

COULD THE EARLY POTTERY OF EAST ASIA HAVE WESTERN ROOTS?

O.V. Yanshina

It has been already noted long ago that pottery appeared in East Eurasia rather suddenly and without any obvious signs of the necessary preparatory development. Although this feature contrasts markedly with that of how the same events occurred in the West, it still has no acceptable explanation. This article aims at filling this gap and proposes to consider the appearance of pottery in East Asia as a sort of epiphenomenon, by-product or consequence of the “Upper Paleolithic revolution” that gave birth to modern humans and their culture. Despite its unusualness, this approach follows directly from the current scientific framework.

First, in the light of the theory of the cumulative nature of culture and concepts that explain the nature of innovation processes, including ancient ones, the absence of a visible preparatory development in East Asia seems to be a serious research problem, since innovations, especially such complex ones as pottery, cannot arise suddenly and “out of nowhere”.

Second, it knows well that ceramics appeared in West Eurasia during the “Upper Paleolithic revolution”, but only in its final phase, associated with the Middle Upper Paleolithic cultures. This allows us to consider it as a result of the preliminary development of a whole range of material and social technologies, as well as the anatomically modern humans behind them. Therefore, there is nothing incredible in the assumption that during the colonization of East Eurasia modern humans could well bring there the knowledge and skills necessary for the subsequent invention of pottery “in situ”.

Thirdly, archaeological records unequivocally indicate that Upper Paleolithic cultures similar to European or West Eurasian ones were formed in East Eurasia during its peopling by modern humans. Moreover, communication networks that might serve for the information exchange between the western and eastern communities arose thereupon, though these data are obvious and convincing enough only in relation to the Central Asia and the adjacent territories of Siberia. Further east, in North and Central China, along the Amur River, and in the Sea of Japan area, Upper Paleolithic cultures had already original shapes; however, at least microblade industries

Yanshina Oksana Vadimovna, senior researcher, PhD., Peter the Great Museum of Anthropology and Ethnography of the Russian Academy of Sciences, Saint Petersburg, Russia.

Яншина Оксана Вадимовна, кандидат исторических наук, старший научный сотрудник Музея антропологии и этнографии Петра Великого (Кунсткамера) РАН, Санкт-Петербург, Россия.

E-mail: oyanshina@mail.ru

make it possible to assemble all these remote regions into a single communicative space, overlapping in the west with the Upper Paleolithic cultures of Central Asia and South Siberia.

Thus, the article analyzes in detail all the observations in favor of the approach proposed to understand the issue of how pottery could be invented in East Asia. The first two sections are devoted to the preparatory development, a brief review of the relevant finds and materials is given, as well as their discussing from the standpoint of theories of innovative processes, the last section summarizes the data reflecting the presence of communication networks in the Upper Paleolithic of northern Eurasia.

Keywords: East Asia, Origin of Pottery, Technology, Upper Paleolithic, Modern Human Behavior, Communication Network.

INTRODUCTION

The extensive corpus of radiocarbon dates and their statistical modeling (Hommel 2009; Silva et al. 2014; Jordan et al. 2016) give us a firm confidence that pottery was first invented by hunter-gatherers in eastern Asia. However, not all of the circumstances surrounding this ingenious invention have been fully disclosed. One of them concerns the question of how pottery was invented, or even how at all it could have been invented in this region. Indeed, the West Eurasia data surely reflect a gradual evolutionary process leading to the emergence of the first ceramic vessels (for the latest review and assessments of the entire process see: Ozdoğan 2009; Budja 2013; 2016; Fletcher et al. 2017; The emergence 2017; Richardson 2018; Petrova 2019; Jeunesse 2021; Vandiver 2022; Gibbs 2022). Numerous examples of potential technological precursors of pottery are in place and all necessary conditions for the invention and widespread adoption of pottery are evident.

However, there was no similar technological evolution in East Eurasia. Despite extensive research aimed at reconstructing the functions of the earliest ceramic vessels, an unambiguous answer as to why they suddenly became so popular with hunter-gatherers has yet to be found (Craig et al. 2013; Lucquin et al. 2016; 2018; Uchiyama 2019; Shoda et al. 2020; Patania, Jaffe 2021; Morisaki 2022). Researchers also point out the absence of a preparatory stage for the invention of pottery in East Asia since it emerged there in a “ready-made” form (Zhushchikhovskaia 2012). In addition, no connections have been found between pottery-making and contemporary technologies (Gibbs 2015).

