

Humans and the  
Environment in  
Northern Baikal  
Siberia During the  
Late Pleistocene



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By

E.M. Ineshin and A.V. Tetenkin

Edited and translated by

P. N. Hommel and N. Reynolds

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## FOREWORD

For most people, the word Siberia conveys images of a cold, barren and inhospitable land covered by ice, an area that remained largely devoid of human life and culture until the geographic expansion of the Russian Empire in the 16<sup>th</sup>–18<sup>th</sup> century. However, systematic geoarchaeological investigations provide a radically different picture. Looking more closely, we find evidence of favourable climates and productive environments, with several phases of early human migration across this enigmatic northern world. This vast territory, encompassing almost the whole northern part of Asia, is of critical significance to our understanding of the complex processes of human adjustment to the environment in general, and specific forms of physical and cultural adaptation to the mid- and high latitude Siberia at particular stages of prehistoric occupation.

The traditional scientific view on the peopling of Siberia used to be framed within the gradual expansion of an Upper Palaeolithic cultural milieu from Eastern Europe and Central Asia. This intellectual paradigm persists in conservative models of late (Final) Pleistocene migrations into the American continent across the Bering Land Bridge at the end of the last Ice Age. Discoveries of Palaeolithic sites, some potentially over half a million years old, have been reported over the last twenty years from the parkland-steppe regions of southern Siberia (the Irtysh, Yenisei, Angara, and Lake Baikal Basins), as well as the north-eastern regions (the Viluy, Lena, Amga and Aldan River Basins). These findings have challenged perceptions of the initial Siberian inhabitation. Eventually, they have delivered overwhelming evidence of a much greater antiquity of early human presence in this still insufficiently explored part of Eurasia.

Investigations in former Pleistocene parkland-steppe environments revealed long cultural sequences buried in ancient river alluvia (and associated terrace-cover sediments) analogous to the European Lower Palaeolithic (core-and-flake stone industries), through Middle Palaeolithic complexes (the 'Mousterian' Levallois tradition), to the Upper-Final Palaeolithic (micro-)blade industries characteristic of the lithic production at the end the Pleistocene. Progressive adaptation to (sub)polar environs is evident from the occupation sites identified in the far north of Siberia,



such as those in the Yana and Kolyma Basins of north-eastern Yakutia. These sites indicate that people reached the Arctic coast long before the Last Glacial Maximum (>24 000 years ago), presumably during earlier interstadials. These discoveries logically lead to fundamental revisions of the traditional colonisation models and illustrate the complexity of the early human dispersal in North Asia. This has direct implications for our understanding of the initial prehistoric peopling of the Americas as well.

Apart from geoarchaeological research, aimed at mapping antiquity and overall spatial-temporal trajectories of early human settlement in Siberia, increasing scientific attention is being paid to detailed on-site field studies carried out at more recent Pleistocene-age habitation sites with well-preserved stratigraphy and dateable geological contexts. These studies document close regional occupation chronologies and time-specific human adaptive patterns across the Siberian Pleistocene contexts. Objectives of such integrated and interdisciplinary studies framed in Quaternary geology are to map, in high-resolution, the representative chronostratigraphic sections relevant for reconstructing time intervals, past natural conditions, and cultural adaptation strategies within Siberia. The Pleistocene peopling of northern Asia was closely linked to the dynamics of global climatic evolution, which predetermined the temporal habitability of these ecologically diverse continental lands and coastal regions, as well as the culture-historical development testified by the stylistic diversity of cultural records. The geological and palaeoecological multi-proxies for local environmental change obtained from archaeological sites display dramatic climatic fluctuations during the Final Pleistocene, leading to the establishment of the present conditions. Such sophisticated approaches are thus critical for elucidating the process of Pleistocene human dispersal into the vast and until today only locally and sparsely settled areas of Siberia.

This new trend in the Siberian–North Far East Asian Palaeolithic research is masterfully presented in this monograph written by Evgeniy Ineshin and Aleksey Teten'kin, summarizing the results of systematic archaeological investigations and contextual geological research at Bol'shoy Yakor' I—a remarkable Final Pleistocene-age multi-layered archaeological site which documents sequenced short-term occupation episodes spanning a time interval from 12,160 to 11,500 years ago. The book summarises achievements from long-term studies initiated in 1985 and formally concluded in 2010. The site is widely recognised as the most comprehensively investigated and most informative geoarchaeological site in the eastern part of the Irkutsk Administrative Region—one of the least

archaeologically known places in Eastern Siberia due to its limited geographic accessibility. Located in the lower Vitim River Valley, a major left tributary of the Lena River draining the Northern Baikal-Patom Highlands, this locality provides unique evidence of human adaptation to the dramatically changing former periglacial natural environments around the Pleistocene/Holocene transition. Optimal preservation of the organic material along with elaborate *in-situ* lithic inventories has allowed the integrated implementation of new in-site-study techniques and approaches detailing the local human occupation prehistory, a close multi-proxy reconstruction of settlement habitats as well as interpretations of specific site function and environmental-cultural adjustment strategies in the NW Baikal region of central East Siberia.

