

# Fossils in African cave reveal extinct, previously unknown human ancestor

By Washington Post, adapted by Newsela staff on 09.16.15

Word Count **928**



A composite skeleton of *Homo naledi* surrounded by some of the hundreds of other fossil elements displayed in Magaliesburg, South Africa, Sept. 10, 2015. Photo: AP Photo/Themba Hadebe

The two amateur cavers first had to feel their way along the cave's winding passages, then crawl on their stomachs through an opening less than 10 inches high. Next, they had to ascend a jagged wall, cross a narrow ledge dubbed the "Dragon's Back," then make a 400-foot descent, sideways, through a vertical crack. Finally they arrived at the prize: a 30-foot-long chamber probably between 2 million and 3 million years old.

As far as most people believed, the well-explored cave had already given up most of its treasures decades ago. Still, American paleoanthropologist Lee Berger had asked the men to keep their eyes open for fossils.

## **A New Star: Homo Naledi**

What they found in September 2013 nearly took their breath away: fossil fragments of a relative of the human species, and what turned out to be more than 1,500 bones and teeth buried in ancient clay — the largest fossil discovery of its kind in Africa.

After a month of excavation and two years of analysis, Berger and the leaders of the expedition made a dramatic announcement on Thursday. The fossil fragments the two men discovered belong to a previously unknown species of human relative, which they have named *Homo naledi*.

"It was soon apparent that what I thought was an individual skeleton was dozens of individuals," Berger, a researcher in human evolution at the University of the Witwatersrand in Johannesburg, said Wednesday. "With every bone in the body represented multiple times," he said, *Homo naledi* is "already practically the best-known" ancestor of today's humans.

The announcement was made in Johannesburg, about 25 miles northwest of the cave complex, called the Rising Star, where the fossils were found. "Naledi" means "star" in Sesotho, a local South African language, and the chamber where the fossils were unearthed was called Dinaledi, or "many stars."

### **"Enormously Surprising"**

The scientists said the fragments could well represent one of the most primitive members of the genus *Homo*, which includes *Homo sapiens* — today's humans.

Perhaps more remarkable, they added, was that the pieces belonged to at least 15 individuals of the same species — men, women, children and infants — and all of them appeared to have been deliberately placed there after death. The implication was as astonishing as the initial discovery: It suggested that the bodies had been ritualistically or ceremonially disposed of, which is not behavior scientists would expect to see in such a primitive species.

"It's enormously surprising to see a very primitive member of the genus, not very humanlike overall, to do something unique to humans," Berger said. "To see it in a small-brained hominid is completely surprising — none of us expected it."

### **Walking And Swinging From Trees**

*Homo naledi* is an unusual combination of the primitive and the modern, the scientists said. Its brain was no larger than a baseball, its shoulders and chest were primitive and its fingers were long and curved, allowing it to climb and swing from the trees. At the same time, its wrist bones indicate that it used tools. Its long legs and feet, nearly indistinguishable from those of modern man, allowed it not only to walk upright but also to travel for many miles at a time.

"We had never seen a creature like this before," said anthropologist John Hawks, who led the analysis of the find.

The extremely large number of fragments found made the scientists feel confident that they had discovered a new species of human relative.

"We have 190 teeth, and they are represented multiple times," Hawks said. "We have more than a dozen molars, and the differences are typically less variable than in small populations of humans. Every member of every team ... agreed we were looking at the same species. The hand may be telling us a different story than the shoulder, but it would beg belief that we mixed things" belonging to different species.

## **A Dangerous Dig**

The fossils were recovered over 21 days in November 2013 and seven days in March 2014. The archaeologists decided the only way to mount a major excavation was to put together a team of people slender enough, but also experienced enough, to handle the hazardous work.

The six who were eventually chosen were all women, including American University PhD candidate Becca Peixotto.

