

# Before they left Africa, early modern humans were 'culturally diverse'

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A new study provides fresh insights into the life of early modern humans before they left Africa following a massive comparative study of stone tools.

(Phys.org) —Researchers have carried out the biggest ever comparative study of stone tools dating to between 130,000 and 75,000 years ago found in the region between sub-Saharan Africa and Eurasia. They have discovered there are marked differences in the way stone tools were made, reflecting a diversity of cultural traditions. The study has also identified at least four distinct populations, each relatively isolated from each other with their own different cultural characteristics.

The research paper also suggests that early populations took advantage of

rivers and lakes that criss-crossed the Saharan desert. A climate model coupled with data about these ancient water courses was matched with the new findings on [stone tools](#) to reveal that populations connected by rivers had similarities in their cultures. This could be the earliest evidence of different populations 'budding' across the Sahara, using the rivers to disperse and meet people from other populations, says the paper published in the journal, *Quaternary Science Reviews*.

The researchers from the University of Oxford, Kings College London and the University of Bordeaux took over 300,000 measurements of stone tools from 17 archaeological sites across North Africa, including the Sahara. For the first time they combined the stone tool data with a model of the North African environment during that period, which showed that the Sahara was then a patchwork of savannah, grasslands and water, interspersed with desert. They also mapped out known ancient rivers and major lakes, building on earlier research by Professor Nick Drake, one of this paper's co-authors. By modelling and mapping the environment, the researchers were then able to draw new inferences on the contexts in which the ancient populations made and used their tools. The results show, for the first time, how early populations of modern humans dispersed across the Sahara, one after the other 'budding' into populations along the ancient rivers and watercourses.

Lead researcher Dr Eleanor Scerri, visiting scholar at the University of Oxford, said: 'This is the first time that scientists have identified that early modern humans at the cusp of dispersal out of Africa were grouped in separate, isolated and local populations. Stone tools are the only form of preserved material culture for most of human history. In Africa, owing to the hot climate, ancient DNA has not yet been found. These stone tools reveal how early populations of modern humans dispersed across the Sahara just before they left North Africa. While different populations were relatively isolated, we were interested to find that when connected by rivers, they share similarities in their tool-making

suggesting some interaction with one another.'

The researchers used a variety of tests in order to rule out causes of variability, such as differences in raw materials. This was done to establish that tool-making traditions were consistently culturally distinctive among the different populations in the study.

Dr Scerri said: 'Not much is known about the structure of early modern human populations in Africa, particularly at the time of their earliest dispersals into Eurasia. Our picture of modern human demography around 100,000 years ago is that there were a number of populations, varying in size and degree of genetic contact, distributed over a wide geographical area. This model of our [population](#) history supports other theories recently put forward that [modern humans](#) may have first successfully left Africa earlier than 60,000-50,000 years ago, which had been the common view among scholars. Our work provides important new evidence that sheds light on both the timing of early modern human dispersals out of Africa and the character of our interaction with other human species, such as Neanderthals.'

Co-author Dr Huw Groucutt, from the School of Archaeology at the University of Oxford, said: 'The question of whether there was an early successful exit from Africa has become one of whether any of the populations discovered in this paper went in and out of Africa for some or all of this time. A crucial next step involves fieldwork in areas such as the Arabian Peninsula to understand how these populations spread into Eurasia. The ongoing fieldwork by the Oxford University based Palaeodeserts Project is seeking to do exactly that, and we are making some remarkable discoveries in the deserts of Arabia, which may also have been the region where both Neanderthal and Homo sapiens populations may have interacted.'

Provided by Oxford University

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