Twenty-one cultural horizons corresponding to a time interval from the Epipalaeolithic to the Bronze Age were mapped sealed in fine-grained alluvial (overbank/floodplain) deposits. The Final Pleistocene complexes are of particular relevance due to *in-situ* cultural records and habitation features, which are without parallel in this part of Siberia. A consistent series of 21 radiocarbon dates, fixing the chronology of the Bol'shoy Yakor' Site, provide a high level of age control of this multi-layered sequence. The Final Pleistocene occupation horizons (3A–9) eloquently document the regional diversity of the Dyuktai Cultural Complex exemplified by their elaborate lithic assemblages but also by the site's complex geoarchaeological stability throughout the c. 2000 years of the mapped occupation. Multiple site functions, combining short-term hunting camps and lithic workshops, are indicated by specialised stone and bone industries consistent with autumn/winter seasonality, with more expedient tool-kits associated with occupation in the spring. Overall, the Bol'shoy Yakor' I stratigraphic sequence provides a clear account of the specific hunting-gathering economic activities of prehistoric people adapting to the East Siberian Final Pleistocene landscapes. The exceptional, taphonomy of the lower cultural strata, the presence of anthropogenic habitation features with numerous hearths and ash layers, together with the significant variability seen in the stone industries, make the Bol'shoy Yakor' I Site the most informative Final Pleistocene archaeological monument in the central East Siberia. Together with other investigated localities in the lower Vitim basin and the Baikal-Patom Highlands, Bol'shoy Yakor' provides proof of very high potential of this region for future research.

The fieldwork presented in this monograph is a modern synthesis of well-thought-out theoretical and applied methodological approaches fitted to the environmental particularities and conditions of the study area. In the

process of excavation, systematic mapping was carried out to fix the geo-contextual position of cultural inventories and habitation features across the Mamakan Geoarchaeological Micro-region. Meticulous excavation with the detailed spatial and stratigraphic recording and geoarchaeological analysis of the cultural inventories are summarised in clear plans of the revealed site occupations complemented by high-quality illustrations and digital photographs of the cultural finds, meeting the standards and scientific requirements of the global academic community. The integration of complex geomorphological, geological, geophysical, stratigraphic, spatial, geoarchaeological and taphonomic studies of the occupation horizons enabled the close documentation of sequences of site formation processes prior, during, and after single phases of early human occupation. The unique preservation conditions of fossil faunal remains combined with a detailed site micro-stratigraphy and spatial planigraphy prepared a high-accuracy spatial and chronometric resolution of the individual occupation episodes. Laboratory use-wear and SEM investigations of lithic collections and organic material, together with multi-proxy contextual geo-ecological studies, enabled precise interpretations of patterns of human adaptation and prehistoric hunting strategies. Radiocarbon and luminescence dating techniques fixed the Final Pleistocene chronology of the hunter-gatherer settlements in the Vitim Basin. The assembled palaeogeographic and geomorphological datasets contributed to a better understanding of the local fluvial system dynamics and alluvial relief (terrace and deltaic formations) development during the last interglacial–glacial cycle, shaping the human occupation environment in both the past and present. Glacial landforms in the Baikal-Patom Highlands testify to the presence of isolated corrie glaciers in the high mountain ranges during the Last Glacial Stage and very harsh natural conditions.

Together with a number of other multi-layer Stone-Age occupation sites located on the territory of the Baikal Siberia (Kazachka, Strizhovaya Gora, Ust'-Belaya, Sosnovyy Bor, Gorelyy Les, Ust'-Khaita I, Verkholskaya Gora, Berloga, Ityrkhey, Most-Levyi Bereg, Ust'-Karenga, and many others) these results contribute significantly to the overall picture of the East Siberian Palaeolithic and have direct implications for the early human colonization of regions further to the east and north as well as linked to the episodes of the pre-Holocene human migrations into the New World.

The Quaternary geology of the NW Baikal territory controlled by a series of tectonic events, in conjunction with the glacial-interglacial cycles, shaped the character of past as and present relief in the Lena-Vitim basins

and the Northern Baikal Range. The high topographic gradient and in places the unconsolidated geological structure encouraged intensive geomorphic gravity-slope processes documented in the contextual layers of the prehistoric occupation sites. Such landscapes preconditioned the formation of regional mosaic geo-ecosystems with specific biotic communities. The geographical location of the study area, characterised by extreme continental conditions, promoted widespread permafrost formation persisting until the present time. The diversity of fossil soils developed during warmer Final Pleistocene and early Holocene climate stages reflects ameliorating climatic trends and transformations of this mosaic of palaeo-environments in the Vitim River basin and adjoining tributary valleys. The warming which defined the end of the last Ice Age is illustrated by an increasing presence of the mapped archaeological sites. The corresponding natural shifts in the riverine and foothill habitats undoubtedly promoted a geographical expansion in the range and scale of regional Final Palaeolithic occupation. Overall, the Bol'shoy Yakor' locality well illustrates the importance of systematic multidisciplinary investigations intended to extract the maximum amount of information from the early site's geoarchaeological contexts. The associated fauna, found together with early cultural assemblages, is dominated by species characteristic of continental grassland environments and indicative of tundra-forest and tundra-steppe ecosystems allowing the authors to convincingly reconstruct the habitation setting of this late Last Glacial community in the Lower Vitim Valley as a productive mosaic landscape with riverine valley vegetation interspersed by local montane biota.

The cyclical nature of glacial and interglacial events led to the palaeo-landscape restructurings and generations of specific ecosystems adjusted to particular topographic settings and responding to climatic variations. The configuration of the Late Quaternary regional relief and the diversity of natural environments affected by past climate change effectively regulated the peopling dynamics over the East Siberian territory. The principal river valleys played a key role in this process, serving as the main migratory corridors for both their animal and human inhabitants. Due to the unstable and partially erosional character of the local natural settings, some archaeological inventories are found out of their original geological context. The mapped chronological, spatial and contextual site distribution in the lower Vitim-Mama Basins suggests a Final Pleistocene ecological instability over broader geographical regions. The palaeoenvironmental proxy data (palynological, palaeontological and cultural) provide proof of strongly fluctuating climates following the Last

Glacial Maximum, corroborating the geological and palaeoecological records of the investigated archaeological loci.