Although all these features have been noticed long ago, they are still puzzling. Could people really invent pottery “from scratch”? Why did the emergence of pottery-making take thousands of years in the West while it happened so fast in the East? How can we interpret this peculiarity? Two distinct lines of reasoning are discernible among the multifarious

data and ideas that arise when considering these questions. One line provides an explanation for what is problematic with the East Asia scenario of pottery invention and why it causes confusion. The other line draws on diverse evidence that suggests a potential interconnection between the East and West scenarios. In what follows, we are going to present both arguments in order to draw attention to this interesting phenomenon and to determine whether it is possible that the invention of pottery in East Eurasia and the development of ceramic technologies in West Eurasia could be linked?

HOW WAS POTTERY SUPPOSED TO BE INVENTED?

First, let's take a look at why the questions above require research attention since otherwise there is no sense in making any further considerations. According to our vision, this is due to the congruence bias between the data related to East Asia and the modern perceptions of how human culture and technologies evolve, which stem from the theories of cumulative culture and the study of innovation processes.

Theory of cumulative nature of culture

That any technology must have its own predecessors has already long been recognized, but recently this idea has gained strong support from the theory of the cumulative nature of culture. This theory posits that cultural evolution can be explained through mechanisms that are analogous to those found in biological evolution and claims that human culture evolves incrementally by accumulating changes from generation to generation, via “descent with modification” (Boyd, Richerson 1996; Mesoudi, Thornton 2018). As it was stated earlier, “creation is not fashioning something out of nothing, but refashioning what already is” (Childe 1956: 124: cit. ex. Hoffecker 2012). This means that new technologies can only grow out of a previously accumulated repertoire of knowledge and skills. From this perspective, every technology seems to consist of a certain number of simpler technologies. The more complex the technology is, the more simpler technologies are hidden inside it, and the more steps are needed to invent it.

As for pottery making, if the theory of the cumulative nature of culture is correct, we need to admit that in order to invent a pot, humans should have already made at least some of the discoveries (clay plasticity, its hardening in fire, etc.) and technologies (fire control, making multifarious clay craftworks, using receptacles, etc.). Hence, there must have been a long process towards such an invention, including several independent lines of development, each with its own logic, dynamics and duration, i.e. clay-to-ceramic, receptacle and firing lines. However, how long such

knowledge and skills should have been accumulated is not quite clear. It might be thought that the more complex the technology is, the longer the accumulation process should be.

Generally, two ways for measuring the complexity of ancient technologies have been proposed so far, each suggesting their division into smaller units, known as techno-units (Oswalt 1976) or procedural-units (Perreault et al. 2013). The more units there are, the more complex the ancient tools and technologies become. Another approach is based on the assessment of ancient technologies in terms of the cognitive distance between task setting and its solution. As this distance increases, it necessitates a greater extent of working memory, a higher level of human cognitive abilities, and results in more complex technology (Haidle 2010; Muller et al. 2017).

From hence, pottery-making appears to be a rather complex technology. It takes at least several days and goes through several strictly sequential stages: the selection of raw materials, paste composition, molding, drying and firing. In addition, every next stage requires more complex skills. And, apparently, the simpler the skills, the earlier they might emerge in human prehistory and the easier they could have been acquired with little to no special learning.

The first stage seems to be the easiest. Making a small, simple vessel is not so problematic, but the larger and more sophisticated a vessel body is, the more experience a potter should have. Nevertheless, certain skills are also necessary at this stage. When sculpting, the vessels can sag or disintegrate, and experience is also required to be able to replicate the same vessel shape repeatedly. The following drying and firing procedures are much more complex. Although any clay can be burned, the special skills are necessary to obtain a fired vessel. We all know from childhood how hard it is to fire clay lumps in an open fire. Even small clay items can tear into pieces unless particular conditions are maintained throughout this procedure, and the larger the size of clay items is, the harder it is to fire them successfully. In order to obtain a ceramic sherd of at least minimally required strength, it was necessary to have certain heat engineering skills such as being able to maintain a uniform flame and regulate heat transfer.

