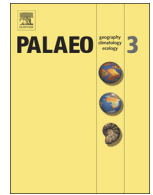




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Palaeoenvironments during the period of the Neanderthals settlement in Chagyrskaya cave (Altai Mountains, Russia)

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ABSTRACT

The Altai Mountains, situated in the middle of Asia, have been inhabited by human groups since prehistoric times. Many Middle Palaeolithic sites (open-air sites and caves) are located in the northwestern part of the Altai Mountains. The uniqueness of this area is in the simultaneous habitation of different human species, such as Neanderthals, Sapiens and Denisovians. The material culture of the Altai Middle Palaeolithic is mostly homogeneous; however, two caves are distinguished from other sites—Okladnikov Cave and the recently studied Chagyrskaya Cave, located in the Charysh River valley. Palaeolithic assemblages from both caves are comparable with the Mousterian industries recorded in certain regions of Eurasia and represent a special variant of the Altai Middle Palaeolithic industries, known as the Sibiryachikha facies. Anthropological data from these caves suggest that the Sibiryachikha variant was associated with Neanderthals. In this study, we reconstruct the palaeoenvironmental conditions of the period of the Neanderthals settlement in the northwestern part of the Altai Mountains based on bioproxies, such as pollen records and large mammal remains. The time of the Neanderthals settlement of Chagyrskaya Cave is attributed to the termination of MIS4 and is characterised by an arid and continental climate. Dry steppe communities were widespread in the Charysh River valley. It is possible that the Chagyrskaya Cave represents a long-term hunting camp where butchering and processing of game animals were carried out. In the following warmer and more humid period the Neanderthals left the cave. This was around the same time when anatomically modern humans began appearing in Western Siberia.

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1. Introduction

The Altai Mountains, situated in the middle of Asia, have been inhabited by human groups since prehistoric times. It is the rich and mosaic environments of this region that have supported the development of many different human cultures from early on, and are thought to have served as refugia during severe climatic episodes (Derevianko et al., 2003). Intensive research by the Institute of Archaeology and Ethnography, Siberian Branch of the Russian Academy of Sciences in the last 30 years has led to the discovery of many important open air and cave sites with evidence for Palaeolithic occupation, most of them in the northwest part of the area. The uniqueness of this area is in the simultaneous habitation of different human species such as Neanderthals, Sapiens and Denisovians (Derevianko et al., 2013a).

The Middle Palaeolithic period began to form in the Altai Mountains near the end of the Eemian (Kazantzevo) interglacial approximately 100 kyr ago. Most of the Middle Palaeolithic archaeological sites are dated between 100 and 44.8 kyr BP, with the latest lithic assemblages dated approximately 33.5 kyr BP (Derevianko et al., 2013b). This correlates well with the assumption that Neanderthals did not colonise most of the Russian plains earlier than 125 kyr ago (Hoffecker, 2002). Favourable climatic conditions during the Eemian warm episode may have facilitated the expansion of Neanderthals into Central Asia and Southern Siberia (Krause et al., 2007).

The material culture of the Altai Middle Palaeolithic is predominantly homogenous (Derevianko et al., 2013a); however, two caves are distinguished from other sites—Okladnikov Cave (44.8–33.5 kyr BP) and the recently studied Chagyrskaya Cave. Palaeolithic assemblages from both caves are comparable with the Mousterian industries (*deje* technique) recorded in some regions of Eurasia, especially in southeast Europe, Transcaucasia and the Eastern Mediterranean. It is assumed that assemblages from the Okladnikov and Chagyrskaya caves represent a special variant of the Altai Middle Palaeolithic known as the Sibiryachikha

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