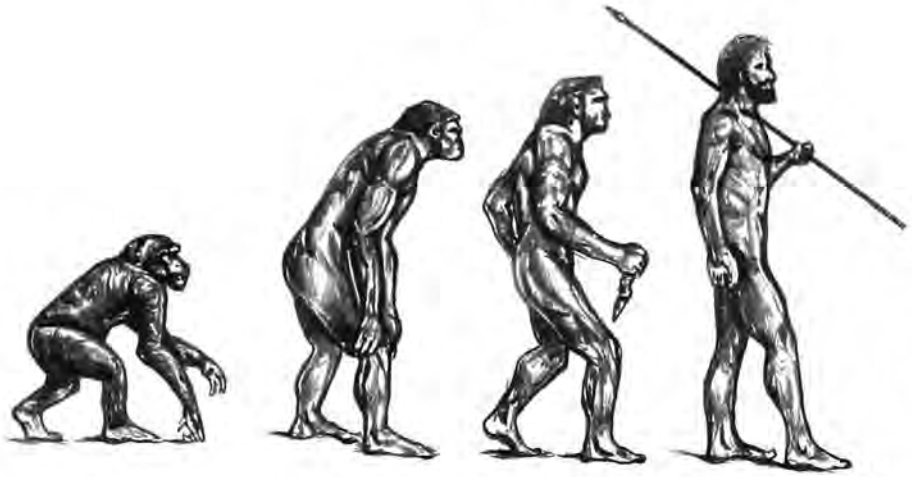

Evolving Narrative of Human Evolution

Human evolution is not such a straightforward story as new evidence emerges, writes **Theera Nuchpiam**

The story of man seems to be shrouded in darkness as it has always been, but we still have enough information on human evolution to go on speculating. Scientists have accumulated much evidence that makes it no longer possible to adhere to the previously accepted evolutionary story – the one we have been familiar with since childhood, especially in the form of cartoon illustration, of a straight line evolution from knuckle-dragging ape to briefcase-carrying man.

However, while the simple story of such a unilinear descent no longer holds, scientists still have to piece together the evidential jigsaws they have so far unearthed before they can tell what would seem to be a far more complicated story of man – especially in so far as this concerns our ancestor's ancestors.

It is generally accepted that modern humans, the mammalian species *Homo sapiens,* originated in Africa about 200,000 years ago. But who were their ancestors? The best known story is one that depicts their straight line descent from *Homo habilis,* hitherto believed to be the first and oldest species of the genus Homo, through *Homo erectus,* the species of the genus who walked "upright", and who then became modern humans.

However, recent discoveries have enabled scientists not only to trace the story of man increasingly further back but also to challenge such a straight line evolution. These new finds have already sparked a debate on how many branches of human ancestors existed perhaps as far back as six million years ago.

Two oldest known human ancestors are *Australopithecus anamensis,* who lived some 4.2 million to 3.9 million years ago, and *Australopithecus afarenis,* who existed from 3.6 million to three million years ago.[1] One of the frustrating puzzles of human evolution is how to bridge the gap between these two known human species, as well as their links with later ones.

A most important find is a 3.2-million-year-old fossil that was unearthed by Donald Johanson and Tom Gray at the Hader site in Ethiopia in 1974. Named after a popular song of the time,[2] the largely complete fossilised skeleton, Lucy, is believed to belong to the species *A. afarensis.* It is also believed that Lucy and others of her species were descendants of *A. anamensis.* This hypothesis nevertheless needs to be more conclusively validated.

