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# The chronological context of Pleistocene art in Siberia

**Lyudmila LBOVA***

## Abstract

*Dating Paleolithic cultural layers containing evidence of symbolic activity is the problem of determining the place of fossil cultural phenomena in the general scheme of organization of the Paleolithic in northern Asia. At present, early evidence of symbolic activity in Siberia, with an age of 30-40 ka BP is recorded in several complexes and the number of examples is more than 100. There are personal ornaments, ornamental objects and musical instruments, as well as findings of ocher and hematite with traces of use.*

A construction of models or reconstruction of the different phenomena in a culture devoid of a written language is a difficult methodical task. Within the framework of discussion about the formation of culture of modern humans in Eurasia, the problem of early symbolism is a subject of particular interest. Sign (symbolic, sacral, unpractical) behavior typical for early Homo sapiens sapiens, correlates with the archaeological context of the Upper Paleolithic in the Eurasian highlands.

Some basic features characterize modern human sign behavior in archaeological assemblages of the early Upper Paleolithic (Mellars 2005). The main group in Siberian Pleistocene art includes decorations with personal ornamentation, forming symbolic conditional systems (perforated teeth of animals, shells, stone and bone pendants) and musical instruments (for example, whistles or flutes made out of birds bones). Artifacts identified as decorations may be characterized as markers of personal status, group or individual attributes, spiritual items, adornments, etc. The Early Upper Paleolithic in the Baikal area has characteristic findings of ocher, "marks", decoration with personal ornaments, musical instruments, as well as the burial of animal parts.

Primitive thought implies comparable intellectual actions, observation methods and their expressions in the making of artifacts. Symbols stand in a transitional logical position between specific sensible images, abstract concepts and material objects. Anyway, there is evidence of early forms of symbolic activity, also of musical, symbolic behavior and creation by Early Modern Man (EMH) in Siberia.

Studies of key geoarchaeological sections in Siberia have made it possible to reconstruct the environmental conditions of Paleolithic human occupations, and to

* Institute of Archaeology and Ethnography SD RAS, Novosibirsk State University, Lavrentyev Ave, 17, Novosibirsk, 630090, Russia – llbova@ngs.ru

build a general chronological scheme for the main development stages of natural phenomena and of human culture. It is important to note that the majority of sites mentioned above were studied by a variety of natural-scientific disciplines, the results of which have been confirmed by various absolute dating methods.

## Methods and Materials

The region under investigation is located in a contact zone of different landscape areas in Northern and Central Asia. The territory lies within the limits of the Mongolian-Siberian folded mountain belt, and its environment (geological structure, relief, climate, waters, biota, and landscapes) varies enormously. The region is characterized by a combination of mountain ridges, smooth watersheds, and intermountain basins, oriented in a northeast direction. The region is viewed as the easternmost territory where the Upper Paleolithic complex appeared quite early and its chronology is also relevant for adjacent regions. While Siberian Upper Paleolithic sites are rather numerous (Derevianko 2009), it is so far difficult to estimate the beginning of that epoch due to the lack of reliable dates and the absence of a detailed technical or typological analysis of the industries.

There is evidence of the coexistence of EMH and Neanderthal groups until 26,000–28,000 $^{14}$C BP (Altai-region materials: Okladnikova cave, Strashnaya cave, Sibiryachikha cave), as confirmed by the archaeological material. Middle and Upper Paleolithic sites may have co-existed in Siberia for a long time, from about 43,000 to 27,000 $^{14}$C BP. Obviously, more work needs to be done in order to better understand the chronological and archaeological patterns of this process, as recently shown in discussions about the Eurasian record of the Middle to Upper Paleolithic transition and the origin of Upper Paleolithic cultural phenomena.

Generally, early cultural complexes associated with *Homo sapiens sapiens* appeared in the region around 50,000-40,000 $^{14}$C BP (Kara-Bom, Denisova Cave (11), Ust'-Karakol (Altai), Tolbaga, Kamenka, Khotyk, Podzvonkaya (Transbaikal), Tolbor and Dorolge (Northern Mongolia)). The Altai variant of the Middle to Upper Paleolithic transition has much in common with the Near Eastern variant of Eurasian developments from both chronological and typological viewpoints. Altai litho assemblages reveal a striking homogeneity, but around 50,000 BP the Altai blade industry undergoes two major developments: Kara-Bom and Ust'-Karakol (with bifacial technique), which can be defined as resulting from different adaptive strategies (Derevianko 2009). The Early Upper Paleolithic of the Transbaikal and Mongolian regions is represented by two technological trends, the predominant one being based on blade production, and the secondary one being based on other reduction strategies (e.g. orthogonal cores and flake-tools) (Lbova 2002). Sub-prismatic cores, pressure techniques, carinated pieces (end-scrapers, also atypical), and various modifications of end-scrapers, burins and other elements characteristic of the Upper Paleolithic appeared in the Altai, Yenisei basin, Baikal-zone, and Mongolian techno complexes in the period from 40,000 to 25,000 $^{14}$C BP.

