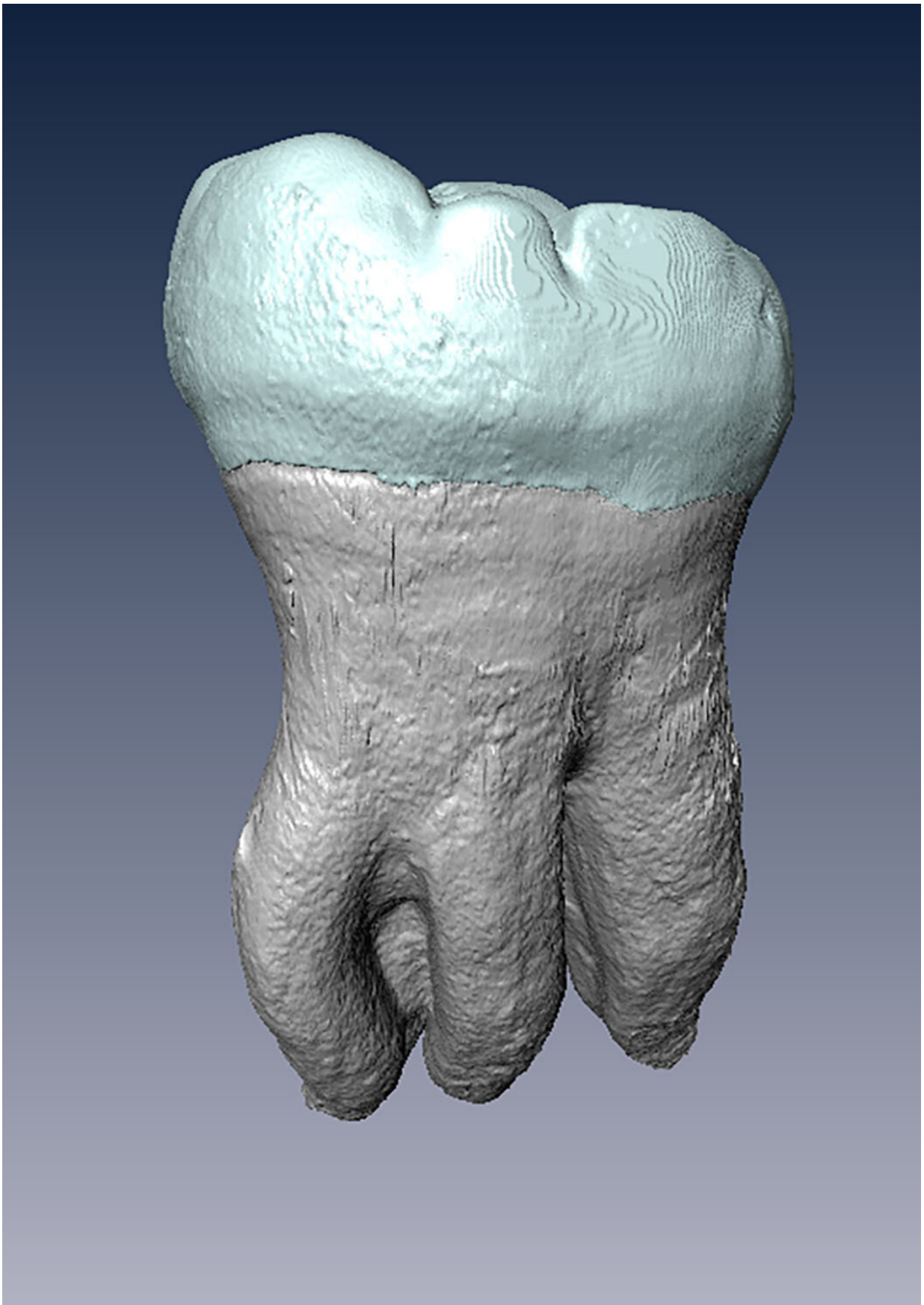


# **Ancient molar points to interbreeding between archaic humans and Homo sapiens in Asia**

July 8 2019

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Three-rooted lower second molar of Xiahe Denisovan individual. Credit: The Max Planck Institute

An analysis of a 160,000-year-old archaic human molar fossil discovered in China offers the first morphological evidence of interbreeding between archaic humans and *Homo sapiens* in Asia.

