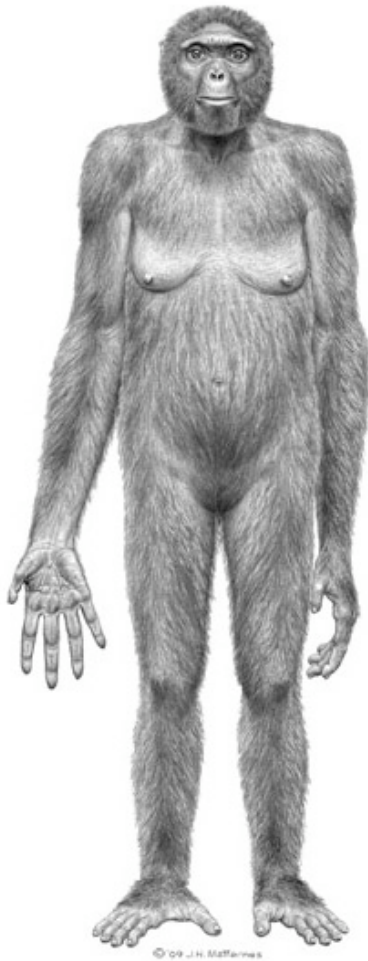


Pre-“Lucy” fossils reveal secrets

Oct. 1, 2009
Courtesy Science
and World Science staff

Scientists are reporting that they have for the first time thoroughly described *Ardipithecus ramidus*, a species of ape-like human ancestor that lived 4.4 million years ago in what is now Ethiopia.

The analysis, consisting of 11 research papers by various groups, appears in the Oct. 2 issue of the research journal *Science*. The fossils include a partial skeleton of a female, nicknamed Ardi.



Artist's representation of a female
Ardipithecus ramidus. (© J. H. Matternes)

The last common ancestor shared by humans and chimpanzees is thought to have lived six or more million years ago. Though *Ardipithecus* is not this common ancestor, it probably shared many of its characteristics, researchers say.

Ardipithecus is more than a million years older than a famous partial skeleton of *Australopithecus afarensis*, nicknamed Lucy. Until the discovery of the *Ardipithecus* remains, the fossil record contained scant evidence of other hominids older than *Australopithecus*.

Through analysis of the bones, the researchers have found that *Ardipithecus* had a mix of “primitive” traits, shared with its predecessors, the primates of the so-called Miocene epoch, and “derived” traits, which it shares exclusively with later hominids.

Ardipithecus takes us closer to the still-elusive last common ancestor, researchers said; but many of its traits don’t appear in modern-day African apes, so the latter probably have changed extensively since the last shared ancestor. Thus, they remarked, today’s chimps and gorillas may be poor models for the last common ancestor and for understanding our own evolution since then.

“In *Ardipithecus* we have an unspecialized form that hasn’t evolved very far in the direction of *Australopithecus*. So when you go from head to toe, you’re seeing a mosaic creature, that is neither chimpanzee, nor is it human,” said Tim White of the University of California Berkeley, who is one of the lead authors of the research.

“With such a complete skeleton, and with so many other individuals of the same species at the same time horizon, we can really understand the biology of this hominid,” said Gen Suwa of the University of Tokyo, a paleoanthropologist and also lead author of one of the papers. Hominids are an evolutionary group that includes humans and their fossil ancestors.



Reconstructed frontal view of "Ardi," based on research by C. Owen Lovejoy of Kent State University in the journal *Science*. (© J. H. Matternes)

“These articles contain an enormous amount of data collected and analyzed through a major international research effort,” said Brooks Hanson, deputy editor at *Science*.

“They throw open a window into a period of human evolution we have known little about, when early hominids were establishing themselves in Africa, soon after diverging from the last ancestor they shared with the African apes.”

White and coauthors introduce their discovery of over 110 *Ardipithecus* specimens including a partial skeleton with much of the skull, hands, feet, limbs and pelvis. This individual, Ardi, was a female who weighed about 50 kilograms (110 pounds) and stood about 120 centimeters (47 inches) tall.

Until now, researchers have generally assumed that chimps, gorillas and other modern African apes retained many of the traits of the last ancestor they shared with humans – in other words, this presumed ancestor was thought to be much more chimpanzee-like than human-like. For example, it would have been adapted for swinging and hanging from tree branches, and perhaps walked on its knuckles while on the ground.

Ardipithecus challenges these assumptions, researchers said.

These hominids appear to have lived in a woodland environment, where they climbed on all fours along tree branches – as some of the Miocene primates did – and walked, upright, on two legs, while on the ground, scientists explained. They don't seem to have been knuckle-walkers, or to have spent much time swinging and hanging from branches, especially as chimps do.

Charles Darwin, founder of evolutionary theory, was “very wise on this matter,” said White. “Darwin said we have to be really careful. The only way we're really going to know what this last common ancestor looked like is to go and find it.”

* * *

Send us a [comment](#) on this story, or [send it to a friend](#)