ScienceDaily®
Your source for the latest research news

Deep history of archaic humans in southern Siberia

Date: January 30, 2019

Source: University of Oxford

Summary: Scientists have identified the earliest evidence of some of the first known humans -- Denisovans and Neanderthals, in southern Siberia.

FULL STORY

Oxford University scientists have played a key role in new research identifying the earliest evidence of some of the first known humans -- Denisovans and Neanderthals, in Southern Siberia.

Professor Tom Higham and his team at the Oxford Radiocarbon Accelerator Unit at the University of Oxford worked in collaboration with a multi-disciplinary team from the UK, Russia, Australia, Canada and Germany, on the detailed investigation over the course of five years, to date the archaeological site of Denisova cave. Situated in the foothills of Siberia's Altai Mountains, it is the only site in the world known to have been occupied by both archaic human groups (hominins) at various times.

The two new studies published in *Nature*, now put a timeline on when Neanderthals and their enigmatic cousins, the Denisovans, were present at the site and the environmental conditions they faced before going extinct.

Denisova cave first came to worldwide attention in 2010, with the publication of the genome obtained from the fingerbone of a girl belonging to a group of humans not previously identified in the palaeoanthropological record; the Denisovans. Further revelations followed on the genetic history of Denisovans and Altai Neanderthals, based on analysis of the few and fragmentary hominin remains. Last year, a bone fragment discovered by researchers at Oxford's Research Laboratory for Archaeology and the History of Art and the University of Manchester, yielded the genome of the daughter of Neanderthal and Denisovan parents -- the first direct evidence of interbreeding between two archaic hominin groups. But reliable dates for the hominin fossils recovered from the cave have remained elusive, as have dates for the DNA, artefacts, and animal and plant remains retrieved from the sediments.

Excavations for the past 40 years led by Professors Anatoly Derevianko and Michael Shunkov from the Institute of Archaeology and Ethnography (Siberian Branch of the Russian Academy of Sciences) in Novosibirsk, revealed the longest archaeological sequence of Siberia.

In the new research, the Oxford team obtained fifty radiocarbon ages from bone, tooth and charcoal fragments recovered from the upper layers of the site, as part of the ERC funded 'PalaeoChron' project. In addition to these, more than 100 optical ages were obtained for the cave sediments, most of which are too old for radiocarbon dating, by researchers at the University of Wollongong in Australia. A minimum age for the bone fragment of mixed Neanderthal/Denisovan ancestry was also obtained by uranium-series dating by another Australian team. "This is the first time we are able to confidently assign an age to all archaeological sequence of the cave and its contents" said Professor Higham.

To determine the most probable ages of the archaic hominin fossils, a novel Bayesian model was developed