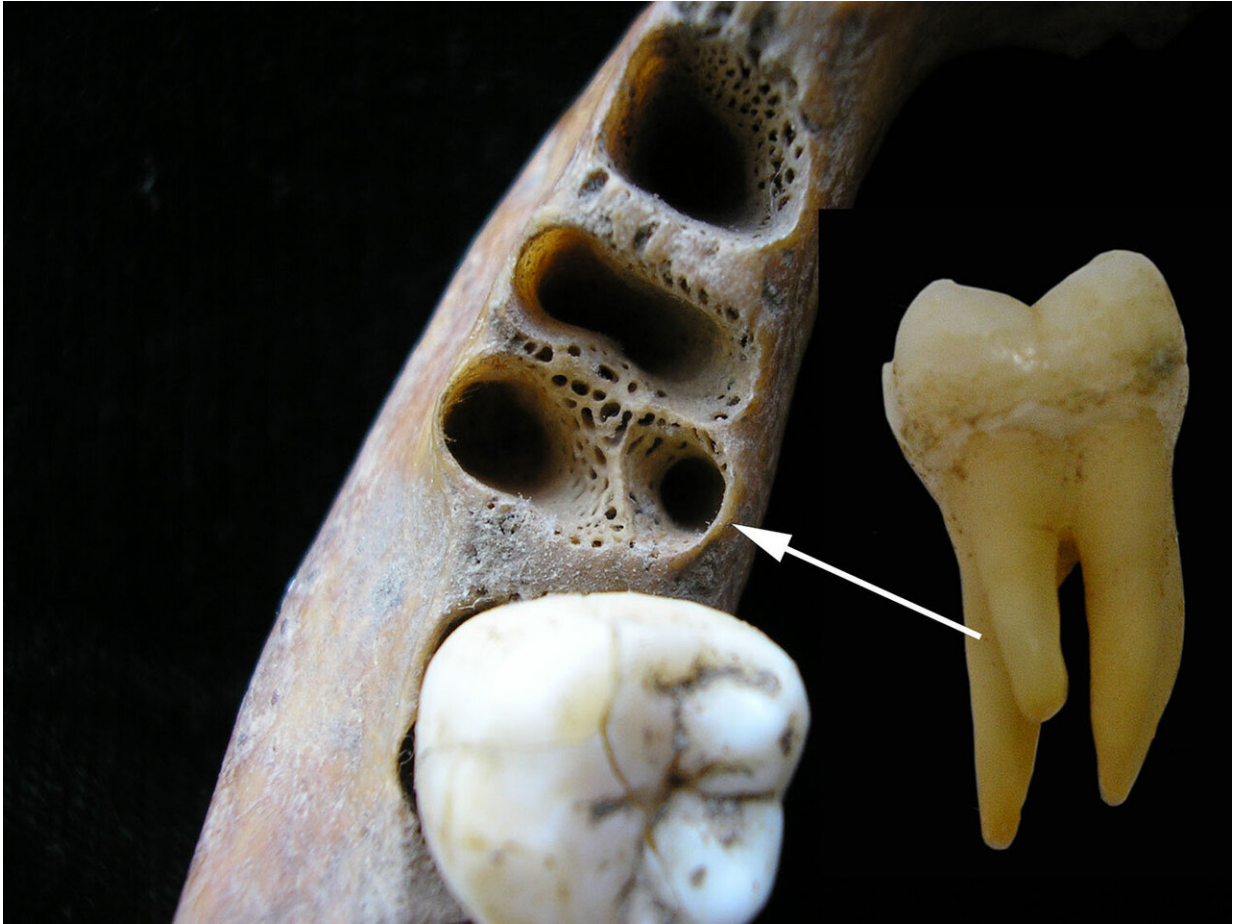
The study, which appears in the journal *Proceedings of the National Academy of Sciences*, centers on a three-rooted lower [molar](#)—a rare trait primarily found in modern Asians—that was previously thought to have evolved after *H. sapiens* dispersed from Africa.

The new research points to a different evolutionary path.

"The trait's presence in the fossil suggests both that it is older than previously understood and that some modern Asian groups obtained the trait through interbreeding with a sister group of Neanderthals, the Denisovans," explains Shara Bailey, a professor of anthropology at New York University and the paper's lead author.

In a previous study, published in *Nature*, Bailey and her colleagues concluded that the Denisovans occupied the Tibetan Plateau long before *Homo sapiens* arrived in the region.

That work, along with the new *PNAS* analysis, focused on a hominin lower mandible found on the Tibetan Plateau in Baishiya Karst Cave in Xiahe, China in 1980.



The three-rooted lower molar anomaly in a recent Asian individual. Left: tooth sockets showing position of accessory root; right: three-rooted lower first molar tooth. Credit: Christine Lee

The *PNAS* study, which also included NYU anthropologist Susan Antón and Jean-Jacques Hublin, director of the Department of Human Evolution at the Max Planck Institute for Evolutionary Anthropology, centered on the molar, with the aim of understanding the relationship between archaic humans who occupied Asia more than 160,000 years ago and modern Asians.

"In Asia, there have long been claims for continuity between archaic and

modern humans because of some shared traits," observes Bailey. "But many of those traits are primitive or are not unique to Asians. However, the three-rooted lower molar trait is unique to Asian groups. Its presence in a 160,000-year-old archaic [human](#) in Asia strongly suggests the trait was transferred to *H. sapiens* in the region through interbreeding with archaic humans in Asia."

**More information:** Shara E. Bailey et al., "Rare dental trait provides morphological evidence of archaic introgression in Asian fossil record," *PNAS* (2019). [www.pnas.org/cgi/doi/10.1073/pnas.1907557116](http://www.pnas.org/cgi/doi/10.1073/pnas.1907557116)

Provided by New York University

Citation: Ancient molar points to interbreeding between archaic humans and Homo sapiens in Asia (2019, July 8) retrieved 2 May 2024 from <https://phys.org/news/2019-07-ancient-molar-interbreeding-archaic-humans.html>

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