Therefore, it is no coincidence that even ceramic figurines, as the first manifestation of ceramic technology, emerged only at the middle stage of the Upper Paleolithic, i.e. later than the most advanced lithic industries and already at the peak of the Upper Paleolithic revolution

There is also popular idea that pottery might be invented by accident, for example, when clay was applied to baskets to make them watertight or when fish was baked in clay. In general, this view does not follow the theory of cumulative culture. However, it appears that knowledge and skills involved in the pottery-making should be assessed differentially from this point of view. Discovering of clay and how it hardens in a fire, as well as coming to the idea of a container, could well stem from individual observations of everyday events, whereas the evolution of fire control techniques,

containers, culinary practices, and human cognitive abilities must have had a cumulative nature and, therefore, a long history. The path from natural pits to artificially made baskets, plaster bins and stone vessels is too long for one person, as well as the progression from simple using fire to fire controlling and from frying meat on an open fire to cooking it inside a vessel. Therefore, it is unlikely that an unequipped or unskilled person could have come to the idea of making a pot.

Emergence of pottery as an innovation process

The emergence of pottery-making is commonly estimated as one of the most important innovations in our history. But while previously the point of this statement was mostly limited to assessing the role that pottery played in human history, now it gives us some new research opportunities, opened up due to introducing the results of present-day studies of innovation processes into prehistory studies (Metal matters 2013; Farbstein 2013; Djindjian 2014; Knappett, Van Der Leeuw 2014; Jordan, Cummings 2014; Gibbs 2015; Detecting 2020; Klimscha 2017; Contextualizing 2021).

One of these opportunities stems out of a fundamental distinction between invention and innovation (Godin 2014). The former is usually considered as a creation of something new, whereas the latter is thought of as its successful application in practice. This distinction generates a series of new ideas nuanced to our understanding of how innovations evolve. First of all, it allows researchers to admit that invention and innovation phases of any innovation process may well be separated in time and space depending on particular circumstances. Second, this new vision, in turn, certainly disrupts the one-dimensional logic of understanding innovation processes and thereby alleviates the social tension existing around the migratory explanations of cultural progress. Thuswise, the distinction above allows us to separate the issue of human ability to create from the issue of why some peoples achieve progress, but others do not (see, e.g., Killick 2015).

In addition, the idea that not every invention can become an innovation also appears to be highly essential for our discussion. It supposes that for any newly invented product to become an innovation, it must first become highly desired among customers. Only in this case, a new product turns into innovation and begins to spread widely and quickly (Renfrew 1984; Godin 2014). To some extent, this complicates our understanding of how pottery might have originated and compels us to regard the emergence of certain social practices as a critically important precondition for the birth of pottery.

The empirical observation that there might be a timelag between invention and innovation phases is even more significant. During this interim period, novelties are usually used in various consumer contexts until their best practical application will be found. Such a searching activity can take a long time, and it is often associated with using novelties as trinkets,

exotics, or prestigious items (Renfrew 1984: 415; Helwing 2013: 111; Grasshoff 2021: 22; Jeunesse 2021: 63). It is still hard to understand whether every innovation process should have such a “trinket-treasure horizon” and how long it may last, but our prehistory shows that it was inherent at least to all innovation processes associated with introducing new materials such as bronze, iron or glass into human life (see, e.g., The prehistory 1998; Helwing 2013; Radivojević, Roberts 2021). There is no reason to think otherwise, when the emergence of clay and ceramic technologies is considered.

Two conclusions can be drawn from the above. First, the emergence of pottery appears to be a part of a broader innovation process associated with the adoption of clay and ceramics, strictly speaking, a process that is still ongoing. It seems incorrect to consider them apart, as if they were two independent processes. Second, the “trinket-treasure horizon” can be seen as a necessary (“pre-pottery”) component of this overall innovation process.

HOW WAS POTTERY ACTUALLY INVENTED IN EAST ASIA?

In the following, we will discuss how pottery actually emerged in East Asia and attempt to identify the most general features of this process, although there are some challenges associated with such generalization due to the shortage of archaeological evidence and linguistic barriers.

How many birthplaces of pottery existed in East Asia?

