Addressing the dearth of human fossil remains from Pleistocene Asia

Katerina Douka[*1,2], Samantha Brown[*3], and Tom Higham[2]

[1]Max Planck Institute for the Science of Human History, Jena, Germany (MPI-SHH) – Germany
[2]Oxford Radiocarbon Accelerator Unit, Research Laboratory for Archaeology and the History of Art, University of Oxford – United Kingdom
[3]Max Planck Institute for the Science of Human History, Jena, Germany (MPI-SHH) – Germany

Abstract

Pleistocene human fossils from Central and North Asia are extremely rare and when preserved are often too fragmentary to allow secure attribution. In 2010, a morphologically non-diagnostic finger bone from Siberia was assigned using DNA to a previously unknown human group, the Denisovans. A few years earlier DNA analysis confirmed the presence of Neanderthals in Central and North Asia, placing them 1500 km east of their then known geographic range. Denisovans interbred with both Asian Neanderthals and modern humans over the past 100,000 years; their geographic distribution is now thought to have stretched from the Siberian steppes to the tropical forests of SE Asia and Oceania. Despite their broad spatio-temporal range, the Denisovans are only known from 4 bones, all from the eponymous cave. While more Neanderthals remains have been discovered in Central and North Asia in recent years, hardly any modern humans have been found; overall the numbers of human fossils, whether archaic or modern, from this vast region is meagre.

This patchy knowledge of past human populations in Central and North Asia significantly limits our ability to test hypotheses regarding routes and timing of people movements across the continent, the nature and frequency of interaction between archaic indigenous groups and migratory modern humans, and the mechanisms leading to sole dominance of our species.

In 2017, the 5-year project "FINDER", funded by the European Research Council, was initiated. We apply a novel combination of analytical methods, namely collagen fingerprinting, also known as ZooMS, radiocarbon dating and ancient DNA analysis, designed to identify, date and genetically characterize human remains amongst thousand animal fragments excavated from Asian sites. The first results from this work are reviewed in this presentation.

Keywords: human fossils, Asia, zooarchaeology, archaeological science

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[*]Speaker