Archaeological evidence from NE Baikal Siberia bears witness to the fact that this mountainous territory, between the Baikal and Yablonovyy Ranges to the south of the central Yakutian basin, was repeatedly settled during the Final Pleistocene. Variations in climate and associated shifts in the natural habitat preconditioned the intensity and timing of the periodic peopling of this geographically extensive and remote part of north-eastern Eurasia. Recent discoveries point to the complexity of human occupation in the most continental regions of Eurasia. Pleistocene climatic cycles regulated the latitudinal movement and spatial dispersal of early humans. During glacial maxima, most of Siberia seems to have been abandoned, because of very low mean annual temperatures, hyperaridity and the overall inhospitability of periglacial environments. The Bol'shoy Yakor' archaeological site, currently the best-studied archaeological site in the Vitim Basin, illustrates human adaptation to the East Siberian post-LGM landscape at a final stage of biological evolution, which enabled people to occupy more permanently the vast territory of Siberia.

Unlike the earliest, and still only rather partially understood, periods of colonisation in this part of Asia (early–mid-Pleistocene), the Final Pleistocene/Epipalaeolithic occupation of the northern Baikal area represents the arrival of a distinctive cultural community associated with climatic amelioration at the end of the Pleistocene. At this time, extensive regions of East Siberia were covered by tundra/taiga forests, which slowed the progressing territorial penetration of groups of hunter-gatherers, channelling both humans and animals into the open river valleys. The rich faunal remains from the archaeological layers in the Vitim Basin attest to a high biotic potential of the northeastern Baikal area at this time. The Bol'shoy Yakor' Site, presented in this original monograph, provides new evidence of the exploitation of a wide range of local biotic resources, specialised game hunting, fire-making, as well as bone- and stone-processing illustrating complex early human behavioural activities. Palaeolithic adaptation to the strongly continental Final Pleistocene habitats corroborates and is synchronous with the broadening geographical expansion of people further north into the sub-polar regions of Siberia.

The timing, conditions and evolutionary processes of pre-Holocene human dispersal in Siberia are still rather poorly understood. As shown at the Bol'shoy Yakor' Site I, the on-going investigations regularly supply new and unexpected evidence to augment or alter our general picture. The

Pleistocene peopling of Siberia must be viewed in the context of long culture-historical and adaptive-biological developments in extreme natural environments. The gradual spatial spread and/or territorial re-settlement can be seen as an infiltration of small groups of hunter-gatherers from areas further south along major river valley systems and tectonically rifted continental depressions of Transbaikal Siberia. This undoubtedly dynamic process may have been fostered by a quest for resources, by the natural movements of large game, or simply because of the inquisitive nature of humanity. The Bol'shoy Yakor' Site I documents the development of sustainable, adaptive natural-resource exploitation strategies at Final Pleistocene habitation sites in central Eastern Siberia through a local geoarchaeological window on environmental and palaeoecological change.

The cultural record from the Vitim River Basin exemplifies the richness and diversity of archaeological loci that remain buried, awaiting discovery. The Late Pleistocene regional palaeogeography configuration together with the ecological diversity of the Baikal-Patom Highlands provided a broad spectrum of food procurement opportunities as well as an abundance of suitable lithic resources.

Initial exploration of this remote and difficult-to-access area goes back to the early 19<sup>th</sup> Century in connection with the exploitation of gold placers—an activity that formed the background for subsequent scientific expeditions to the northeastern areas of the Baikal Siberia. The economic opening of the new territories was followed by pioneering prehistoric and ethnographic investigations in the Vitim region initially organised by pioneering Irkutian archaeologists during the early 20<sup>th</sup> Century. Investigations during the following decades provided new and plentiful evidence of prehistoric and early historical development in this remote corner of Siberia and created an intellectual background for the present systematic geoarchaeological and palaeoecological research. The original studies organised in the Vitim and Upper Lena Basins, with their interest in mapping the genesis of the prehistoric and early cultural complexes in central Yakutia, delivered evidence of a much longer occupation history of this territory dating back into the Late Pleistocene. The studies in the Vitim and Mama River valleys carried out by the authors have refined the existing chronological sequence, principal characteristics and particularities of regional cultural evolution from the Late/Final Pleistocene to the present.

The Late Pleistocene periglacial settings provided marginal natural conditions for inhabitation of the upper Lena-Vitim area. At several sites

in the region (Bol'shoy Yakor' I, Avdeikhi, Mamakan VI, Kovrizhka II, III), there are indices of sporadic human presence shortly after the Last Glacial Maximum (i.e. after 19,000bp) at several sites in the region (Bol'shoy Yakor' I, Avdeikhi, Mamakan VI, Kovrizhka II, III). These attest to human biological and cultural adjustment to the postglacial milieu and capability of early people to cope with extreme continental climates. Increased rates of colluvial sedimentation and periodic alluvial overbank deposits, as well as the formation of coarse deltaic beds, all contributed to the preservation of the Final Pleistocene archaeological sites, representing geological contexts of single phases of occupation. Interspersed cryogenic deformations and frost-wedge casts point to changing climate variations linked to permafrost dynamics. The appearance of the rather distinctive Epipalaeolithic cultural complexes in the Lower Vitim and Lena Basin, dated at Bol'shoy Yakor' I to c. 12,200–11,500 yr bp corroborates the markedly ameliorating climatic trends and palaeoenvironmental transformations of the former tundra-forest into productive pre-modern taiga and biotically-rich mosaic valley habitats at the end of the Pleistocene. This Final Palaeolithic time interval with sophisticated stone flaking technologies marks the climax of the local early prehistoric cultural development. The subsequent occupation site density decrease corresponds to the overall restructuring of ecosystems during the Holocene transition. The Pleistocene fauna recorded (a total of 25 small and large taxa, including birds and fish) defines the principal subsistence base for the Palaeolithic humans in the Northern Baikal region and illustrates the liability of local ecosystems. The presence of large herbivorous herd animals (such as caribou, horse and bison) together with typical boreal forest taxa (moose, red deer, argali sheep), indicates the presence of both open and mosaic parkland landscape settings in the occupied upper Vitim River basin, corresponding to forest-tundra and forest-steppe habitats.

