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Chronology and environments of the Pleistocene peopling of North Asia

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ABSTRACT

The Pleistocene peopling of North Asia was a complex evolutionary process controlled by interactions of climates and environments determining the spatial-temporal dynamics of migrations and specific forms of natural adaptations of early humans. The Quaternary geology, palaeoecology and geoarchaeology records uncovered at the investigated occupation sites document an ancient intermittent presence of people in Siberia and the Russian Far East. The earliest homini dispersal into this vast territory is evidenced by rudimentary flaked cobble-flake stone industries associated with the Early(?) and Middle Pleistocene fossiliferous alluvia in the major Siberian (Ob, Yenisei and Lena) basins. More diagnostic and broadly distributed Middle Palaeolithic cultural complexes (time-equivalent to MIS 12–4), often associated with humanly articulated fossil fauna skeletal remains, represent the pre-modern (Neanderthal/early *Homo sapiens*) traditions characterized by the Levallois prepared-core technology. The biotically productive Last Interglacial (MIS 5e–c) parkland ecosystems preconditioned the documented site density increase and promoted human geographic expansion into the sub-Arctic regions. During the cold and hyper-arid early Last Glacial (MIS 4), most of the land was likely vacated except for the presumed natural refugia in the Alta-Sayan foothills. The subsequent interstadial (MIS 3) warming facilitated colonization of the Siberian Arctic by the late Middle (Neanderthal?) and the progressive Upper Palaeolithic people. Following the Last Glacial Maximum (24–19 ka BP), most of North Asia was re-settled by dispersed and the regionally heterogeneous Final Palaeolithic groups adapted to the mosaic post-glacial ecosystems replacing the disappearing and biotically most productive periglacial tundra-steppe. Mapping the Pleistocene climate history and the associated environmental transformations in the boreal and (sub)polar regions in northern Asia has a principal bearing to elucidation of the initial human migrations to the American continent.

1. Introduction

North Asia, encompassing Siberia and the Russian Far East, is of major importance for documentation of the sequenced chronology and the territorial geographic dispersal of the initial peopling in the boreal and (circum-)polar regions of the Northern Hemisphere. Together with the adjacent parts of the Trans-Urals and the Russian Far East (the Primorye, Magadan and Chukotka regions) (Fig. 1A), Siberia has the key relevance for understanding the trajectories and natural conditions of environmental adaptation of early humans to the mid-and high-latitude environments of Eurasia with direct culture-historical implications for the Pleistocene colonization of Beringia (NE Asia and the adjacent NW America). Particularities of the geographic locations and topographic configurations of the regional landscape reliefs together with the varieties of local ecosystems shaped by past global climate change played the key role in this long and complex process encompassing the last 2.4 million years.

The traditional models of prehistoric peopling of the northern Asian

territories, persisting until the late 1970s', presumed an initial geographic spread of modern humans represented by the Upper Palaeolithic traditions expanding from the East European/central Asian regions (Tseitlin, 1979; Abramova, 1986). This intellectual reasoning was largely influenced by the at-that-time prevailing paradigm of colonization of the American continent by the Palaeoindians with sophisticated hunting technologies, migrating from the East Siberia at the very end of the Late Pleistocene, after ca. 13,000 yr BP. Systematic Quaternary geology and geoarchaeology investigations performed during the last 20 years across Siberia (with the key research loci in the Tran-Ural and Altai regions, the Yenisei, Angara, Lena-Yana Basins and their tributary river valleys, the Trans-Baikal region, as well as at the easternmost margins of the Russian Far East in the Primoriye and on the Sakhalin Island) revealed several hundred of earlier Pleistocene-age sites (e.g., Astakhov, 1986, 2008; Bolikhovskaya and Shun'kov, 2005; Chlachula et al., 1999, 2003, 2017; Derevianko, 1990, 2010; Derevianko and Markin, 1992, 2007; Derevianko and Shun'kov, 2009, 2014; Drozdov et al., 1990, 2000; Konstantinov, 1994; Markin, 1996;

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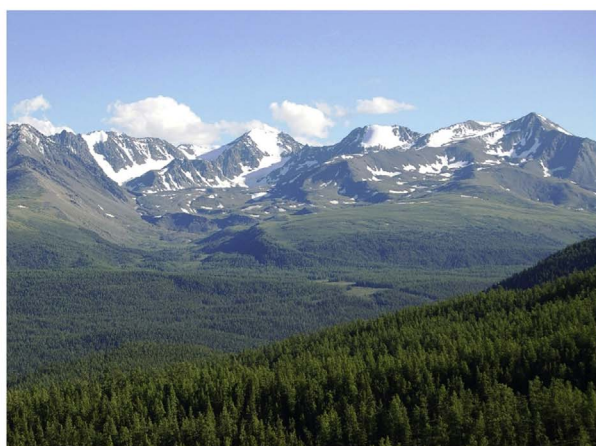
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Fig. 1. A: Geographic map of Siberia. 1. Trans-Urals and West Siberia, 2. SW Siberia, 3. South-Central Siberia (the Kuznetsk & Minusinsk Basins), 4. East Siberia and the Russian Far East. B: The principal N. Asian landscapes and present ecosystems 1. parkland-steppe (the upper Ob River basin, the West Siberian Lowland), 2. southern coniferous taiga (Altai Mnts.); 3. northern taiga with thermo-karst lakes (central Yakutia); 4. sub-arctic forest-tundra (Verkhoyansk Range, NE Siberia). Photographs by J. Chlachula.

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