More than 500 absolute dates are available for Siberian Upper Paleolithic complexes, based on traditional as well as new dating techniques (e.g., $^{14}$C, RTL, thermo-gravimetry). Techno-typological and planigraphic characteristics representative of Early Upper Paleolithic (hereafter EUP) assemblages in Siberia have been presented elsewhere.

Study of key geoarchaeological sections in Siberia by science-based methods makes it possible to reconstruct the environmental conditions of Paleolithic human occupations and to build a general geoarchaeological scheme for the main developmental stages of nature and human culture. It is necessary to note that a majority of the sites mentioned above were studied by a variety of natural-scientific disciplines, the results of which are confirmed by dating methods.

It is necessary to note that during the Karginian time period (ca. 55,000–60,000 to 28,000–25,000 BP), from two to five zones of soil genesis, with various characteristics for each formation, are apparent in pedocomplexes. In warmer and less humid conditions of the middle Karginian period (35,000–40,000 BP) soils characteristic of steppe landscapes were formed, similar to the modern steppe in Central Asia. The earliest EUP complexes correspond to this time interval. The formation of soil horizons within the cultural complexes during the second half of the Karginian period (30,000–33,000 to 28,000–25,000 BP) occurred in moderately humid and warm conditions of forest-steppes and steppes, with relatively arid climate conditions; paleosoils similar to modern chernozem dominated (Derevianko 2009; Lbova *et al.* 2003).

Palynological spectra show the return of forest formations, with conifers, in particular pine, and birch light forests dominating (birch with an admixture of broadleaf species such as elm, alder, and hazel; and meadow associations). Pollen data and the character of mammalian fauna at various localities indicate a mosaic landscape in Siberia at that time.

The mammalian faunal composition indicates steppe and forest steppe landscapes. The following species are dominant in the EUP cultural complexes: horse *(Equus caballus)*, Mongolian gazelle *(Procapra gutturosa)*, woolly rhinoceros *(Coelodonta antiquitatis),* and wild sheep *(Ovis ammon)*. Other species, such as woolly mammoth *(Mammuthus primigenius)*, kulan *(Equus hemionus),* giant deer *(Megaloceros giganteus)*, antelope *(Spiroceros kiakhtensis)*, large bull (*Bison priscus* or *Bos primigenius,* or *Poephagus baikalensis),* camel *(Camelus sp.),* lion *(Pantera leo)*, wolf *(Canis lupus)*, steppe fox *(Vulpes corsac)*, and hare *(Lepus sp.)* are also present.

The region is considered as the easternmost territory where the Upper Paleolithic complex appeared quite early. Its chronology is relevant for adjacent regions as well. Siberian Upper Paleolithic sites are rather numerous and probably representative. The beginning of the epoch is clear with dated sites, detailed technical or typological characteristics of industries, elements of symbolic activity, character of strategy of exploitation of the territory. We'll show some archaeological facts (samples or situations), also from our own excavations, as evidence of Modern Human behavior near 40,000 BP.

Recent discoveries of series of artifacts from the Early Upper Paleolithic indicate the existence of symbolic sign activity in its early stages. At present, the archeological assemblage includes more than 100 items from bone, stone, shell, and sea shells. Artifacts were unearthed from stratified sites such as Tolbor (Mongolia, excavation by S.-A. Gladishev), Kamenka, Varvarina Gora, Khotyk, (Transbaikalia, excavation by L.-V. Lbova), Podzvonkaya (Transbaikalia, excavation by V.-I. Tashak), Voennyi Gospital, Pereselencheskyi punkt-1 (sub-Baikal region, excavation by D. Chersky (1871), G.-I. Medvedev, E-A. Lipnina), Kara-Bom, Denisova Cave, Strashnaya Cave, (Altai-region, excavation by A.-P. Okladnikov, A.-P.

Derevianko, V.-T. Petrin, M.-V. Shun'kov, A.-N. Zenin), Malaya Syia (Sayan-region, excavation by V.-E. Larichev, Y.-P. Kholushkin). These complexes are dated in the range of 30-43 kyr, and related technologically to the initial stage of the Upper Paleolithic.

Subjects of particular interest are the archaeological and chronological context of artifacts (living horizons, structure of sequence, specialized function zones, etc), and the items themselves, their morphological, technological, semantic characteristics. Research on early symbolic human activity, cultural archetypes origin and forming in the Early Upper Paleolithic in Siberia are based on the technological and morphological analysis of artifacts showing symbolic behavior, providing a basis for paradigms of study and interpretation of these materials. Functional researches on artifact production technology are based on the wear-out analyzing method developed by S.-A. Semenov and G.-F. Korobkova, as well as upon micropolishing wears litho analysis by L. Kili. We also used the synthesized tracing technique developed by P.-V. Volkov and adapted for work with North Asian Paleolithic and Neolithic archeological assemblages Production and wear-out evidence of artifacts along with experimental technological research allow us to reconstruct the technological process of litho manufacturing.