Successful adaptation to the local Late Pleistocene environments is also exemplified by the unique stone, bone and antler inventories displaying a high level of skills and craftsmanship. Elaborate forms of these instruments enhanced their hunting effectiveness and selective Final Palaeolithic hunting strategies. The serially produced bifacially retouched stone tools in the form of knives, micro-lithic wedge-shaped cores, transversal burins and bone harpoons represent the most characteristic archaeology records completing the overall industrial repertoire of the Bol'shoy Yakor' cultural complex. Diagnostic technological procedures in stone tool industry production facilitate tracking processes of the Final Pleistocene/Epipalaeolithic cultural innovations in northern Asia.

Patterned spatial associations of these finds within single occupation horizons in linkage with other cultural features, such as fireplaces, yield a unique picture of site function and particular behavioural activities, including possible ritual practices (ochre-covered stones). Microlithisation in the later (Neolithic) cultural complexes reflects complex palaeoecology shifts during the early and mid-Holocene, and natural ecosystem restructurings. The archaeological evidence documents the selective use of diverse raw materials, including exotic lithic resources transported over a distance of many kilometres and showing the wide mobility range of the Epipalaeolithic inhabitants of the Vitim Basin. A certain level of social organisation and behavioural complexity is attested in specialised hunting strategies. Detailed analyses of the taxonomically diverse faunal material enabled precise seasonal attributions for the site occupancy to be made with respect to migratory animal hunting and game exploitation in palaeodiet. In short, this book provides unique insights into the life of the Late Pleistocene hunter-gatherers in Eastern Siberia.

The authors of this comprehensive publication are experienced researchers of the Laboratory of Early Technologies of the Irkutsk State Technical University with a high reputation amongst their colleagues in the Eastern Siberian archaeology and palaeoenvironmental studies. Evgeniy Ineshin—the discoverer of the Bol'shoy Yakor' site—has carried out investigations at numerous open-air sites across the region. Many of these sites form part of the Lower Vitim Final Pleistocene cultural complex. His professional expertise spans Quaternary science and geoarchaeological research, and his focus is the documentation of palaeogeographic and climatic histories in the northern Baikal mountain area. Aleksey Teten'kin has been a senior researcher at the investigated locality since 1992. His extensive expertise encompasses specific lithic technological and functional analyses and archaeological theory with specific skills in the detailed field study of geoarchaeological and taphonomic processes.

This monograph *Humans and the Environment of Northern Baikal Siberia during the Late Pleistocene* provides a novel and intriguing study of Final Pleistocene hunter-gatherer occupation and prehistoric cultural adaptation in the broader context of a detailed multi-proxy palaeoenvironmental and geoarchaeological research. The scope and contents of this excellent publication warrant for its use by both specialists and students of archaeology and interdisciplinary Quaternary (geology, geography and ecology) studies. This valuable book should serve as a major reference title in the framework of future investigations of the Final Pleistocene peopling of Eastern Siberia.



I was fortunate enough to have the opportunity to visit the Vitim basin with Evgeniy Ineshin in August 2013, and I was impressed by both its rugged, wild landscape and great potential for future research. The rather harsh, ultra-continental climatic conditions that prevailed there during the final stages of the Pleistocene and the early Holocene induce respect for the adaptive capabilities of Vitim's hunter-gatherers. No less worthy of respect is the scale of field and laboratory work that has been carried out by the authors over the last 30 years. To my mind, Bol'shoy Yakor' I represents one of the best-investigated Pleistocene occupation sites in Siberia.

Jiří Chlachula

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## EDITORIAL NOTE

I first met the authors of this book at a private dinner in Irkutsk more than a decade ago. This feast, laid on to celebrate Evgeniy Ineshin's successful defence of his *Kandidat* thesis, was my first encounter with a Russian 'banquet' and remains a very memorable evening. At the end of dinner, I was handed a slim blue pamphlet, signed by its author—a summary of one of the theses that form the backbone of this book.

The quality of this work was immediately apparent, and this much-thumbed booklet provided an important reference text for me as I began my own doctoral research on the Vitim Basin, and still sits within easy reach on my shelf.

The subsequent publication, in Russian, of the research at Bol'shoy Yakor' I—by now incorporating much more of the work undertaken by its co-author, Aleksei Teten'kin—is equally significant for me, and sets a very high standard for Palaeolithic research in Siberia.

Inevitably, some areas do not easily transcend the boundaries of language and academic practice, and perhaps the most challenging of these is chronology. At the authors' request, the dates quoted throughout the text are cited in uncalibrated radiocarbon years before present (bp). This practice is primarily intended to maintain consistency with the original work, and should not be taken by readers as a failure on the part of the authors to understand the significance of radiocarbon calibration or its importance. Rightly or wrongly, uncalibrated radiocarbon dates are still used routinely and consistently in Russian publications on the Eastern Siberian Palaeolithic.

The most noticeable difference between this English edition and the original Russian publication is a question of colour. Thanks to the generosity of two local businessmen, the original work was lavishly illustrated. Although as many of the images and illustrations as possible have been reproduced 'in text', some were necessarily omitted. Nevertheless, all these images as well as a series of new high-resolution photographs of key artefacts and several videos, created to illustrate various stages of biface production and use, are provided for readers as a

digital appendix to the volume. This appendix, included as a CD-ROM at the back of this book, can also be downloaded online via ([fb.com/bolshoyyakor](https://www.facebook.com/bolshoyyakor)), and contains digital versions of all figures and tables in the text presented in a continuous sequence together with additional 'digital-only' illustrations and photographs, identified with the prefix *d-fig*. Other images and videos, though not explicitly referenced, are provided in a straightforward and logical file structure organised by layer and artefact type.

