Did This Mysterious Ape-Human Once Live Alongside Our Ancestors?

A year and a half after **adding** the **species** of *Homo naledi* to the human family tree, a team of **researchers** working in South Africa made an **additional** discovery: *Homo naledi* is far younger than its primitive body would **suggest**, and may have shared the **landscape** with early *Homo sapiens*. **Recent** geological dating places *Homo naledi* in a period of **roughly** 200,000-300,000 years ago, when **multiple** other hominin species were alive. Today only one of those species still **survives** us. With a mix of primitive traits shared with australopithecines and more modern ones shared with *Homo*, *Homo naledi* was already a curious anomaly. Its recent age only deepens the mystery.

First **discovered** in 2013 by two cavers **exploring** the Rising Star cave system near Johannesburg, the hominin remains **revealed** a tiny-brained species with shoulders and a torso like an ape's, but with some unmistakably humanlike **feature**s as well. The species' name: *Homo naledi*, after the Sesotho word for "star". In papers published in *eLife*, the team—led by University of the Witwatersrand paleoanthropologist Lee Berger—**provided** an age **range** for the remains first reported in 2015: between 236,000 and 335,000 years old. The team also described a second chamber within Rising Star that **contained** yet-undated *H. naledi* remains.

If these dates hold, it could mean that while our own species was **evolving** from other, large-brained **ancestors**, a little-brained lineage had evolved in a much earlier period, perhaps two million years ago or more. The proposed age range for the fossils also **overlap**s with the early Middle Stone Age, creating an **unproven** possibility: that the stone-tool record in South Africa from that time wasn't just the handiwork of anatomically modern humans. "How do we know that the fossil **tools** we have so far connected to the rise of modern human **behavior** aren't being made by *Homo naledi*?" says Berger. "When *Homo naledi* made its public debut in 2015, **several** key details about the species were still unknown. How was *H. naledi* **related** to other hominin species? Was it at the **base** of our genus's lineage, as **elements** of its body suggest? As National Geographic **reported** at the time, the **initial** **announcement** frustrated scientists because it was missing a date.

Some **subsequent** studies tried to fill the **gap** by statistically **estimating** *H. naledi*'s age, based on the shape of its **s**kull and teeth compared to those of other hominins. One placed the species at about two million years old; the other, a study by Simon Fraser University researcher Mana Dembo, suggested it was about 912,000 years old, plus or minus about a million years. But, all the while, Berger's team thought that *H. naledi* was younger. "As all these studies were being published, we felt it was going to be less than half a million years old," says Paul Dirks, a geologist at Wits and James Cook University. **Nonetheless**, science **demand**s facts not feelings, so, after the fossils had been **describe**d, Dirks and 19 other scientists decided to throw the methodological kitchen sink at them, using six different dating methods to ascertain *H. naledi*'s age.

To start, they radiometrically dated some flowstones—**layers** of calcite laid down by running water—that had covered some of the *H. naledi* **remains**. Two labs independently showed that the flowstone was about 236,000 years old, meaning that the underlying *H. naledi* remains had to be older. The team arrived at an oldest age—335,000 years old—by putting sediment grains and three *H. naledi* teeth through a series of dating methods, **including** some based on the radiation dosage the materials had received after being "bathed" in the cave's natural **background** radioactivity. "In the end, we have tremendous confidence in the results," says John Hawks, a University of Wisconsin-Madison paleoanthropologist. Hawks and Berger discuss the dating, and the full story of discovering *H. naledi*, in the National Geographic book *Almost Human*.

Adapted from National Geographic