



Communication and Marketing Department
Isebe loThungelwano neNtengiso
Kommunikasie en Bemerkingsdepartement

Private Bag X3, Rondebosch 7701, South Africa
Welgelegen House, Chapel Road Extension, Rosebank, Cape Town
Tel: +27 (0) 21 650 5427/5428/5674 Fax: +27 (0) 21 650 5628

www.uct.ac.za

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Fossil discoveries rewrite human history

An international team of researchers, including geologists from the University of Cape Town (UCT), have unearthed the earliest known skull of *Homo erectus*, the first of our ancestors to be nearly human-like in their anatomy and aspects of their behaviour.

The two-million-year-old fossil was reconstructed from more than 150 individual fragments excavated in the Cradle of Humankind in South Africa over a five-year period.

Published today in the prestigious journal *Science*, the findings are part of an international research excavation in the fossil-rich Drimolen cave system north of Johannesburg.

Dr Robyn Pickering, director of the [Human Evolution Research Institute](#) at UCT said the age of the DNH 134 fossil shows that *Homo erectus* existed 100 000 to 200 000 years earlier than previously thought. "This is a very exciting discovery," she said. "We have struggled for decades to date the South African fossils, but now we have a range of suitable techniques and it's possible to push back the first appearance of our earliest ancestors from the Cradle."

UCT postdoctoral research fellow, Dr Tara Edwards, was part of the geology and dating team which reconstructed how the fossils ended up in the cave and checked that the dating methods were accurate. "By looking at small pieces of cave rock, speleothem, under the microscope, we can tell that the layers we are dating are pristine and we can trust the ages they produce," said Edwards.

"The *Homo erectus* skull we found, likely aged between two and three years old when it died, shows its brain was only slightly smaller than other examples of adult *Homo erectus*," said Professor Herries, project director and head of La Trobe University's [Department of Archaeology and History](#) in Australia.

"It samples a part of human evolutionary history when our ancestors were walking fully upright, making stone tools, starting to emigrate out of Africa, but before they had developed large brains."

Professor Herries said that unlike the world today, where we are the only human species, two million years ago our direct ancestor was not alone.

“We can now say *Homo erectus* shared the landscape with two other types of humans in South Africa, *Paranthropus* and *Australopithecus*. This suggests that one of these other human species, *Australopithecus sediba*, may not have been the direct ancestor of *Homo erectus*, or us, as previously hypothesised.”

Paper co-author Dr Justin Adams, from Monash University’s Biomedicine Discovery Institute, said the discovery raised some intriguing questions about how these three unique species lived and survived on the landscape.

“One of the questions that interests us is what role changing habitats, resources, and the unique biological adaptations of early *Homo erectus* may have played in the eventual extinction of *Australopithecus sediba* in South Africa,” Dr Adams said.

Co-director of the Drimolen excavation project, University of Johannesburg PhD student Stephanie Baker, said the discovery of the earliest *Homo erectus* marked an incredible milestone for South African fossil heritage.

“Not only does the research illustrate the importance of South Africa in the human story, but this project is the first major breakthrough in hominin research with a female, South African director,” Baker said. “The story of hominin evolution is once again changing, but importantly for us locals, so is the field.”

This sentiment is echoed by Dr Pickering: “At UCT we are passionate about changing the face of research into human evolution in South Africa. We certainly need more South Africans in leadership roles on projects such as this, but this work is making good progress in that direction.”

[Read the full paper.](#)

[Download a sound bite from Dr Robyn Pickering on the importance of this study.](#)



Excavations at the Drimolen Palaeocave have revealed numerous important faunal and hominin fossils, including the recent *Homo erectus* cranium (DNH134).



Reconstruction of partial *Homo erectus* cranium (DNH134) uncovered from Drimolen palaeocave.
Photos: Supplied

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Issued by: UCT Communication and Marketing Department

Nombuso Shabalala

Head: Media Liaison
Communication and Marketing Department
University of Cape Town
Rondebosch
Tel: (021) 650 4190
Cell: (076) 473 5882
Email: nombuso.shabalala@uct.ac.za
Website: www.uct.ac.za