In the course of studying the Khotyk archeological assemblage (Western Transbaikalia, dated 35-40 – 25-28 kyr), we found that the following litho technologies were used: flaking, various drilling, carving, grinding, polishing. In the process of litho treatment the following processing tools were used: hammer stone, retouches, bow-shaped and lathe drills, perforators, engravers, grinding tablets, dressed animal hides (tool differentiation). Judging by the impact marks on the processed surface, such hi-tech instruments as drills with a relatively narrow elaborated working area were used. All the other tools listed above were probably used for a special preparation of the working edges. We supposed that the work time spent on manufacturing the examined tools was relatively short (Volkov & Lbova 2009).

Several unique artifacts of the EUP (dated to 35-40 kyr) with a different geometrical form and morphological features form a special group. These are: talcum or agalmotolit beads of different forms with a central biconical hole, a subsquare bone bead (Strashnaya Cave, Tolbor), items with drilling from the shell of an ostrich (Podzvonkaya).

There are ornamented stone pendants in archeological collections dated to 25-30 kyr (Khotyk, level 2, Pereselencheskyi punkt-1). However, ornamentation of decorations did not occur in early assemblages dated to 35-40 kyr. A considerably primitive type of decorative pattern consists of regular notches, radially shaping the basic elements of an object. Examining a decorative pattern as a special type of art, it is possible to suppose that it is the most expressive, clear and frequent method to express abstractions on objects in the classic stage of the Upper Paleolithic. Some artifacts are especially interesting: items with radial incisions on their "head" and an ornamented "body" (like an anthropomorphic figure) (Khotyk); a pendant with a notched decoration of its edge with a biconical hole (Pereselencheskyi punkt-1, Malaya Sya).

Decorative patterns on bone items from such Siberian sites as Voenniy Hospital, Malta, Ostrovskaya (Stoyanka Talickogo) and Achinskaya sites, etc. show the diversity and variability of geometric forms: spirals, circles were pecked on the bone

surface; spiral lines, belts, wavy and parallel lines, were made in a thin continuous line. Compositions of flat points in rows, regular rhythmic cuttings, oblique and straight lines, chevrons, zigzags, filling certain surfaces and belts are numerous. Organized decorative patterns adorn bone and ivory objects, disks, spatulas and awls, and so-called «*bâton de commandement*» in the classic stage of Upper Paleolithic in Eurasia.

A separate mention should be made of the findings of musical instruments in the cultural layers of the early Upper Paleolithic in the Baikal-zone. These findings are classified by us as a fragment of a flute (Khotyk) and whistle (Kamenka-A). We know close analogies from excavations in Germany (Hohle Fels, Geißenklösterle, Vogelherd) (Conard *et al.* 2009).

## Conclusion

Geoarchaeological methods, employed with the intent to elaborate detailed local chrono-stratigraphic and cultural-historical schemes, have led to the identification of chronologically divergent sites in southern Siberia. The preliminary organizational scheme of Siberian Middle and Early Upper Paleolithic complexes suggests the existence of several technological trends. The Early Upper Paleolithic is represented by two technological trends, the predominant one being based on blade production (two versions of the industrial complex –the Kara-Bom tradition and the Kara-Kol tradition), and the secondary one being based on other reduction techniques (e.g., orthogonal cores and flake-tools). In our view, there is little if any continuity between Middle and the Upper Paleolithic assemblages. Generally, cultural complexes associated with anatomically modern humans appeared in the region around 40,000 $^{14}$C BP.

The appearance of art at that time (Khotyk, Kamenka-A, and Podzvonkaya, Denisova Cave, etc.) indicates an origin of symbolic behavior in Siberia much earlier than previously thought.

Obviously, more work needs to be done in order to better understand the chronological and archaeological patterns of this process, as recently shown in the discussion of Eurasian records on the MP/UP transition and origin of the Upper Paleolithic.

The appearance of decorative traditions in the EUP accompanied the development of early figurative art and numerous innovations, including a wide array of new forms of personal ornaments and new lithic and organic technologies. Viewed, however, in a broader behavioral context, early Upper Paleolithic symbol activity could have contributed to the maintenance of larger social networks, and have helped facilitate the demographic and territorial expansion of Modern humans in Siberia relative to culturally more conservative and demographically more isolated populations.

On the whole, artifacts demonstrate the most ancient technologically and typologically developed complex of objects in Eurasia with established manufacturing and processing systems, expressed in a stylish series of items.

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