To be fair, we are still unaware of where and when exactly pottery was invented. Not long ago, researchers were sure that this happened in three areas immediately just before the Bølling-Allerød warming, i.e. South China, Japanese islands and Middle-to-Lower Amur River Basin. Afterwards, much older carbon dates were published, which pushed this event back to the very end of the LGM and made the territories around the middle course of the Yangtze and Pearl Rivers the cradle of pottery-making (Boaretto et al. 2009; Wu et al. 2012). Although most scholars seem to agree with the new dates, others find them questionable (Kuzmin 2013; Yanshina, Sobolev 2018; Iizuka 2018; Wu et al. 2005; Gorodetskaya et al. 2021).

Another approach to this issue relates to the evaluation of differences and similarities of the earliest ceramic vessels found in various East Asia regions regarded as possible centers of pottery invention. From this standpoint, we can identify only two technologically and stylistically distinct traditions, though they both varied to some extent (Yanshina 2017). The first tradition unites the sites of the Japanese archipelago, whereas the second one combines all the continental sites. The differences between them are so fundamental that they can only be explained with the assumption of independent origins of both traditions.

Hence, the existence of at least two pottery birthplaces may be admitted with some certainty; however, precisely in this case, we cannot exclude the possibility that both traditions, despite deep differences, might have a single source, as there is enough evidence linking the Upper Paleolithic populations that settled along the Amur River and near the northern edge of the Sea of Japan. Moreover, in this case, we also cannot overlook some data linking the pottery-making traditions of South China, Amur River region, and Transbaikalia (Yanshina 2017; Hommel 2019). Therefore, the possibility of a single origin of pottery in different regions of Asia cannot yet be ruled out. But how we could explain the distinctiveness of each pottery-making tradition, if it was a case? Apparently, this would only be possible if the idea of making pot, but not the technical details of its embodiment, had a single origin.

Looking for pottery precursors

Current archaeological data unquestionably document that knowledge and skills, associated with ceramic technology, accumulated in West Eurasia over a long period of time and became more and more sophisticated up to the invention of pottery. In contrast, the East Eurasia database is much poorer from this point of view. We will provide further a brief review of these data to show the actual level of technological development of East Eurasia inhabitants during the pre-pottery period.

Clay and clay-like materials. There is still no data on the usage of clay and clay-like materials before the emergence of pottery in East Eurasia. The only exception is the ceramic human figurine found at the Maina site on the Yenisei River (Vandiver, Vasil'ev 2002) (fig. 1). It was made of sandy loam with maximum 10–15% clay content. The figurine was at least fired at 700 °C; however, it is fragile, loose, and highly porous, presumably because of a small amount of clay content.

Other evidence of using clay for the purpose which is beyond pottery-making refers to the post-pottery period, but remains extremely limited even then. These are, first, several clay human figurines found at the Incipient Jomon sites (Nakazawa et al. 2022), and second, it is clay hearths of the Yuchanyan cave (Yuan 2002; Patania, Jaffe 2021)¹. The amount of these records slightly increased only in the early agricultural communities. Despite the fact that such data have not yet been reviewed in special literature, references can be found to using clay as building material and for other purposes (see, e.g.: Liu, Chen 2012: 56, 81, 132, 155; Larrive-Bass 2015).

Fire control. The earliest data on regular use of fire in East Asia go back to the Upper Paleolithic. It mainly includes hearth remains, traces of heat treatment of stone artifacts, and some of unique finds. While the amount of this information and its spatial distribution increase towards the end

¹ It is interesting that these Yuchanyan clay hearths have already attracted research attention due to their similarity to the clay hearths of Klisoura Cave (Cohen et al. 2017).

