (2 million years old) was found exclusively in Africa, *Homo erectus* material (1.6 million years old) has been unearthed in Asia and Europe as well. Similarities between later *H. erectus* and early *H. sapiens* make it difficult to pinpoint exactly when the first *Homo sapiens* appeared. There is definite evidence that early forms of *Homo sapiens* existed 200,000 years ago. This early form of *Homo sapiens* went through many changes before it had the look of a truly modern man.

The Neandertal is the earliest and most well known member of *Homo sapiens*. The skull of Neandertal has a combination of traits which can be found to some degree in *Homo erectus*, including an occipital bun, a very large brain cavity, a long & protruding face and a large nasal area.

Australopithecus afarensis

“Southern Ape of Afar”

- Existed 3 to 4 million years ago
- Sites of fossil discoveries - Laetoli (Tanzania), Hadar (Ethiopia); Koobi Fora Formation (Kenya)
- Endocranial capacity - 400 to 530 cc
- Estimated body mass - 37.1 kg
- General physical characteristics:
 - Small brain
 - Large, ape-like face
 - Teeth size - smaller than apes, larger than modern man
 - Gap between incisors and canines (diastema)
 - 3 to 4 feet in height
 - Walked on two legs (bipedal)

Evidence suggests that family groups hunted for fibrous fruits and seeds for food. Although there is no evidence to suggest that *A. afarensis* used stone tools, it is quite possible that perishable tools were used, such as wooden sticks for digging.

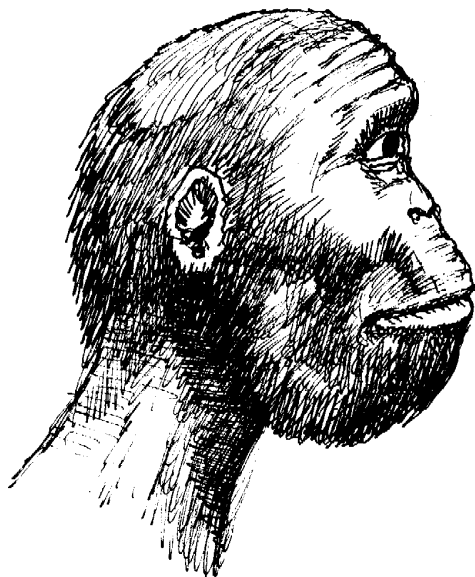


Australopithecus africanus

“Southern Ape of Africa”

- Existed 2 to 3 million years ago
- Sites of fossil discoveries - Makapansgat, Sterkfontein and Taung (South Africa)
- Endocranial capacity - 400 to 530 cc
- Estimated body mass - 35.3 kg
- General physical characteristics:
 - Larger brain when compared to estimated body weight
 - Reduced brow ridge
 - Reduced prognathism (flatter face)
 - No gap in teeth (diastema)
 - Larger teeth than modern man

A. africanus' diet consisted mainly of fibrous fruits and seeds, however, it has been suggested that he may have hunted small animals for food, and quite possibly used very primitive stone tools.

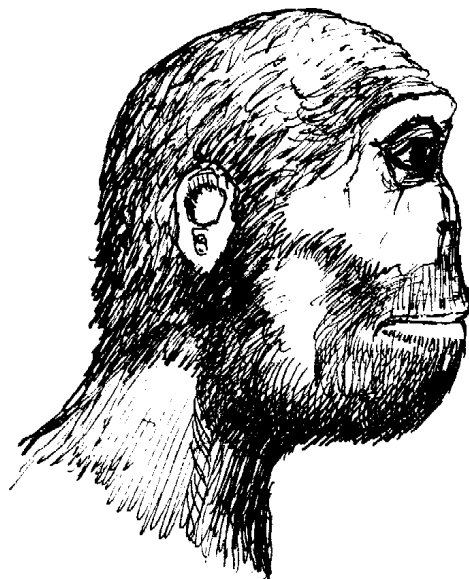


Homo habilis

“Handy Man”

- Existed 1.5 to 2 million years ago
- Sites of fossil discoveries - Olduvai Gorge (Tanzania), Koobi Fora (Kenya), Swartkrans and Sterkfontein (South Africa)
- Endocranial capacity - 509 to 810 cc
- Estimated body mass - 48 kg
- General physical characteristics:
 - Larger brain than Australopithecines
 - Rounded forehead
 - Smaller, more narrow face
 - U shaped tooth row

Evidence suggests that *Homo habilis* was able to make a variety of stone tools. The constructing of stone tools indicates the first evidence of an adaptive pattern for problem solving by hominids. Animal bones and stone tools found with *Homo habilis* remains suggest that this was a species of scavengers. There is some evidence which points out that *Homo habilis* may have occasionally hunted small game, but none to suggest that it was an organized hunter.



Homo erectus

“Upright Man”

- Existed 200,000 to 1.6 million years ago
- Sites of fossil discoveries - Oldavai Gorge (Tanzania); Lake Turkana (Kenya); Thomas Quarry (North Africa); Montmaurin and Mauer (Western Europe); Jinniushan, Zhoukoudian, Lantian and Hexian (Indonesia, China and Southeast Asia)
- Endocranial capacity - 727 to 1225 cc
- Estimated body mass - 53 kg
- General physical characteristics:
 - Larger brain than *H. habilis*, smaller than *H. sapiens*
 - Flattened forehead
 - More prognathism than *H. sapiens*
 - Prominent brow ridges
 - Smaller teeth than *H. habilis*, larger than *H. sapiens*

Homo erectus was the first hominid to be found outside Africa. The stone tools found along side remains of *Homo erectus* were more sophisticated and advanced than those made by *Homo habilis*. There is evidence that *Homo erectus* was a skilled and organized hunter. Evidence also suggests that *Homo erectus* used caves for shelter and made other shelters where caves were not found. There is sufficient evidence to suggest that *Homo erectus* existed in small social groups which banded together for mutual benefit. *Homo erectus* utilized fire for warmth and cooking.



Neandertal

- Existed 30,000 to 70,000 years ago
- Sites of fossil discoveries - France, Germany, Yugoslavia and Southwest Asia
- Endocranial capacity - 1450 cc
- Estimated body mass 65 kg
- General physical characteristics:
 - Large cranial capacity, larger brain than modern *Homo sapiens*
 - Long, low cranium
 - Occipital protrusion
 - Broad, long nasal opening
 - Projecting midface area

Neandertals were quite intelligent. Remains of the European Neandertals indicate that to survive the harsh winters they lived in caves and very primitive tents made of animal bones and skin. Evidence of old hearths show that they warmed their tents and caves by burning wood and bones. There is additional evidence to suggest that they knew how to start fires by striking sparks from iron pyrites and using dried bracket fungus as tinder. The Neandertal made primitive clothing out of animal skin. This clothing possibly included very crude trousers, tunics and protection for feet. They were the first culture to show evidence of systematic burials of their dead. There is also some evidence of the beginnings of rudimentary art forms.



