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National Geographic Daily News

Flat-Faced Early Humans Confirmed—Lived Among Other Human Species

Until now, the fossil species—still nameless—"has always been an enigma."



A new fossil jaw is among evidence for a new human species.

Photograph courtesy Mike Hettwer, National Geographic

James Owen

for National Geographic News

Updated 7:25 p.m. ET, August 8, 2012

New fossils recast a flat-faced oddity as a star species in the first chapter

of the human story—perhaps even as our oldest known truly human ancestor.

At the least, the fossils confirm that at least three different human species inhabited the same Kenyan neighborhood at the dawn of humanity, according to a new study led by paleontologists Meave and Louise Leakey.

(Related: "Human Ancestor May Put Twist in Origin Story, New Studies Say.")

Consisting of a face, a complete lower jaw, and part of a second jaw, the new fossils were found east of Kenya's Lake Turkana between 2007 and 2009. The products of a 40-year search, they provide the needed evidence to confirm that a disputed skull found in 1972 does in fact represent a new species, the team says.

Dated to between 1.78 and 1.95 million years ago, the remains were uncovered within six miles (ten kilometers) of the 1972 skull, which was discovered by Meave Leakey's husband, paleoanthropologist Richard Leakey.

Known as KNM-ER 1470—"1470" for short—the skull has "always been an enigma," said Meave, of the Koobi Fora Research Project.

"We've never known exactly what it was and how it fitted in with anything else."

(Read about a controversial reconstruction of skull 1470.)

Now, finally, "we know that flat face is real—it isn't just an aberrant specimen," said Meave, a National Geographic Society explorer-in-residence. (National Geographic News is a division of the Society.)

Not an aberrant specimen, the study makes clear, but a different species from the early *Homo* varieties previously known to have inhabited Turkana: *Homo habilis* ("handy man"), the presumed tool user conventionally seen as the earliest known *Homo* species, and *Homo erectus*, the "upright man" believed to be a direct ancestor of our own species (time line of human evolution).

"With these new fossils," Meave said, "we can definitely say there are two groups of non-*erectus*" living side-by-side at Lake Turkana.

(Also see "'Key' Human Ancestor Found: Fossils Link Apes, First Humans?")

Flat Face for 1470

"As opposed to other species of *Homo*, which had rather protruding faces, what would have struck

you was how flat and broad the face was," Meave said of 1470.

"The brain case is beginning to get a little bit of a forehead, because it's quite a big brain in there, but nothing like the brain of *Homo erectus*," which likely arose later, she added.

For now the study team is avoiding the previously proposed name for the flat-faced species, *H. rudolfensis*, because the relationships between the fossil specimens and the species names remains uncertain.

Further research may show that a key *H. habilis* fossil should be grouped in the same species as 1470, in which case 1470 would itself be classified as *H. habilis*, and some smaller, more primitive-looking fossils currently called *H. habilis* would be given another name

While this creates a bit of an academic headache, it doesn't affect the fact that "the new finds allow us to reclassify the whole collection of non-*erectus* fossils into two groups which have clear defining statistics," the Leakeys' team writes in a statement.

Physical anthropologist William Kimbel agrees.

The latest fossils "go a long way to easing concerns about whether 1470 could be a one-off—just an odd variant of *Homo habilis*, for example," said Kimbel, director of the Institute of Human Origins at Arizona State University, who wasn't part of the study team.

(Related: "Human Genome Shows Proof of Recent Evolution, Survey Finds.")

Our Oldest *Homo* Ancestor?

If we now have two *Homo* species at the base of the human tree, which of them gave rise to *Homo erectus*, our direct ancestor?

Kimbel thinks the anatomy of *H. habilis*—which had a smaller, more protruding face than 1470—makes it a more likely ancestor for *H. erectus*. "But," he added, "I've heard arguments to the contrary."

Bernard Wood, professor of human origins at the George Washington University, noted that 1470 probably had a larger brain than *H. habilis*, "but that doesn't necessarily make [1470] an ancestor for *Homo erectus*."

"Some of the smaller *Homo erectus* crania have remarkably small brains," suggesting that *H. erectus*' big brain may have developed within the species, as opposed to being inherited from an ancestral species.

Because the new species is known from only skull fragments, Wood likens the puzzle to "trying to

work out the relationship between three motor cars when all you've got are bits of the gear box."

(Explore a graphic of the possible branches on the human family tree.)

Three's Company?

Another question is how the three early humans co-existed without stepping on each other's toes.

"Given the fact that they were all terrestrial bipeds of one sort or another," differences in how the three species made a living—and where they chose to live—would have come down to diet, as opposed to, say, climbing ability, Arizona State's Kimbel said.

One possible clue emerging from the study is that 1470 and its kind were powerful chewers.

"The cheek bones are so far forward it means they would have been able to use quite a strong biting force," Meave Leakey said.

With a chewing advantage, 1470 may have gravitated toward areas rich with nuts or tough fruits, or perhaps even meat, leaving the softer stuff to *erectus* and *habilis*. (Related: "Lucy the Butcher? Tool Use Pushed Back 800,000 Years.")

It could also be that these early human species just plain got along.

"Modern primates are generally very good at living together," Leakey said. "You can see troops of monkeys composed of at least two species, if not more."

One thing's for sure: Untangling our roots at Turkana isn't going to be easy, George Washington University's Wood said.

"Darwin said it was going to be very difficult to locate the origin of *Homo*," Wood said. "I think, as usual with Darwin, he was right on the money."

Corrected: Original version incorrectly said the new species as a whole was tentativey being called 1470, after the fossil specimen identified by that number.

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