

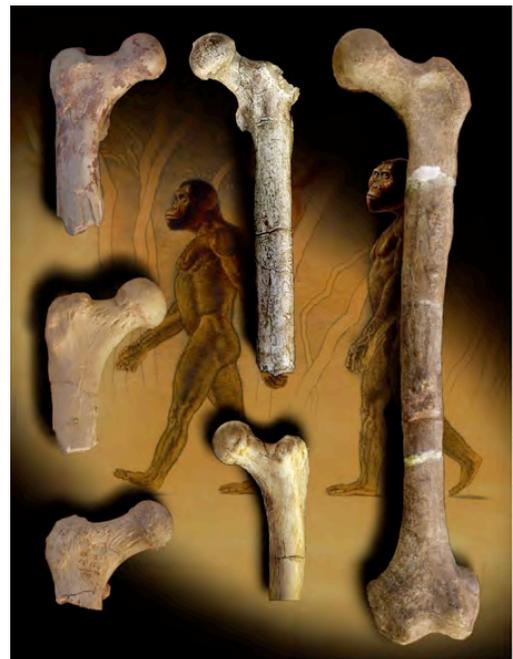
# Early Hominids Walked Upright

Robert Sherins

In the past decade, discoveries of three new hominid species have been reported that showed bi-pedalism in hominids as early as 7 million years ago. The earliest of those hominids is ***Sahelanthropus tchadensis*** (Sahel man from **Chad**), which is an extremely important finding because it is the only one so far not discovered in the Rift Valley region of Kenya-Ethiopia. Additionally, it showed that the spinal cord was attached to the foramen magnum (skull) in a fashion suggesting that this hominid was bipedal. The discovery of this remarkable individual pre-dates the split-off of the pre-apes and modern humans. As such, the evolutionary scheme is a terrific way to compare our modern human evolution that resulted in our upright posture and bipedalism, huge brains, fine motor coordination for tool making, language skills and intellectual development.



Fossil remains of ***Orrorin tugenensis*** were discovered in the Tugen Hills of **Kenya** dating about 6 million years ago. Orrorin was a bipedal hominid that predated *Australopithecus afarensis* ("Lucy") by about 2.5 million years.