In undertaking the edition and translation of this work, every effort has been made to do justice to the precision of the original publication, which in my view is one of the most thoughtful studies of prehistoric activity to come out of this region. I am deeply indebted to my co-editor Dr Natasha Reynolds for her invaluable assistance throughout this process.

Peter Hommel  
*Institute of Archaeology, University of Oxford*



## CHAPTER ONE

# A HISTORY OF ARCHAEOLOGICAL RESEARCH IN AND AROUND THE VITIM BASIN, THE BAIKAL-PATOM HIGHLANDS, AND THE SITE OF BOL'SHOY YAKOR' I

### The Early Phases of Archaeological Research

Archaeological research in the Baikal-Patom Highlands (fig. 1.1; *d-fig. 1.1–6*) began in the mid 19<sup>th</sup> Century, alongside the intensive exploitation of gold deposits discovered in the 1830s and 40s. Mining in the Patom part of the Baikal-Patom Highlands, the so-called *Lena Goldfields*, was facilitated by the region's proximity to the Lena River which, for the Russians, was the primary route of access into northeastern Asia. As a result, the Baikal-Patom Highlands became a major focus of colonisation, laying the foundations for the further industrial, cultural, and scientific development in the region.

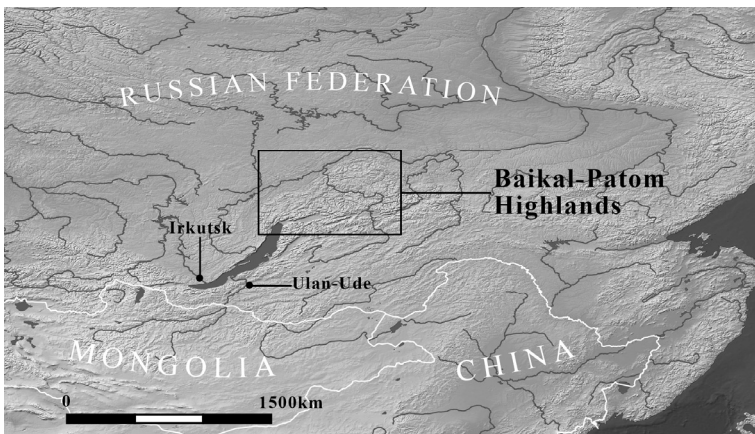


Figure 1.1 Map of Eastern Eurasia showing the location of the study area

The promise of riches, combined with the need for extensive survey and technical expertise, brought an influx of geologists, entrepreneurs, and engineers, representing some of the best-educated and most broad-minded individuals in society at the time. Unsurprisingly, they showed significant interest in both the ethnic peculiarities of the local populations and the archaeological material they encountered in the course of their work. At the very beginning of the 20<sup>th</sup> century, the first local museum in the region was opened in Bodaibo—the *de facto* capital of the Lena Goldfields—and, though the original exhibits were lost in a fire in 1928, a surviving inventory describes the broad range of ethnographic and archaeological materials in its collections.

In 1911, at the mouth of the Pronina (now the Pronikha) River, around 60 km from Bodaibo, construction workers found four bronze celts (socketed-axes) while building a farmstead for ship-owner Buyvid (Report of the Eastern Siberian Branch of the Russian Geographic Society 1914). One of these celts was donated to the local museum in Bodaibo, the fate of the second is unknown, and the remaining two were sent by Rosenthal to the local museum in Irkutsk. These were the first archaeological materials to be brought out of the Vitim Basin, and they feature prominently in many later studies of Bronze Age archaeology in Siberia.

After the revolution, a group of archaeologists from Irkutsk, co-ordinated by B.E. Petri—founder of the so-called ‘Irkutsk School of Archaeology’ and a very experienced and inquisitive researcher—began a more focused survey of the Vitim Basin. Expeditions down the Lena River in 1917 and 1921, led by V. I. Podgorbunsky, resulted in the first collection of artefacts around the mouth of the Vitim, while Petri himself coordinated the first archaeological exploration of the Bodaibo region in 1929 (Savel’ev 1991). In 1929 and 1930, further expeditions, also headed by Petri, relating to the management of indigenous Tungusic peoples along the middle and lower course of the Vitim, were organized under the auspices of the ‘Peoples of North’ and ‘GlavNauka’ committees<sup>1</sup> (Anon. 1930; State Archives of the Novosibirsk Region, Store R-17, inventory 1, file 67: 11; Case 16: 16, 17, 29).

While in the Bodaibo region, Petri trekked out to an Evenk trading station on the Mamakan River, across an area that we now recognise as one of the

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<sup>1</sup> The ‘GlavNauka’ committee was the central administrative body for the Scientific, Scholarly-Artistic and Museum institutions of the Russian Soviet Federated Socialist Republic between 1921 and 1930.

most significant clusters of archaeological sites in the region. His initial scientific observations effectively set the agenda for future archaeological exploration within the Vitim Basin. Unfortunately, only the most basic data concerning the character and results of his exploratory studies are preserved. The work is only described in a few papers from the archives of the 'Peoples of the North' Committee (curated in Novosibirsk), two brief articles from the Irkutsk journal *Vlast Truda*, and Petri's descriptions of the '20 dozen glass negatives' taken during the expedition of 1929. Some of these have been preserved in the stores of the Irkutsk Oblast' Regional Historical Museum.

It is known that he produced a more detailed report for GlavNauka, with maps of the nomadic routes of the Evenks, their camps, connections, and cultural/economic interactions, both with their neighbours and with other groups of Evenks. Sadly, following Petri's arrest and execution in 1937 much of his valuable ethnographic research and archaeological material was confiscated, and subsequently lost, by the People's Commissariat of Internal Affairs (NKVD).

