

# What a skull tells us about human evolution

**EXPRESS NEWS SERVICE**  
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A 3.8-MILLION-YEAR-OLD skull could help rewrite our knowledge of human evolution. Two new studies published on the specimen could clarify the origins of Lucy, the well-known ancestor of modern humans.

While 3.2-million-year-old Lucy belonged to a species of hominins (which include humans and their ancestors) called *Australopithecus afarensis*, the newly investigated skull belongs to the older species *Australopithecus anamensis*. Previously, it was thought that the two species never coexisted, and that the older species gradually morphed into Lucy's species. The new research indicates that they did coexist, for some 100,000 years.

The skull that was studied was in the



**The skull and the facial reconstruction.**  
*Cleveland Museum of Natural History*

form of a nearly complete cranium (the portion that encloses the brain). It was discovered at a palaeontological site in Ethiopia in 2016. Researchers named it MRD-VP-1/1, or MRD for short. The research, published in *Nature*, was conducted by scientists from in-

stitutions including the Cleveland Museum of Natural History and the Max Planck Institute for Evolutionary Anthropology.

Besides identifying the species as *Australopithecus anamensis*, they determined the age of the fossil to be 3.8 million years by dating minerals in layers of volcanic rocks near the site. They also combined field observations with analysis of microscopic biological remains to reconstruct the landscape, vegetation, and hydrology in the area where MRD died, the Cleveland Museum said in a statement.

The dating suggests that MRD's species could have coexisted with Lucy's because of a "speciation event". It is possible that a small group of MRD's species became genetically isolated from the rest of the population and evolved into Lucy's species, whose population eventually out-bred MRD's species. The finding also helps bridge a big gap between

the earliest-known human ancestors (about 6 million years old) and species like Lucy (2-3 million years old). MRD's anatomy may also help solve a puzzle — the identity of a 3.9-million-year-old bone found in Ethiopia in 1981. If it belongs to Lucy's species, it would mean that this species existed at a time even before the time when MRD has been dated.

Additionally, the new research has suggested what MRD's species may have looked like. So far, the species was known only from jaws and teeth. In MRD's case, the cranium was so complete that scientists have reconstructed his facial features. The Max Planck Institute described him as "a mix of primitive and derived facial and cranial features". Some characteristics were shared with later species, while others had more in common with those of even older and more primitive early human ancestor groups.