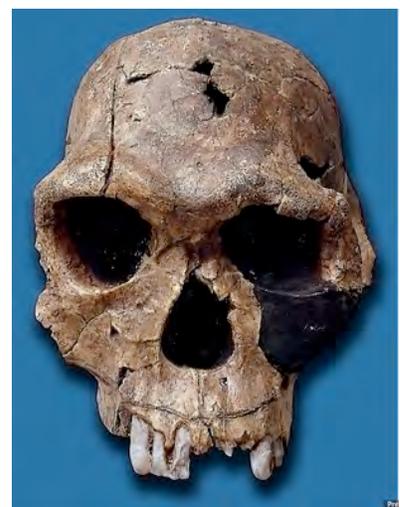


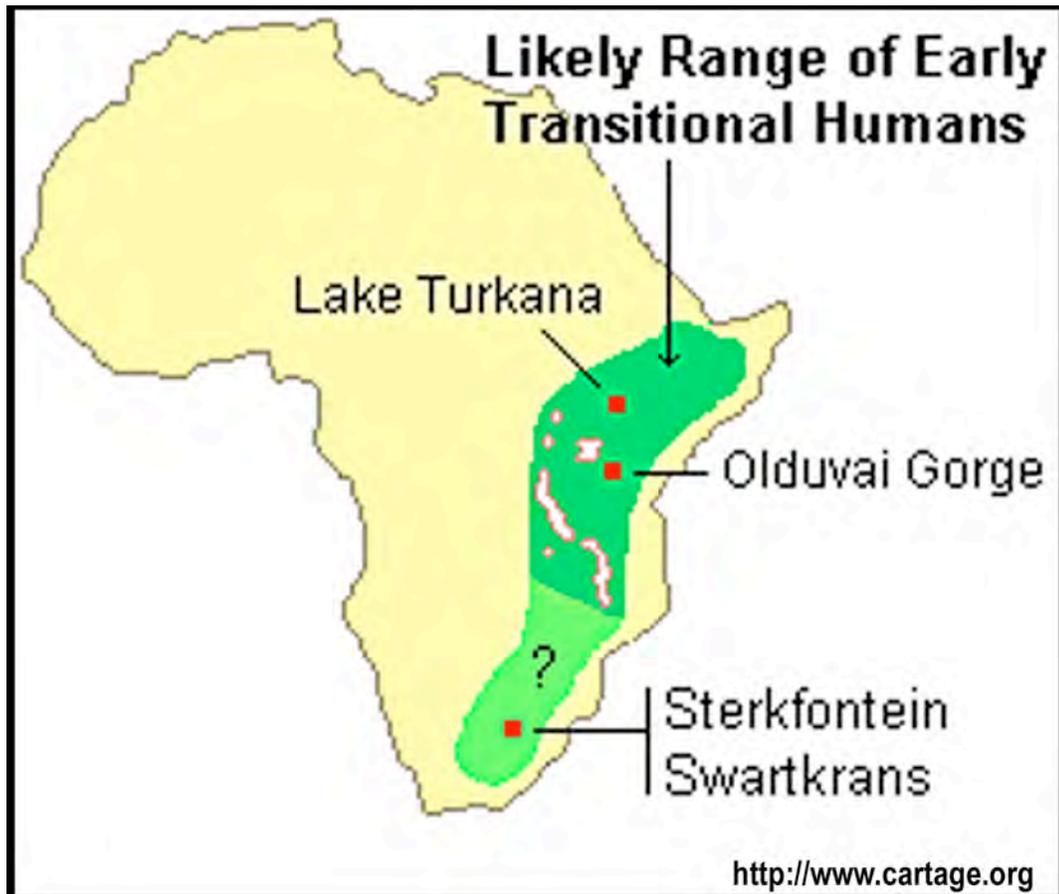
The third bi-pedal hominid was ***Ardipithecis ramidus***. The fossils were located in the ***Afar region of Ethiopia*** and were dated to 4.5 million years ago.



Skeleton of *Ardipithecis ramidus*

The first hominid associated with ***hand tool making*** was ***Homo habilis***. Fossil remains of his stone hand tools are impressive, but his brain capacity was still quite small - 600 cc. Habilis lived entirely within Africa from 2.3 to 1.4 million years ago.





Homo Habilis Lived Entirely Within Africa

## Hominids Walked Out of Africa

**Homo Erectus** appeared about 1.8 million years ago and **migrated out of Africa**. These individuals populated the African continent, as well as the southern regions of Europe, Asia, Siberia, India and Indonesia. They roamed far and wide indicating that they could adapt to a wider range of environments following their food resources.