Only after the Second World War, in the 1950s–1960s, was the archaeology of the Vitim Basin studied further, with the re-examination of existing materials, such as the bronze celts from the mouth of the Pronina (Pronikha), whose cultural origins and dating were established with reference to wider regional schemes (Okladnikov 1955; Maximenkov 1960a, 1960b). Further discussion of these celts and their chronological position appeared again, in the 1970s and 80s, in the publications of the Prilensk Archaeological Expedition (Fedoseeva 1974; 1980).

### **The Prilensk Archaeological Expedition and the Further Exploration of the Vitim**

Beginning in 1969, this programme of research opened a new page in the history of archaeological activity in the Baikal-Patom Highlands and set the stage for the recent phase of scientific-archaeological studies presented in this volume. During the 1970s, Soviet Siberian archaeology was flourishing, and it was at this time that many of the modern archaeological groupings across this vast, largely unexplored region were first defined. Between 1973 and 1976, the Vitim branch of Prilensk Archaeological Expedition, headed by S. A. Fedoseeva of the Institute of the Language, Literature and History in Yakutsk (an affiliate of the Siberian Branch of

the Academy of Sciences of the USSR), began to explore the Lower Vitim Basin.

The arrival of archaeologists from Yakutsk on the Vitim was brought about within a framework of study, which sought to investigate the genesis of various archaeological cultures of Yakutia. The survey not only targeted known archaeological sites and findspots such as Pronikha and Kakolda, but also explored new areas, defining sites at Bodaibo, Kozhavod, Avdeikha, Bisyaga, Mamakan, Kolobovshchina, Bolshaya Severnaya, Malaya Severnaya, Bystraya, Sukhaya, and Ust'-Vitim (Mochanov and Fedoseeva 1980). Of these, Avdeikha and Bolshaya Severnaya were the most extensively explored and remain among the best-known sites in the region.

At Avdeikha, the first Palaeolithic finds within the Baikal-Patom Highlands were uncovered during a series of archaeological excavations between 1973 and 1976. The stratigraphy, hypsometry, and absolute age of Avdeikha were presented in summary publications by Yu. A. Mochanov (1975, 1977). This work was the first application of radiocarbon dating to the study of archaeological chronology in the Baikal-Patom Highlands. Much later, N. V. Antipina (2001, 2005) published a study of the choppers and pebble cores from Avdeikha and, on the basis of the morphology of the assemblage, ascribed three cultural horizons at the site to the Dyuktai Upper Palaeolithic culture.

The site of Bolshaya Severnaya was first identified and explored in 1973 and, on the basis of a morpho-technological analysis by Fedoseeva and Mochanov, ascribed to the Epipalaeolithic Sumnagin culture of the Early Holocene, 10,500–7,000 bp (Mochanov 1977). Mochanov described both site assemblages during the initial definition and characterization of these two Palaeolithic cultures (Dyuktai and Sumnagin).

Material from other archaeological sites in the region was rarely published and was, in any case, limited to finds from small exploratory test pits. Collections of artefacts obtained at individual findspots were small and dominated by surface finds, which can only be superficially quantified. However, the discovery of net-impressed and waffle-stamped ceramic fragments along the Lower Vitim also indicated the presence of connections with the so-called Syalakh (Mochanov 1970) and Ymyyaktakh (Fedoseeva 1970) cultures in the region. On the basis of these materials, the Lower Vitim was incorporated within the Prilensk cultural region.



The excavations at Avdeikha in 1976 marked the final phase of research by the Vitim branch of the Prilensk Archaeological Expedition and the end of involvement by the Yakutsk Institute of the Language, Literature and History in the active archaeological investigation of the Baikal-Patom Highlands.

### **Archaeologists from Irkutsk on the Vitim**

Almost simultaneously with the early activities of the Prilensk Archaeological Expedition in the Lower Vitim, the Integrated Archaeological Expedition of Irkutsk State University, led by M. P. Aksenov and V. M. Vetrov, began work in the upper parts of the basin, in the territory of the Vitim Plateau (Aksenov *et al.* 2000). By 1975, research expeditions by P. E. Shmygun, T. A. Abdulov and others, working along the northern Baikal littoral, had also begun to investigate southern sections of the Baikal Highlands. Thus, the vast territories of the Vitim Plateau and the Baikal-Patom Highlands became a focus of exploration by two major centres for archaeological research (Irkutsk and Yakutsk), both seeking to fill in some of the remaining 'blank space' on the archaeological map of North Asia.

At first, this new phase of fieldwork focused on the upper and middle course of the Vitim (the territory of the Vitim Plateau), where the geologists V. Kh. Shamsutdinov, S. M. Tseitlin, A. S. Yendrikhinsky and V. I. Lositsky had encountered traces of ancient material culture during research expeditions in the 1960s (Aksenov *et al.* 2000: 9). Of particular importance were discoveries around the settlement of Ust'-Karenga, where Shamsutdinov encountered the first traces of ancient settlement in the region. His discoveries attracted the attention of archaeologists in Irkutsk, including M. P. Aksenov and V. M. Vetrov, whose subsequent research at this unique complex of sites (Ust-Karenga I–XVI) has been so influential (Vetrov and Trifonov 1975).

Further exploration of the Upper and Middle Vitim was carried out continuously from 1974. On the basis of excavation and survey at dozens of sites across the region, two broad archaeological cultures were defined: the Ust'-Karenga culture (3,000–11,000 bp) and Ust-Yumurchen culture (2,000–3,000 bp) (Aksenov *et al.* 2000; Vetrov 1982b; 1985; 1986; 1990; 1992; 1995; 1997). In addition to these were the distinctive archaeological complexes at Sivakon (Nizhnyaya Dzhilinda) and Stary Vitim I–III, which do not seem to fit within Vetrov's sequential cultural system (Vetrov 1982b; Vetrov *et al.* 1993). A further series of burial sites dating back to

the early Iron Age also appear to be distinct from later members of the cultural sequence (Vetrov and Ineshin 2002). However, a unique discovery in the archaeology of the Upper Vitim Basin was the identification of Late Pleistocene ceramic vessels, dated to around 11,000 bp at the site complex of Ust'-Karenga. At the time of excavation, these finds were the earliest pottery known in continental Eurasia. Their remarkable age is now supported by a suite of complementary dating techniques, of which the radiocarbon method has proved the most valuable. Although subsequent discoveries in the Russian Far East and China have pushed the origin of pottery further back into the Pleistocene, the Vitim Plateau remains one of the earliest loci of pottery production in the world.

