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Why Denisova Cave is Important for Paleolithic Culture?

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The first discovery of Denisovans in 2008, a partial finger bone, provided scant evidence of their skeletal characteristics. Subsequent deoxyribonucleic acid (DNA) analyses, however, offered a wealth of information on this hominin population. The DNA sequencing demonstrated that Denisovans coexisted with other hominins such as Neanderthals or *Homo Sapiens* in the Middle Pleistocene. Genetic information demonstrates that Denisovans was a sister group to the Neanderthals and interbred with modern humans, explaining why the people living in Melanesian islands carry five per cent of Denisovan genes.[1] In the past few years, key artefacts supporting the genetics have surfaced stone tools, bone points, tooth pendants, and the like. However, one class of objects is the most significant, the knapped stone tools of the Denisovans. The manufacturing of these tools clearly demonstrates that the Denisovans had been close enough to both Neanderthals and Modern Humans for intercultural communications.

To study the diversity of middle Pleistocene transition (MPT) and the culture of the earliest *H. sapiens*, recent discoveries of the presence of early *H. sapiens* in Asia, paleoanthropologists and bioarchaeologists focused mainly on hominin fossils of the European continent ignoring Asia and specifically the area of north of Himalayas, the Barents Sea.[2] However, extensive archaeological excavations in Siberia led by Anatole Derevianko et al3 suggest that there are continuous sequences of tool industries from Middle-to-Upper Paleolithic.[2] Moreover, new geochronological methods at Denisova Cave supported the evidence of continuous lithic culture without interruption between homo species is certain in this massive expanse.[3]

Although the Mousterian industry was prominent among Middle Pleistocene hominids, no trace of Neanderthal's Mousterian lithic culture was recovered from Denisova Cave until now, despite the unquestionable hybridization between the two hominin populations.[3] Considering layer 11 and its boundaries, especially in the east chamber of the cave, an intriguing question is whether the Denisovans utilized both the Middle and the Upper Paleolithic industry simultaneously.

Furthermore, this techno-complex is unusually ordered through time. Besides, in addition to stone tools, bone materials and more fitting tooth pendants in the cave demonstrates the presence of early Upper Paleolithic Culture. We have this complete dating thanks to optically stimulated luminescence (OSL)-method—optically stimulated luminescence—by Centre for Archeological Science at University of Wollongong, Wollongong, Australia.[3]

At other North Asian sites such as Malaya Sya and Kara Bom, Laminar Levallois appears to have been the dominant technique of lithic production[2] shown to have developed over a period of 100,000-years in Denisova.[3] Even farther south in Obi-Rahmat, Uzbekistan, in an independent way, the Levallois technique persisted for 80,000-years.[2] Additionally, aesthetic attempts related to bone industry and decorative pendants date to 45,000-years ago in Kazakhstan as well as Denisova, which suggests that Northern and Central Asia populations communicated during their coevolution.

The oldest Paleolithic Specimens in Denisova Cave are associated with the unifacial and bifacial big flake cores of archaic laminar tendencies, dating back to between 195,000 and 122,700-years ago in the Middle Pleistocene.[3] Toward the Upper Paleolithic sequences around 45,000 and 40,000-years ago, there appears to be a perpetual development to the thinner blades connected to knapping the cobbles, especially on ventral faces. Regional sites with cultural continuity independently indicate that Denisovans not only interbred with Neanderthals and modern humans, but they were also close enough for cultural communications.

Regional evolution of *H. sapiens* and industrial continuity from Middle-to-Upper Paleolithic has been shown in numerous sites in the North and East Asia,[2] given the transition between Dali and Liujiang crania in Shuidonggou, "*and Denisova alongside a cultural convergence -- from the Levallois technique to the blades — dating back to 50,000 and 40,000-years ago*".

Northern Asia from Urals to the Barents Sea, Central Asia encompassing Uzbekistan and Kazakhstan, and the far East including China and Mongolia all indicate uninterrupted, independent evolution of hominin species. Therefore, to thoroughly apprehend the origins of *H. sapiens* and their Upper Paleolithic Techno Complex, it is necessary to carry out more excavation research and post-excavation analyses therein.

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