Claims that *Homo naledi* buried their dead could alter our understanding of human evolution

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A new series of papers claim that the ancient human species *Homo naledi* buried their dead and made engravings deep within a cave system in southern Africa some 300,000 years ago.

If these claims are true then it would overturn what was thought to be known about the development of human beliefs, culture and symbolism, but there are still some unresolved doubts about the evidence as it stands.

In 2013, cavers exploring a remote, almost inaccessible chamber deep within the Rising Star cave system of South Africa made an extraordinary discovery.

Littering the floor were some 1,500 fossil bones from what appeared to a species of human. When these remains were excavated and studied, the results were even more spectacular than first thought: they belonged to roughly 15 individuals of an entirely new species of 300,000-year-old human, which was named *Homo naledi*.

The skeletons revealed that the new human species had a curious mix of features. They had feet, hands and wrists that appeared more similar to modern humans and Neanderthals, but an upper body and brain size more like that of the archaic pre-human australopithecine species. This combination of human and pre-human features sparked a debate about where they should fit on the evolutionary tree: Were they more like our own species, or our ape-like ancestors?

Feeding into this debate have been questions about the behaviour that *H. naledi* might have shown. The researchers who first described the discovery argue that as the remains were found so deep within the cave system that they must have been intentionally put there by other members of the species. This raises a lot of intriguing questions about how the species behaved, and whether it had human-like culture.

While there have been some doubts about this interpretation, with some arguing that perhaps the remains were washed into the system over time, or that individuals were crawling into the cave system to die, the lack of alternative evidence is compelling.

The skeletons of up to 15 different Homo naledi individuals are known from the Rising Star cave system © Robert Clark/National Geographic

Professor Chris Stringer, a world expert in human evolution at the Museum who was not involved in the study, says, 'I think the balance of probability has gone to *H. naledi* being involved in putting these bodies down there intentionally and not accidentally. And once you grant that, you do have to agree it was purposeful behaviour.'

However, a series of new papers have taken things one step further.

The researchers are now claiming that not only did the ancient humans intentionally place the bodies within the cave, but they actually buried some of the remains in shallow holes. In addition to this, they are arguing that a series of markings on the walls of the cave showed that the ancient humans were engraving the cave walls.

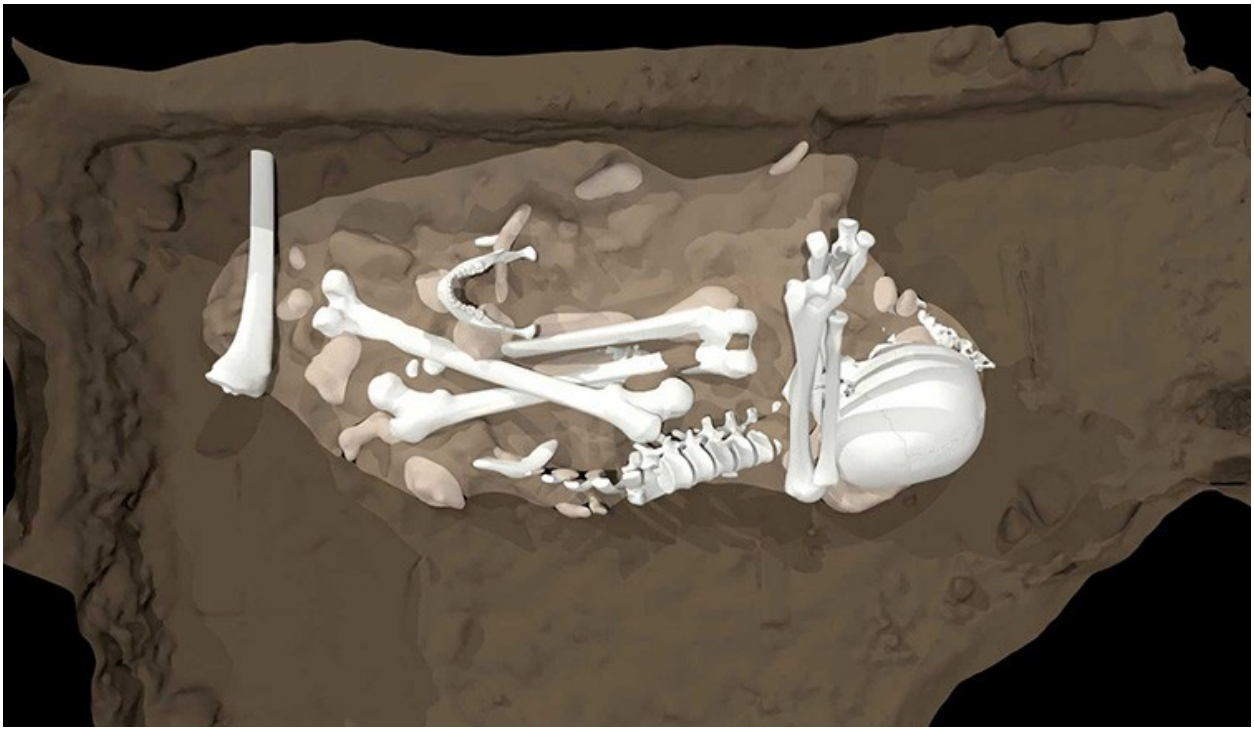
This would add a fascinating layer of complexity and symbolism to the behaviour that the species displayed and lead to some extraordinary implications about our own species.

Did *Homo naledi* bury their dead?