Further studies of the Ust'-Karenga archaeological complex were also important because they led to a detailed, stage-by-stage reconstruction of stone-working technology at the site, from bifaces to wedge-shaped cores. This reconstruction was based on the systematic analysis of refits and the study of microdebitage, which was introduced into the mainstream of Russian archaeological research for the first time. The results of research at Ust'-Karenga made the site into a chronological, cultural, and methodological 'stratotype' for further site studies along the Vitim, while the combination of so-called 'Neolithic' technologies (ceramics) and typical late Palaeolithic lithic traditions (biface reduction to wedge-shaped microblade cores) make it one of the most extraordinary assemblages in the archaeology of northern Asia. All archaeological sites discovered and dated between 8,000–13,000 bp, must necessarily correlate their material with the materials from Ust'-Karenga XII–XVI.

It was as part of these pioneering expeditions, led by Aksenov and Vetrov that E. M. Ineshin and O. V. Zadonin (who later led expeditions in the Lower Vitim, the Baikal-Patom Highlands, and the northern part of the Upper Lena Basin) began their research careers.

By the early 1980s, the geographic scope of research by the Integrated Archaeological Expedition had expanded to include a vast stretch of the Vitim Basin between Romanovka and the Muya-Kuanda Basin. The research methodology employed during these explorations was primarily developed and introduced to the region by Aksenov and was based on prospection along the main watercourse and its tributaries. As with research in the Lower Vitim, it was characterised by surface survey and small-scale excavation. Initially, field research was of a prospective nature, and researchers worked at sites distributed along the river valley during each season. In fact, this *river archaeology* was, and still is, the

primary approach to scientific exploration in territories of this kind, not only because of their remoteness and sparse population but also because of the limited finances available for this kind of research. In such conditions, the river was the only viable method of transport that would allow researchers to reach the archaeological sites and return at the end of the field season. Each season began at a large settlement in the upper reaches of the Vitim Basin (e.g. Romanovka). From there, the archaeologists set out downriver to the last settlement with air transport links, or later, after the completion of the Baikal-Amur Mainline, to a place with access to the railway (Ust'-Muya)—a distance of 850 km.

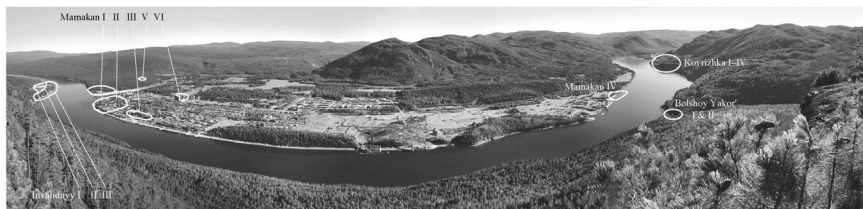
The difficulty of conducting archaeological research in these regions is one of the principal reasons why the work of Irkutsk's archaeologists in their research of the Vitim River Basin must be recognised as a remarkable significant achievement. Their success in overcoming the challenges of landscape and environment, to produce high-quality results with limited funding, basic techniques and insufficient provision of material, is nothing short of heroic.

The first appearance of Irkutsk's archaeologists on the Lower Vitim occurred, somewhat accidentally, in 1982, when a small team from Irkutsk State University, headed by a student (E. V. Menshagin), began work on the Bol'shaya Konkudera River, a tributary of the Mama in the Baikal Highlands. The team was investigating a discovery made by locals on the Gusinoe Lake and identified another nearby site over the course of the season—Barol'da Lake. Both sites were ascribed to Late Stone Age/Early Metal Age. Later, we continued the study by obtaining material from their cultural layers for radiocarbon dating.

In 1985, the Vitim Archaeological Expedition of Irkutsk State University began a more concerted programme of research along the lower course of the Vitim, realising Aksenov's vision of a cohesive archaeological study across the whole of the Vitim Basin. Initially focused on large-scale regional survey, research began at sites between the Oron Lake and the mouth of the Vitim, employing the system of site 'passportization' used in the definition of sites in the Irkutsk region. The group, from the Irkutsk Laboratory of Archaeology and Ethnography eISU), included E. M. Ineshin, V. M. Vetrov, and N. E. Berdnikova, who together prospected a territory of the Vitim Basin in the central part of the Baikal-Patom Highlands. They began by examining the sites previously excavated by Mochanov and Fedoseeva, such as Pronikha, Kakolda, Bisyaga, Avdeikha, Mamakan I, and Kozhzavod, but, in the course of their survey they also

discovered many new sites, including Butuya, Sinyuga, Sinya, Invalidniy I–II, Mamakan II, IV, and Bol'shoy Yakor' I–II.

Research along the Lower Vitim was continued by one of this volume's authors (Ineshin). Initially, Butuya was identified as one of the most potentially interesting sites in the region and was made the main focus of research in the 1986 season. Also investigated were the sites of Bol'shoy Yakor' I and II (*d-fig. 1.3–4*).



