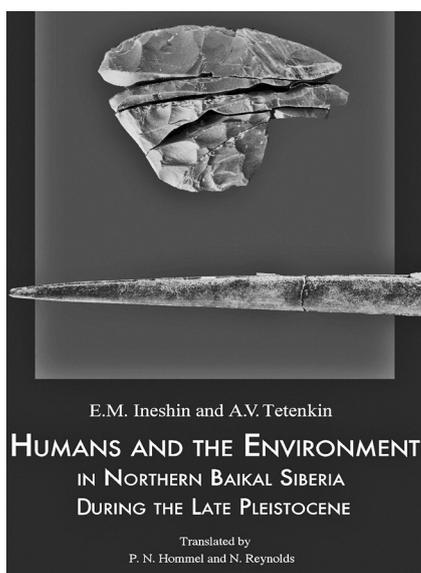


Humans and the environment in northern Baikal Siberia during the Late Pleistocene, by E.M. Ineshin and A.V. Teten'kin (translated by P.N. Hommel and N. Reynolds), Cambridge Scholars Publishing, Newcastle upon Tyne, UK. 337 pages. Hardback: price £64.99. ISBN (10): 1-4438-8277-1; ISBN (13): 978-1-4438-8277-4.



Being the largest Russian territory, Siberia usually conveys the image of a cold, barren and inhospitable land of extreme natural conditions that was colonised only recently during the geographical expansion of the Russian Empire in the sixteenth to eighteenth centuries. The timing, conditions and evolutionary processes of pre-Holocene human occupation in Siberia are still rather poorly understood, although ongoing investigations are supplying novel and often unexpected data on its earliest prehistory. Systematic geoarchaeological research carried out during the last decades has provided a radically different picture, with evidence of favourable climates and productive environments, and with several stages of initial prehistoric human occupation covering a fascinating time span of several hundreds of thousands of years. This extensive area, which encompasses the northern part of Asia, is of key significance in our understanding of specific forms of cultural adaptation to mid- and high-latitude environments at particular stages of human inhabitancy. The traditional scientific thinking about the peopling of Siberia used to be linked to a gradu-

al expansion of the late Palaeolithic cultural milieu from eastern Europe and central Asia. This intellectual paradigm view still persists in connection with a conservative model of the rather late (latest) Pleistocene migrations into the American continent across the Bering Land Bridge at the end of the Last Glacial. Discoveries of Palaeolithic sites, some potentially over half a million years old, recorded during the last twenty years from parkland-steppe regions of southern Siberia (Irtys, Yenisei, Angara-Lake Baikal basins), as well as the northeastern regions (Viluy, Lena, Amga and Aldan River basins of Yakutia) have fundamentally challenged these perceptions of initial Siberian inhabitation.

Logically, these discoveries have led to fundamental revisions of traditional models and illustrate the complexity and a much greater antiquity of the chronologically sequenced early human dispersal in Siberia, with direct implications for the initial prehistoric peopling of the Americas. The progressive adaptation to (sub-)polar habitats is evident from newly discovered sites that indicate that people reached the Arctic coast well before the Last Glacial (> 24,000 years ago). The Pleistocene peopling of northern Asia was closely linked to the past global climate evolution, thus predetermining the inhabitability of the palaeoecologically diverse continental and coastal regions, as well as the culture-historical development testified by stylistic diversity of cultural records. The geological and palaeoecological multi-proxies from the archaeological sites display marked atmospheric shifts that led to the establishment of present conditions. Except for primary geoarchaeological research, aimed at mapping antiquity and spatial-temporal trajectories of the most ancient human settlements in Siberia, increased scientific attention is paid to detailed on-site field studies at younger Pleistocene occupation sites with well-preserved, stratified and dateable geological contexts.

This new trend in Siberian Palaeolithic research is presented superbly in the present monograph

which summarises results based on cultural evidence and geological contexts from systematic, long-term (1985–2010) investigations at Bolshoy Yakor' I – the principal latest Pleistocene multi-layered archaeological site in the northern Baikal area with well-documented short-term occupations between 12,160 and 11,500 years ago. This site is currently considered to be the most informative geoarchaeological locality in the eastern part of the Irkutsk region that belongs to the least archaeologically known and poorly accessible places of eastern Siberia. This locality provides unique evidence of post-glacial human adaptation to dramatically changing natural settings during the Pleistocene/Holocene transition. The unique preservation of organic material, along with elaborate lithic inventories, have allowed the implementation of new on-site study techniques and approaches detailing local prehistoric human occupation.

Following an overview of the history of archaeological research in the Vitim Basin, a discussion of the framework and approaches and of the geomorphology of the Mamakan region, the present tome centres on the geoarchaeology of the Bolshoy Yakor' Site I, with a detailed description of 21 radiocarbon-fixed cultural horizons encompassing a time interval from the Epi-Palaeolithic to the Bronze Age. The extensively studied latest Pleistocene complexes are of particular relevance due to their *in-situ* position in alluvial (floodplain) deposits and the presence of habitation features unparalleled in east-central Siberia. The multiple functions of the site, combining short-term hunting camps and lithic workshops, are indicated by a specialised stone and bone industry production. Human activity at the site is further manifested by flaked, cut and scraped animal bones.

The second part of the book provides a detailed description of the Pleistocene and Holocene cultural complexes studied, followed by stratigraphical sequences, palaeoenvironmental reconstructions and zoo-archaeological analysis with interpretations of prehistoric seasonal settlement patterns. A synopsis of radiocarbon dates from archaeological and palaeontological sites in the Baikal-Patom Highlands and an extensive bibliography conclude the main body of the text. The fossil fauna, found associated with lithic artefacts, documents past natural habitats of the northern Baikal area and are characteristic of continental grassland environments and mosaic tundra-forest and tundra-steppe ecosystems.