What constitutes a burial is surprisingly ambiguous. Usually, the term refers to a space that has been deliberated created by, for example, excavating soil, to form a depression or hole within which to place a body before covering it up. But there is something of a grey area when it comes to a practice known as 'funerary caching'.

This is the process in which natural holes or depressions, such as caves or ditches, are used, and the remains then placed within it. These kinds of practices are much harder to discern from the fossil record, with numerous examples of hominin and animal remains having been found in caves. But how these discoveries are interpreted is often up for debate.

Moving the *H. naledi* remains from a funerary caching behaviour to a deliberate burial is a significant step that would require a much more complex series of behaviours, and potentially even cultural motive. The researchers argue that one of the skeletons of *H. naledi* was found in a crouched position holding a stone tool, in a depression that has clear 'cut' lines around its edge, indicating that it was a hole that had been excavated and filled back in.



The evidence suggests that the edge of the pits is defined with the body placed in a crouching position in the middle © Images from Berger et al., 2023

Dr Silvia Bello is an expert on the evolution of human behaviour at the Museum, and was not involved in the study.

'It sounds ridiculous because we're used to burials, but they are not the easiest of things to define or recognise,' explains Silvia. 'If you have a body that is completely buried, when it decomposes the bone collapses in a certain way and in a certain order. So, this could give an indication that the body was buried whole, but it doesn't necessarily tell you that it was a burial. The researchers call what they have found a "feature", which I thought was very generic.'

'There are two things at play. One is the burial, and one is the funerary behaviour: you can have a funerary behaviour without a burial.'

If this is confirmed as a burial then at 300,000 years old it would be the oldest human burial ever discovered. It would also mean that the ancient hominins were far more organised, and potentially had culture being passed from generation to generation.

Whilst culture in non-humans is not a new thing, with chimpanzees and whales known to show it, it is the combination of behaviours that is the most significant aspect of this discovery.

'If you are granting them the specialised behaviour of burials, it is not something one individual could do,' explains Chris. 'There would have to be a group of them going down there, dragging these bodies with them and then burying them.'

'They would have had to take something down there to dig the holes with. Someone is making fire torches and keeping them alive for the time they are down there. It really is complex and planned behaviour. Then you come on to the question of could a creature with no language do this, and that is a whole other can of worms to open.'

But the burial isn't the only revelation that has come out of the Rising Star cave system.

Did *Homo naledi* create art?

On the wall of one of the caverns are patterns of lines engraved in the rock. While the engravings are impossible to date at the moment, the researchers are arguing that because only *H. naledi* remains have been found in the caves, they are most likely to have been produced by the ancient hominin.

The engravings form almost hashtag-like symbols, not unlike some of the early art found in another part of South Africa. This has led to the speculation that perhaps these engravings are in fact a subsequent addition to the cave by a later hominin, such as our own species *Homo sapiens*.

Intriguingly, there is also apparent evidence of fire in the cave system. This would presumably have been necessary if any hominin was exploring so deep within the caverns, but the question of who made the fire is much harder to answer. Could it have been later humans, who explored the caves and left their marks on the walls, or was it all exclusively made by the much earlier *H. naledi*? At the moment, this question is impossible to answer.

Due to the current difficulty in ageing the engravings, there are still a lot of questions about who - or what - might have made the marks © Image from Berger et al., 2023

Dr Lee Berger is the palaeontologist who has led the excavations of the Rising Star cave system, and lead author of these new papers on *H. naledi*.

‘These recent findings suggest intentional burials, the use of symbols, and meaning-making activities by *Homo naledi*,’ says Lee. ‘It seems an inevitable conclusion that in combination they indicate that this small-brained species of ancient human relatives was performing complex practices related to death.’

‘That would mean not only are humans not unique in the development of symbolic practices, but may not have even invented such behaviours.’

If all these new discoveries are taken at face value, then it could mean a number of different things. Due to the age of *H. naledi* as a species, it would mean that these complex behaviours could have been present in our last common ancestor millions of years ago. That then raises the question of whether other ancient humans like *Homo erectus*, *Homo antecessor* or *Homo heidelbergensis* could have showed these behaviours too.

Alternatively, *H. naledi* could have evolved these complex behaviours independently. But this then begs questions about the evolution of these behaviours within our own species.

Changing our understanding of human behaviour

Regardless of whether all the details from these new revelations are entirely correct, and with questions still lingering around the use of fire, the single tool found within the burial and the engravings, Silvia thinks that it is a good starting point to begin asking more probing questions about the behaviour of ancient hominins.

‘Suggesting that these behaviours were possible and were being seen around 300,000 years ago when we were not expecting to see such rich complex and symbolic behaviour is a good way to prompt people to look again at other material,' says Silvia. 'Maybe we can see it elsewhere in the fossil record. Why not give some more credit to the early hominins?’

But the findings could also start to pull at other threads relating to our own evolution and to the very nature of what it means to be human itself.

‘To have this level of complex behaviour with an ape-sized brain is very challenging,’ explains Chris. ‘For me the brain size is a really key issue and problem in all this.’

‘Brains are very energetically expensive. Our brains use at least 20% of our body energy, and that puts huge demands on our bodies, physiology and our behaviour to get all that nutrition to fuel it. The assumption has been that, roughly speaking, the increase in brain size tracks the increase in behavioural complexity, particularly with Neanderthals and us.’

‘So, if *H. naledi* could do all this with a brain half the size, why don’t we? What is all our extra brain power doing if *H. naledi* is able to do this with an ape-sized brain? These are very challenging questions, and I don’t think anyone has an answer to them at the moment.’