

# Modern humans out of Africa sooner than thought

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47 human teeth found from the Fuyan Cave, Daoxian Credit: S. Xing and X-J. Wu

Human teeth discovered in southern China provide evidence that our species left the African continent up to 70,000 years earlier than prevailing theories suggest, a study published on Wednesday said.

Homo sapiens reached present-day China 80,000-120,000 years ago, according to the study, which could redraw the migration map for modern humans.

"The model that is generally accepted is that modern humans left Africa only 50,000 years ago," said Maria Martinon-Torres, a researcher at University College London and a co-author of the study.

"In this case, we are saying the *H. sapiens* is out of Africa much earlier," she told the peer-reviewed journal *Nature*, which published the study.

While the route they travelled remains unknown, previous research suggests the most likely path out of East Africa to east Asia was across the Arabian Peninsula and the Middle East.

The findings also mean that the first truly modern humans—thought to have emerged in east Africa some 200,000 years ago—landed in China well before they went to Europe.

There is no evidence to suggest that *H. sapiens* entered the European continent earlier than 45,000 years ago, at least 40,000 years after they showed up in present-day China.

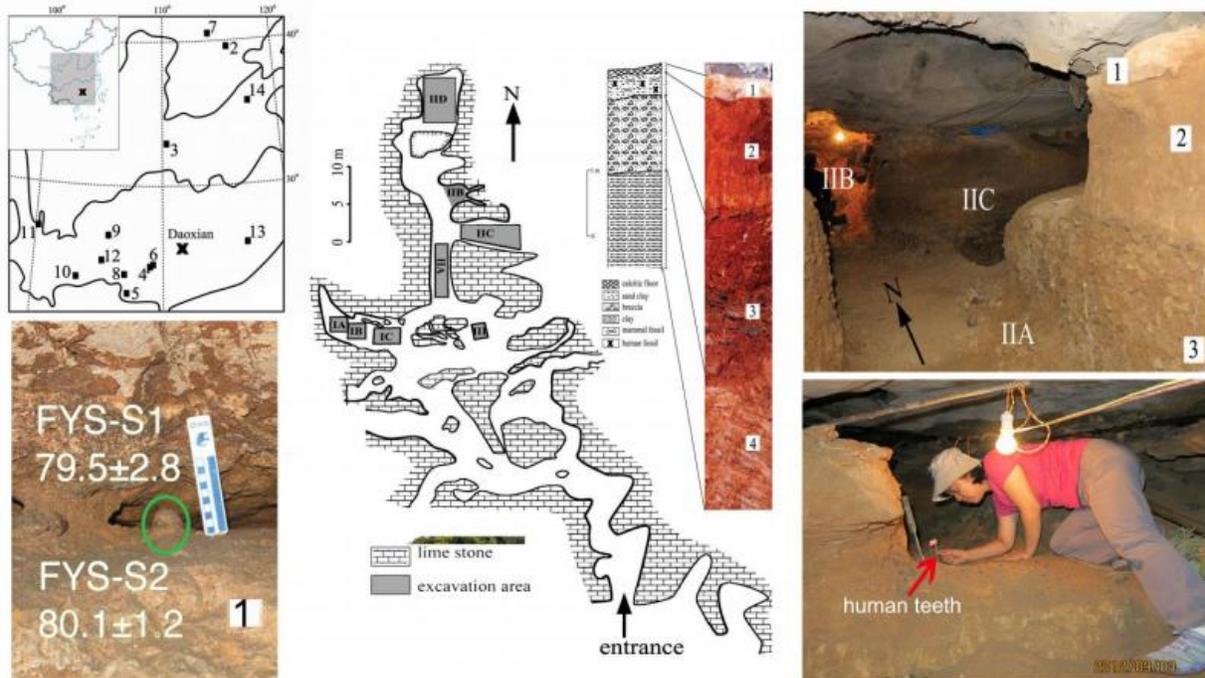
The 47 teeth exhumed from a knee-deep layer of grey, sandy clay inside the Fuyan Cave near the town of Daoxian closely resemble the dental gear of "contemporary humans," according to the study.

They could only have come from a population that migrated from Africa, rather than one that evolved from another [species](#) of early man such as the extinct *Homo erectus*, the authors said.

The scientists also unearthed the remains of some 38 mammals, including specimens of five extinct species, one of them a giant panda larger than those in existence today.

No tools were found.

"Judging by the cave environment, it may not have been a living place for humans," lead author Wu Liu from the Chinese Academy of Science in Beijing told AFP.



Geographical location and interior views of the Fuyan Cave, Doaxian with dating sample (lower left), plan view of the excavation area with stratigraphy layer marked (center), the spatial relationship of the excavated regions and researcher finding human tooth (right). Credit: Y-J Cai, X-X Yang, and X-J Wu

## Why not Europe?

The study, published in the journal *Nature*, also rewrites the timeline of early man in China.

Up to now, the earliest proof of *H. sapiens* east of the Arabian Peninsula

came from the Tianyuan Cave near Beijing, and dated from no more than 40,000 years ago.

The new discovery raises questions about why it took so long for *H. sapiens* to find their way to nearby Europe.

"Why is it that [modern humans](#)—who were already at the gates—didn't really get into Europe?", Martinon-Torres asked.

Wu and colleagues propose two explanations.

The first is the intimidating presence of Neanderthal man. While this species of early human eventually died out, they were spread across the European continent up until at least some 50,000 years ago.

"The classic idea is that *H. sapiens*... took over the Neanderthal empire, but maybe Neanderthals were a kind of ecological barrier, and Europe was too small a place" for both, Martinon-Torres said.

Another impediment might have been the cold.

Up until the Ice Age ended 12,000 years ago, ice sheets stretched across a good part of the European continent, a forbidding environment for a new species emerging from the relative warmth of East Africa.

"*H. sapiens* originated in or near the tropics, so it makes sense that the species' initial dispersal was eastwards rather than northwards, where winter temperatures rapidly fell below freezing," Robin Dennell of the University of Exeter said in a commentary, also in *Nature*.



Human upper teeth found from the Fuyan Cave, Daoxian. Credit: S. Xing

Martinon-Torres laid out some of the questions to be addressed in future research, using both genetics and fossil records.

## **A near miss**

"What are the origins of these populations, and what was their fate? Did they vanish? Could they be the ancestors of later and current populations that entered Europe?"

She also suggested there might have been "different movements and migrations" out of Africa, not just one.

Besides the prehistoric panda, called *Ailuropoda baconi*, the scientists found an [extinct species](#) of a giant spotted hyaena.



Human lower teeth found from the Fuyan Cave, Daoxian. Credit: S. Xing

An elephant-like creature called *Stegodon orientalis* and a giant tapir, also present, were species that may have survived into the era when the Chinese had developed writing, some 3500 years ago.

The cache of teeth nearly went unnoticed, Wu told AFP.

He and his Chinese colleagues discovered the cave—and its menagerie of long-deceased animals—in the 1980s, but had no inkling that it also contained human remains.

But 25 years later, while revisiting the site, Wu had a hunch.

"By thinking about the cave environment, we realised that human fossils might be found there," he told AFP by email. "So we started a five-year excavation."

**More information:** *Nature*, [DOI: 10.1038/nature15696](https://doi.org/10.1038/nature15696)

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