Panorama of the Mamakan section of the Vitim. View from the northeast

Fig. 1.3. Panorama of the Mamakan section of the Vitim River. View from the northeast

Bol'shoy Yakor' I turned out to be unique in the Vitim Basin; its alluvial sediments being characterised by unusually clear stratigraphy, multi-layered cultural remains, significant stone assemblages, and well-preserved bone remains (particularly rare in this region). Research at Bol'shoy Yakor' II, identified on the basis of artefacts found on an adjoining 15 to 16 metre-long section of river terrace was of a more prospective nature. The initial phase of study here aimed to define the site area using test-pitting, surface collection, topographic, and photographic survey. The stratigraphy and archaeological material revealed that Bol'shoy Yakor' II was different from Bol'shoy Yakor' I. To begin with it was less informative and, obviously, chronologically later. The cultural remains were deposited in two layers of yellow-brownish, weakly humified, sandy loam. The cultural assemblage consisted of pebble cores, monofrontal cores, retouched flakes, and prismatic blades. The use of stone also differed from the Pleistocene complexes of Bol'shoy Yakor' I and included shale, migmatite, and flint—all of which are more typical of Middle and Late Holocene complexes across the region. Consequently, Bol'shoy Yakor' II was ascribed to Neolithic/Early Metal Age.

In addition to the excavations at Bol'shoy Yakor', a further phase of prospection along the Lower Vitim Valley was carried out during the 1986 season. As a result of this, the sites of Nerpo, Singay, and a third cultural horizon at Butuya were identified. Later, new sites such as Mamakan III

(1987), Mamakan V, and VI (1997) were identified, and Punkt III was distinguished from the main archaeological complex at Invalidnyi (1992). In 1992, the second author of this volume—A. V. Teten'kin—also began working on the Vitim.

The Kovrizhka site, situated 2.5 km downstream from Bol'shoi Yakor' I, was discovered in 1995. Recent work has shown that the earliest cultural complexes at Kovrizhka, as at Avdeikha and Bol'shoi Yakor' I, date to the Upper Palaeolithic—though later cultural complexes were also discovered in different stratigraphic and geomorphological situations. In 1995, Kovrizhka I (Mesolithic/Early Neolithic to Bronze Age) and Kovrizhka II (Final Palaeolithic to Mesolithic) were defined. In 2003, Kovrizhka III (Palaeolithic to Mesolithic) and, in 2007, Kovrizhka IV (Mesolithic to Neolithic) were also identified and investigated (Teten'kin 1996; 1998; 2000; 2007; 2009). As a result of all these discoveries, the opportunity to explore new questions about the development of material culture during Late Pleistocene and Holocene has increased significantly.

In 1997 and 1998, archaeological material was discovered in the upper part of the alluvial sediments of the Mamakan delta. The site, initially included within Mamakan II, was later singled out as a separate site, Mamakan VI. One of the layers containing archaeological remains was radiocarbon dated to around 18,000 bp (Belousov *et al.* 2002).

Fieldwork at the Invalidnyi III site in 2002–2003, led to the identification of three further areas with archaeological remains, dated, on the basis of six radiocarbon measurements, between 6,000 and 9,000 bp (Ineshin and Teten'kin 2005)<sup>2</sup>.

In 2002, the year of M. P. Aksenov's death, E. M. Ineshin discovered a site at the mouth of the Bryzguniya River (Bryzguniya I), which was later renamed in honour of Aksenov. Judging from its geomorphological, stratigraphic and morpho-typological characteristics, this site can be

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<sup>2</sup> It is worth noting that G. I. Medvedev holds a rather different perspective on the age of Invalidnyi III. Through a visual examination of the artefacts, he identified them as Palaeolithic in date, suggesting that they should be defined together as a separate site—Mamakanskiy Perekov. However, in the opinion of the authors of this volume, the morpho-typological characteristics described by Medvedev, are not sufficiently diagnostic to ascribe them confidently to the Palaeolithic. It is also important to emphasise that the radiocarbon dates obtained from samples of wood charcoal from hearths within the cultural horizon and associated bone remains returned consistent dates of Holocene age.

provisionally defined as a pre-Neolithic assemblage of the final Pleistocene/early Holocene. Excavation at the site produced, bifaces, edge-faceted cores, and various products of biface reduction (ski spalls and point flakes), all of which were considered typical of the stone-working tradition of the Palaeolithic Dyuktai culture, originally defined in Yakutia.

The archaeology of the Baikal-Patom Highlands has also been developing actively since 1993. Both targeted scientific investigations into regional glaciation history and the opportunistic examination of sedimentary sections, exposed as a result of commercial geology, have contributed significantly to this process. It is now clear that the specific characteristics of the Quaternary sediments in the middle altitude regions of the Vitim Basin are closely paralleled in the so-called ‘interior’ of the Highlands—to the south and the north of the Vitim.

The archaeological approach to the most extensively studied and well-known site complex in the region, Bol’shoy Yakor’, has been conducted within a framework that explicitly encourages a focus on key research themes and activities, such as:

- the identification of primary deposits of raw materials used in various prehistoric crafts
- the spatial catchment of the connections attested in the Bol’shoy Yakor’ I material
- the identification of synchronous archaeological complexes both similar and different in character) within the Highlands
- the reconstruction of landscape, ecology, climate, and palaeoenvironmental change in the Late Pleistocene and Holocene.

The analysis of available palaeogeographic data showed that research in the mountainous interior of the Highlands would also allow us to answer questions connected with human palaeoecology in the region, in which the extent of Pleistocene ice cover, the development of the palaeolandscape, and the characterization of preserved faunal/floral complexes would all play a part. The commercial development of the Lena Goldfields (in the course of which geological examination of quaternary sediments and large-scale stripping has exposed sections along the main watercourses) provides an opportunity to define the variation in sedimentary systems and palaeorelief across the region. Almost annually the bones of fossilised fauna and plant remains (tree trunks, peat layers, and detritus) are found in the region’s opencast gold mines. We should also expect further discoveries of faunal complexes associated with archaeological materials,