The diversity of fossil soils that developed during the warmer latest Pleistocene and early Holocene climate stages points to ameliorating climatic conditions after the extremely cold conditions of

the Last Glacial. This major warming trend at the end of the Pleistocene is illustrated by an increasing number of mapped archaeological sites. The Pleistocene climate cycles clearly regulated the latitudinal geographical movement of people during the Stone Age. During glacial maxima, most of Siberia seems to have been vacated, because of very low mean annual temperatures and frigid inhospitable periglacial environments. The discerned Epi-Palaeolithic occupation represents a distinctive cultural entity and a chronological marker in the northern Baikal area that is correlated with climate warming at the end of the Pleistocene. During that time, vast regions of Siberia were covered by dense tundra/taiga forests that slowed down the progressive territorial penetration of groups of hunter-gatherers via other places than the more open river valleys.

The Bolshoy Yakor' Site I provides new evidence of the exploitation of a wide range of biotic resources, specialised game hunting, fire making and bone- and stone-processing, all illustrating complex human behavioural activities. Rich fossil faunal remains from the archaeological layers attest to a high biotic potential of the northeastern Baikal area. The adaptation to strongly continental latest Pleistocene habitats corroborates and is synchronous with the geographical expansion of people further north into the sub-polar Siberian lands. The late Pleistocene regional palaeogeographical configuration and ecosystem diversity in the transitive mountain foothill/river valley zone of the Baikal-Patom Mountain region provided a wide spectrum of opportunities of food procurement as well as suitable lithic mineral resources.

The present monographic work is a modern synthesis of theoretical and applied methodological approaches matched with environmental particularities and conditions of the study area. It is based on a systematic geo-contextual mapping of cultural inventories and habitation features that are comprehensively presented in graphic plans of the excavated site sections and complemented by high-quality illustrations of cultural finds. The integration of geomorphic, geological, geophysical, stratigraphical, geoarchaeological and taphonomic studies of occupation horizons recorded has enabled the documentation of site formation processes prior to, during and subsequent to repeated human occupations. The supreme preservation of fossil faunal remains is combined with a detailed micro-stratigraphy and spatial planigraphy of single occupation episodes. Laboratory investigations of lithic collections and organic material, together with multi-proxy contextual geo-ecology studies, have facilitated interpretations of adaptation pat-

terns and hunting strategies of Stone Age people. Radiocarbon and luminescence dating techniques have underpinned the latest Pleistocene chronology of the hunter-gatherer settlements in the Vitim Basin. Finally, the assembled palaeogeographical and geomorphic data sets have contributed to a better understanding of local fluvial system dynamics and alluvial relief forms (terrace and deltaic formation) that came into being during the last interglacial-glacial cycle, shaping both former and present occupation environments.

The existing indices of sporadic human presence shortly after the Last Glacial Maximum (i.e., after 19,000 yr BP) at several sites investigated attest to the biological capability and cultural adjustment of people to cope with extreme continental climates. The increased sedimentation rates of colluvial and periodic alluvial overbank deposits, as well as coarse sandy-gravelly deltaic beds, contributed to the formation of the latest Pleistocene archaeological sites, providing the geological contexts of single occupation intervals. Interspersed cryogenic deformations and frost-wedge casts point to permafrost dynamics and its gradual degradation. The appearance of the distinctive Epi-Palaeolithic cultural complexes at Bolshoy Yakor' I, dated as *c.* 12,200–11,500 yr BP, corroborates the ameliorating climatic trends and dramatic palaeoenvironmental transformations of the former tundra-forest into the productive pre-modern taiga and biotically rich mosaic valley habitats at the end of the Pleistocene. This time interval, culturally manifested by sophisticated stone flaking technologies, marks the climax of the early prehistoric cultural development. The decreased density of subsequent occupation sites corresponds to an overall restructuring of ecosystems during the Holocene. The Pleistocene fauna recorded (including large mammals, birds and fish) provided the principal alimentary basis for Palaeolithic humans, illustrating the liability of the North Baikal forest-tundra and forest-steppe ecosystems.

Human adjustment to the latest Pleistocene environments is exemplified by unique stone tools (such as knives, micro-lithic, wedge-shaped cores and transverse burins) and especially bone- and antler-made tool inventories (bone harpoons) displaying a high level of skills and craftsmanship. Patterned spatial associations of these finds within single occupation horizons, in linkage with other cultural features (fire places), yield a unique picture of site function and particular behaviours, inclusive of possible ritual practices (ochre-covered stones). The subsequent microlithisation in Neolithic complexes reflects palaeoecological shifts during the early and mid-Holocene. The archaeological evidence points to selective use of diverse raw materials, including imported exotic lithics, showing a wide mobility range of the Epi-Palaeolithic inhabitants of the Vitim Basin.

The scope and contents of the present publication may be of major use as a reference book for specialists, as well as for students of Asian prehistory and associated interdisciplinary studies of geoarchaeology (geology, geography and palaeoecology). Although not as well illustrated as the Russian original (published in 2015), the comprehensive form of this monograph, with site plans and photographs, should also appeal to the general reader.

Both authors are collaborators of the Irkutsk National Research Technical University. Evgeniy M. Ineshin discovered the Bolshoy Yakor Site I and is head of the Laboratory of Early Technologies, while Alexei V. Teten'kin, as University Associate Professor, specialises in Palaeolithic and Mesolithic archaeology of eastern Siberia. The present tome comes highly recommended.

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