

1.8M-year-old skull gives glimpse of our evolution, suggests early man was single species

October 17 2013, by Seth Borenstein



In this photo taken Oct. 2, 2013, in Tbilisi, Georgia, David Lordkipanidze, director of the Georgia National Museum, holds a pre-human skull found in 2005 in the ground at the medieval village Dmanisi, Georgia. The discovery of a 1.8 million-year-old human ancestor, the most complete ancient hominid skull found to date, captures early human evolution on the move in a vivid snapshot and indicates our family tree may have fewer branches than originally thought, scientists say. (AP Photo/Shakh Aivazov)

The discovery of a 1.8-million-year-old skull of a human ancestor buried under a medieval Georgian village provides a vivid picture of early evolution and indicates our family tree may have fewer branches than some believe, scientists say.

The fossil is the most complete pre-human [skull](#) uncovered. With other partial remains previously found at the rural site, it gives researchers the earliest evidence of human ancestors moving out of Africa and spreading north to the rest of the world, according to a study published Thursday in the journal *Science*.

The skull and other remains offer a glimpse of a population of pre-humans of various sizes living at the same time—something that scientists had not seen before for such an ancient era. This diversity bolsters one of two competing theories about the way our early ancestors evolved, spreading out more like a tree than a bush.

Nearly all of the previous pre-human discoveries have been fragmented bones, scattered over time and locations—like a smattering of random tweets of our evolutionary history. The findings at Dmanisi are more complete, weaving more of a short story. Before the site was found, the movement from Africa was put at about 1 million years ago.

When examined with the earlier Georgian finds, the skull "shows that this special immigration out of Africa happened much earlier than we thought and a much more primitive group did it," said study lead author David Lordkipanidze, director of the Georgia National Museum. "This is important to understanding human evolution."

For years, some scientists have said humans evolved from only one or two [species](#), much like a tree branches out from a trunk, while others say the process was more like a bush with several offshoots that went nowhere.



This photo taken Oct. 2, 2013, in Tbilisi, Georgia, shows a pre-human skull, that was found in 2005 in the ground at the medieval village Dmanisi, Georgia. The discovery of the 1.8 million-year-old human ancestor captures early human evolution on the move in a vivid snapshot and indicates our family tree may have fewer branches than originally thought, scientists say. (AP Photo/Shakh Aivazov)

Even bush-favoring scientists say these findings show one single species nearly 2 million years ago at the former Soviet republic site. But they disagree that the same conclusion can be said for bones found elsewhere, such as Africa. However, Lordkipanidze and colleagues point out that

the skulls found in Georgia are different sizes but considered to be are the same species. So, they reason, it's likely the various skulls found in different places and times in Africa may not be different species, but variations in one species.

To see how a species can vary, just look in the mirror, they said.



In this photo taken Oct. 2, 2013, ancient skulls and jaws of pre-human ancestors are displayed at the Georgia National Museum in Tbilisi, Georgia. The discovery of an estimated 1.8-million-year-old skull of a human ancestor found below Dmanisi, a medieval Georgian village, captures early human evolution on the move in a vivid snapshot and indicates our family tree may have fewer branches than originally thought, scientists say. It is the earliest evidence of human ancestors moving out of Africa and spreading north to the rest of the world. (AP Photo/Shakh Aivazov)

"Danny DeVito, Michael Jordan and Shaquille O'Neal are the same species," Lordkipanidze said.

The adult male skull found wasn't from our species, *Homo sapiens*. It was from an ancestral species—in the same genus or class called *Homo*—that led to modern humans. Scientists say the Dmanisi population is likely an early part of our long-lived primary ancestral species, *Homo erectus*.



This 2005 photo provided by the journal *Science* shows a 1.8 million-year-old pre-human skull found in the ground at the medieval village Dmanisi, Georgia. It's the most complete ancient hominid skull found to date, and it is the earliest evidence of human ancestors moving out of Africa and spreading north to the rest of the world, according to a study published Thursday, Oct. 17, 2013, in the journal *Science*. Next to it is a large rodent tooth for comparison. (AP Photo/Courtesy of Georgia National Museum)

Tim White of the University of California at Berkeley wasn't part of the study but praised it as "the first good evidence of what these expanding hominids looked like and what they were doing."

Fred Spoor at the Max Planck Institute in Germany, a competitor and proponent of a busy [family tree](#) with many species disagreed with the study's overall conclusion, but he lauded the Georgia skull discovery as critical and even beautiful.



In this photo taken Oct. 2, 2013, in Tbilisi, Georgia, David Lordkipanidze, director of the Georgia National Museum, holds a 1.8 million-year-old pre-human skull and jaw found in 2005 in the ground at the medieval village Dmanisi, Georgia. The discovery of a 1.8 million-year-old human ancestor, the

most complete ancient hominid skull found to date, captures early human evolution on the move in a vivid snapshot and indicates our family tree may have fewer branches than originally thought, scientists say. (AP Photo/Shakh Aivazov)

"It really shows the process of evolution in action," he said.

Spoor said it seems to have captured a crucial point in the evolutionary process where our ancestors transitioned from *Homo habilis* to *Homo erectus*—although the study authors said that depiction is going a bit too far.

The researchers found the first part of the skull, a large jaw, below a medieval fortress in 2000. Five years later—on Lordkipanidze's 42nd birthday—they unearthed the well-preserved skull, gingerly extracted it, putting it into a cloth-lined case and popped champagne. It matched the jaw perfectly. They were probably separated when our ancestor lost a fight with a hungry carnivore, which pulled apart his skull and jaw bones, Lordkipanidze said.



This 2005 photo provided by the journal *Science* shows a pre-human skull found in the ground at the medieval village Dmanisi, Georgia. The discovery of the estimated 1.8-million-year-old skull of a human ancestor captures early human evolution on the move in a vivid snapshot and indicates our family tree may have fewer branches than originally thought, scientists say. It is the most complete ancient hominid skull found to date, as well as the earliest evidence of human ancestors moving out of Africa and spreading north to the rest of the world. (AP Photo/Courtesy of Georgia National Museum)

The skull was from an adult male just shy of 5 feet (1.5 meters) with a massive jaw and big teeth, but a small brain, implying limited thinking capability, said study co-author Marcia Ponce de Leon of the University of Zurich. It also seems to be the point where legs are getting longer, for walking upright, and smaller hips, she said.

"This is a strange combination of features that we didn't know before in early Homo," Ponce de Leon said.

More information: "A Complete Skull from Dmanisi, Georgia, and the Evolutionary Biology of Early Homo," by D. Lordkipanidze et al. *Science*, 2013.

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Citation: 1.8M-year-old skull gives glimpse of our evolution, suggests early man was single species (2013, October 17) retrieved 19 April 2024 from <https://phys.org/news/2013-10-18m-year-old-skull-glimpse-evolution.html>

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