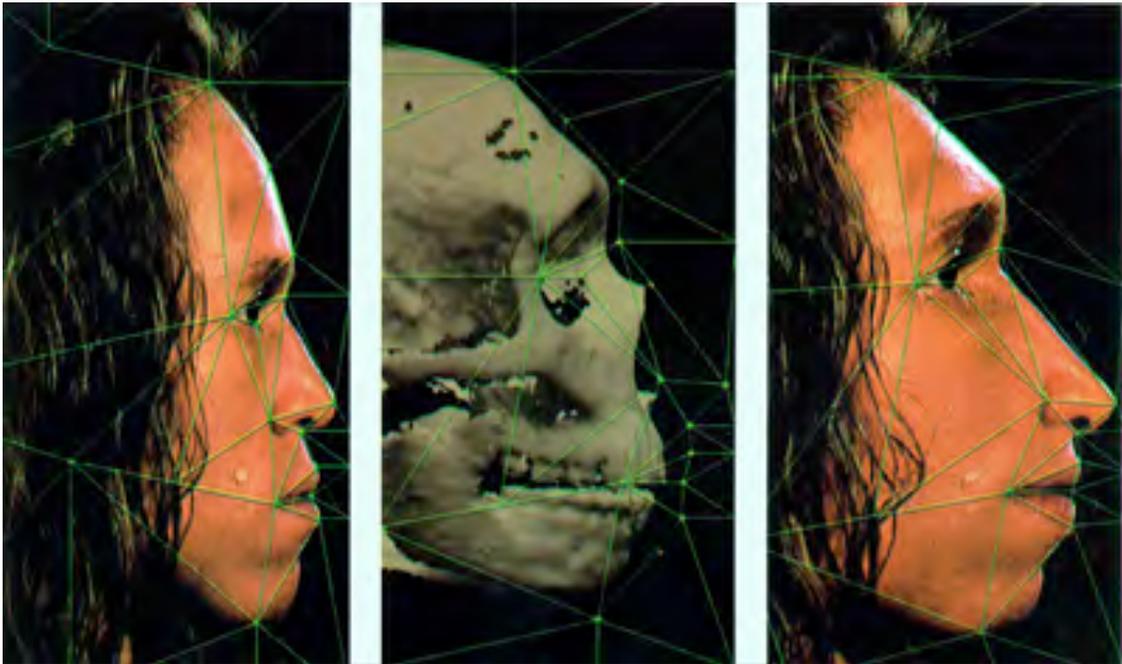


Neanderthal had a more robust skeleton and skull than Homo sapiens. His brain capacity was larger, 1600 cc. Neanderthal was capable of making hand tools, created art drawings, and had a well-fixated larynx necessary for speech. His genome contained genes associated with red hair and blue eyes. Recent DNA evidence shows that modern humans may have a few percent of Neanderthal genes (2-4%). Some researchers believe that Neanderthals should be classified as another type of modern human. Other anthropologists believe that Neanderthal and Homo sapiens only are related by a recent common ancestor and that Neanderthal is NOT a modern human. There is great dispute about the DNA evidence of Neanderthals. At best, there were only occasional matings between the two species. Neither theory is universally accepted.

Most importantly, Neanderthals roamed Europe, the Middle East and Asia for several hundred thousand years. During the latter years since about 60,000 years ago, Neanderthal must have been shared some of the territory with Homo sapiens. The most recent fossil records of Neanderthal were discovered in coastal Spain and have been dated to about 30,000 years ago. It would appear that Neanderthals went extinct about that time. There is no evidence of warfare nor serious mortal diseases among the Neanderthal fossil records. The cause of their extinction remains a mystery. Perhaps Neanderthal just could not compete as efficiently with Homo sapiens for reasons related to adaptation to a changing environment.



Comparison of Skull and Skeletons of Neanderthal and Homo sapiens



Reconstruction of CroMagnon and Neanderthal facies

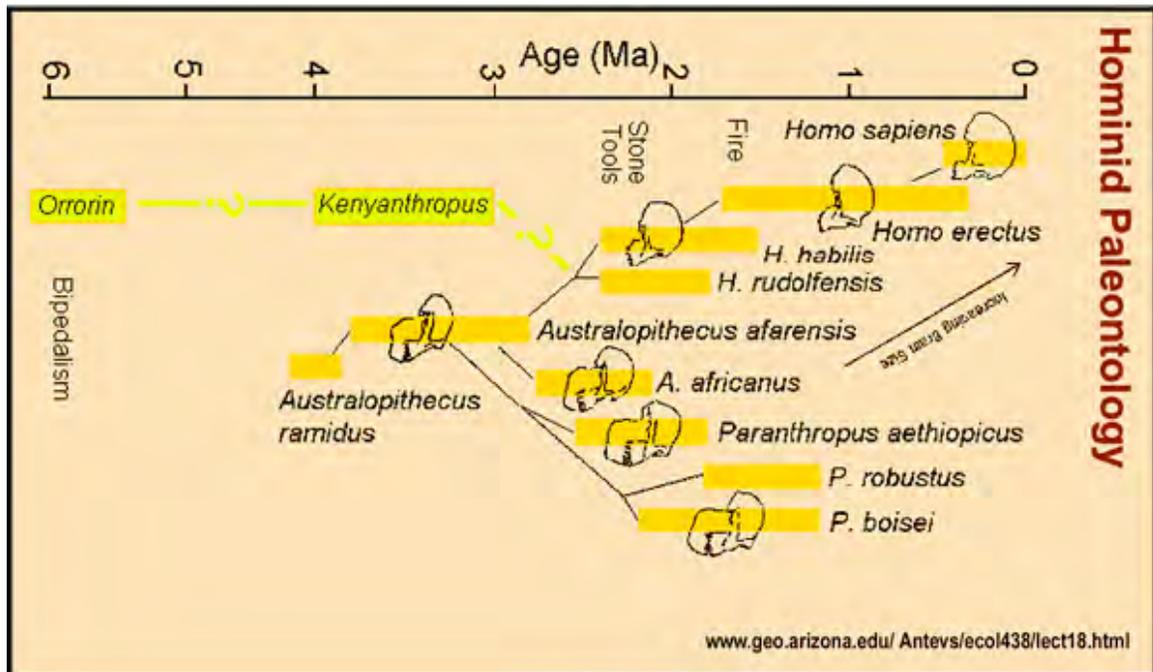


Both Neanderthal and Homo sapiens Can Display Red Hair





Neanderthal Anatomic Reconstruction



Graphic Timeline of Hominid Evolution