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'New pathway' for African exodus

By Paul Rincon
Science reporter, BBC News

Researchers have found a possible new route taken by early modern humans as they expanded out of Africa to colonise the rest of the world.

A study published in the journal PNAS proposes a "wet corridor" through Libya for ancient human migrations.

Rivers once flowed from the central Saharan watershed all the way to the Mediterranean, the team explains.

This might have enabled modern humans to spread beyond their ancestral homeland about 120,000 years ago.

The Sahara then covered most of North Africa, as it does now. So it would have presented a formidable obstacle for early modern humans wishing to cross from the south to the north of the continent.

Researchers had previously focused on the Nile Valley as the principal route of dispersal into other continents by early representatives of our species.

Previous data show there was increased rainfall across the southern part of the Sahara between 130,000 and 170,000 years ago; in a gap between Ice Ages known as the last interglacial period.



Modern humans had reached the Levant by 100,000 years ago



The researchers, from the universities of Bristol, Southampton, Oxford, Hull and Tripoli in Libya, investigated whether these wetter conditions had reached a lot further north than previously thought.

Radar images from space revealed fossil river channels crossing the Sahara in Libya, flowing north from the central Saharan watershed to the Mediterranean coast.

Using geochemical tests, the scientists showed the channels were

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active during the last interglacial. This would have created vital water courses across an otherwise arid region, the researchers write in PNAS.

The central Saharan watershed is a range of volcanic mountains formerly considered to be the limit of this wetter region. Researchers analysed the forms, or isotopes, of different chemical elements in snail shells from two sites in the fossil river channels and from the shells of planktonic microfossils in the Mediterranean.

“ It's a possible route that the early modern humans could have taken ”
 Anne Osborne, University of Bristol

Despite being hundreds of kilometres from the volcanic rocks of the Saharan watershed, the tests revealed a distinct volcanic signature to these shells, which was quite different to rocks from surrounding sites.

The scientists concluded that water flowing from the volcanic mountains of the central Sahara was the only possible source of this signature.

"It's a possible route that the early modern humans could have taken," lead author Anne Osborne, from the earth sciences group at Bristol, told BBC News.

Similarities in the style of stone tools being made in Chad and Sudan with those manufactured in Libya during this key period, lend the theory some support, say the scientists.

"We now need to focus archaeological fieldwork around the large drainage channels and palaeo-lakes to test these ideas," said co-author Dr Nick Barton, from the University of Oxford.

Although it is unclear which routes they took to get there, *Homo sapiens* had reached the Levant by around 100,000 years ago, where their remains are known from Es Skhul and Qafzeh in Israel.

However, this appears to have been an early, failed foray outside Africa by modern humans. By 75,000 years ago, Neanderthals had replaced our species in the region.

Then, about 45,000 years ago, modern humans reoccupied the area.

Genetic evidence suggests that populations living outside Africa today are the descendents of a migration which originated in the east of the continent between 60-70,000 years ago.

Some of these pioneers probably crossed the Red Sea at the Bab-el-Mandab straits, taking them from the Horn of Africa across to the Arabian Peninsula.

Paul.Rincon-INTERNET@bbc.co.uk

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