"We had a lot of spectacular moments, and a few stand out," Peixotto said. A fragment of a skull from the center of the chamber "took days to excavate," in part because it was buried under other fossils. When it was finally free from the soil and packaged in a box big enough to hold the fragment and small enough to fit through the narrow cracks of the cave the team faced the difficult task of getting it to the surface. "It was all hands on deck," Peixotto said. "We formed a bucket brigade to pass the skull box up the chute, out the slot, down the Dragon's Back ... through the crawl, up another ladder, out to the surface ... There was huge cheering as it reached the light of day."

## **Different Model Of Human Origins**

Berger says he is certain the fossils are more than 2.5 million years old, making Homo naledi among the earliest, if not the earliest, relative of modern human beings. Homo naledi "comes near or at the root of the genus Homo," he said.

Homo naledi "gives us a different model for how things could fit in our own origins," Hawks said.

Berger said the team plans on further expeditions and excavations of the chamber.

"This chamber has not given up all its secrets," he added.

## Quiz

- 1 Which of the following sentences from the article would be MOST important to include in a summary of the article?
- (A) Berger says he is certain the fossils are more than 2.5 million years old, making Homo naledi among the earliest, if not the earliest, relative of modern human beings.
  - (B) After a month of excavation and two years of analysis, Berger and the leaders of the expedition made a dramatic announcement on Thursday.
  - (C) Its long legs and feet, nearly indistinguishable from those of modern man, allowed it not only to walk upright but also to travel for many miles at a time.
  - (D) We have 190 teeth, and they are represented multiple times," Hawks said. "We have more than a dozen molars, and the differences are typically less variable than in small populations of humans.
- 2 What are the central ideas of the section "A Dangerous Dig"?
- (A) The most impressive discovery was of a skull fragment and excavating it took extreme care.
  - (B) The excavation was challenging and time-consuming and required specialized skills.
  - (C) The excavation was more difficult than others because of the number and location of the fossils.
  - (D) The team selected for the excavation were all women because they had the skills and could handle the conditions.
- 3 Based on the section "Enormously Surprising," what were scientists most surprised about?
- (A) the large number of bones discovered
  - (B) the location where the bones were discovered
  - (C) that the bones included men, women and children
  - (D) that the bones seem to have been purposely buried

4 Based on the article, which of the following statements is FALSE?

- (A) Berger agrees that there are most likely no other fossils to be found in the cave.
- (B) The discovery of the fossils may change the way scientists understand human origins.
- (C) Berger expected there might be bones in the cave, but he was still amazed at the fossil findings.
- (D) The discovery of the fossils indicates that early humans may have had ceremonies and rituals.

## Answer Key

- 1 Which of the following sentences from the article would be MOST important to include in a summary of the article?
- (A) **Berger says he is certain the fossils are more than 2.5 million years old, making Homo naledi among the earliest, if not the earliest, relative of modern human beings.**
  - (B) After a month of excavation and two years of analysis, Berger and the leaders of the expedition made a dramatic announcement on Thursday.
  - (C) Its long legs and feet, nearly indistinguishable from those of modern man, allowed it not only to walk upright but also to travel for many miles at a time.
  - (D) We have 190 teeth, and they are represented multiple times," Hawks said. "We have more than a dozen molars, and the differences are typically less variable than in small populations of humans.
- 2 What are the central ideas of the section "A Dangerous Dig"?
- (A) The most impressive discovery was of a skull fragment and excavating it took extreme care.
  - (B) **The excavation was challenging and time-consuming and required specialized skills.**
  - (C) The excavation was more difficult than others because of the number and location of the fossils.
  - (D) The team selected for the excavation were all women because they had the skills and could handle the conditions.
- 3 Based on the section "Enormously Surprising," what were scientists most surprised about?
- (A) the large number of bones discovered
  - (B) the location where the bones were discovered
  - (C) that the bones included men, women and children
  - (D) **that the bones seem to have been purposely buried**

4 Based on the article, which of the following statements is FALSE?

- (A) **Berger agrees that there are most likely no other fossils to be found in the cave.**
- (B) The discovery of the fossils may change the way scientists understand human origins.
- (C) Berger expected there might be bones in the cave, but he was still amazed at the fossil findings.
- (D) The discovery of the fossils indicates that early humans may have had ceremonies and rituals.