Sketch of a reconstruction of 'Lucy', which was based on a fossilised and nearly complete skeleton

Searches into the mystery of human origins have yielded remains of various species of the genus Australopithecus. For example, bones were found in 2.5-million-year-old sediments that are supposed to have been associated with some of the earliest known stone tools used to butcher animals. Moreover, a skull and other fossils were also unearthed that suggest descent from the much earlier Lucy species.[3]

A recent discovery of ancient jawbones in the fossil-rich Afar region, just 32 kilometres north of the site where Lucy had been found, was

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[1] Nick Wadhams, "Ancient jawbone could shake up the fossil record", *National Geographic.com News,* published in the *Bangkok Post,* 31 July 2007

[2] The name came from the Beatles' song "Lucy in the Sky with Diamonds" that was played during the jubilant night of 24 November 1974 (the day the fossilised skeleton was found). See her full story in "Lucy's Story" in Arizona State University's Institute of Human Origins website http://www.asu.edu/clas/iho/lucy.html

[3] John Noble Wilford, "Frustrating search for beginnings", *Bangkok Post,* 29 September 2007

expected to shed some light on the relationship between these two species.[4] Dated to 3.8 million to 3.5 million years ago, the bones can be expected to determine the possible evolutionary relationship between *A. anamensis* and its later species, *A. afarensis,* of which Lucy is a crucial specimen.

With all these finds, especially the most recently discovered jawbone, scientists now reconstruct a possible evolutionary story. *A. anamensis,* the earlier species, had large canine teeth and a narrow jaw. When Lucy appeared, compared to *A. anamensis,* the jaw had widened, and canines had become smaller, and the molars had grown. Such changes suggest that the *A. afarensis* chewed: it did not tear its food.[5]

Homo habilis

What happened after the period when these primitive hominids (human ancestors and their close kin) roamed the plains of Africa also remains puzzling. Probably about 2.6 million years ago, some clever hominids were beginning to make stone tools. It was perhaps then or sometime later that the first Homo appeared. Unfortunately, we have no confirmed evidence of this evolutionary stage. There is indeed a dark age from three million to less than two million years ago.

The earliest remains of the Homo date back to about 1.9 million years ago. It has been identified as *Homo habilis,* or the "handy man", a species with a somewhat larger brain and a more humanlike face, teeth, and stature than the apelike Australopithecines. *Habilis* used be regarded as the first of the genus *Homo,* preceding the more advanced *Homo erectus* from which modern humans, *Homo sapiens,* were supposed to have directly descended. However, a report in the August 2007 issue of *Nature* raised a major question on this hypothesis.[6]

There is now evidence that those two earlier species existed side by side about 1.5 million years ago in parts of Kenya for at least half a

[4] Wadhams, "Ancient jawbone could shake up the fossil record".
[5] *Ibid*
[6] John Noble Wilford, "Frustrating search for beginnings"

million years. Eight years ago, palaeontologist Maeve Leaky of Kenya found a complete *Homo erectus* skull within a walking distance of an upper jaw of *Homo habilis;* both have been dated to belong to the same general time period. The *Homo habilis* was dated at 1.44 million years ago, which is the youngest to have been unearthed so far of a species that had been generally believed to have died out sometime between 1.7 million and two million years ago,[7] while the remarkably well preserved skull of *Homo erectus* paradoxically dates back even further to some 1.55 million years ago.[8]

These finds make it unlikely that Homo erectus evolved from *Homo habilis.* Rather, the recent finds now enable scientists to conclude that *Homo erectus* and *Homo habilis* lived at the same time. In much the same vein as we once thought that *Homo sapiens* evolved from Neanderthals (we now know that both species lived during the same time period), scientists now have to rethink another evolutionary stage further back in time. What we can say is that *Homo habilis* and *Homo erectus* have some still-undiscovered common ancestor that probably lived two million to three million years ago.[9]

Homo erectus

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Illustration by **Sakulchat Chatrakul Na Ayuddhaya**

[7] Seth Borenstein, "Who was our ancestor's ancestor? African fossils paint a messy picture of human evolution", *Bangkok Post,* 14 August 2007

[8] Vilem Bischof, "Fossils renew debate on man's origins", *Bangkok Post,* 9 August 2007

[9] Borenstein, "Who was our ancestor's ancestor?"