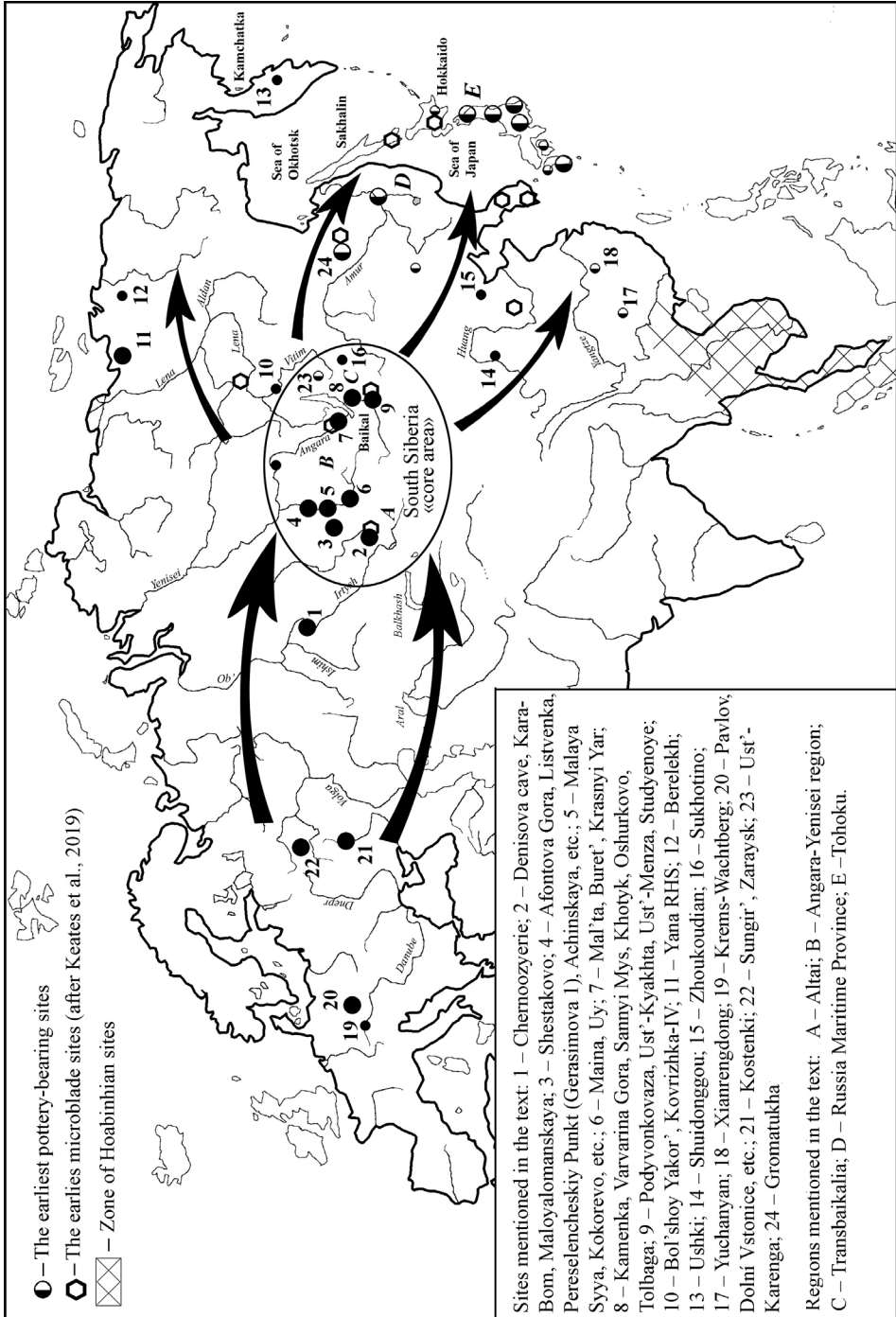


Fig. 1. Map showing location of the South Siberia Upper Paleolithic “core area”, as well as sites (black dots; larger ones represent groups of sites) and some of the regions mentioned in the text

of the Upper Paleolithic, the available data on fire control skills remains limited. However, this is precisely that field of our knowledge which can be significantly improved in the future by applying archaeometric methods.

The reported hearths were differently designed and used for heating, lighting and cooking. They might be arranged in pits or on the surface ground, sometimes with stones lining. Dwellings or lithic reduction activity were generally associated with them.

According to the available data, heating engineering was simple. People were able to light a fire (see bow drilling stones at the Podzvonkovaya, 3rd cultural layer, and Barun-Alan-1, 7th and 8th cultural layers: Tashak, Antonova 2012), heat up stones or backfill floors with hot coal in order to accumulate heat (Kovrizhka IV: Teten'kin et al. 2021; Bol'shoy Yakor': Ineshin, Teten'kin 2017). There were also cases of removing fire ashes from hearths (Podzvonkovaya, 3rd cultural layer: Tashak 2003) or “closing” hearths with sand mixed with black mineral matter (Kovrizhka IV: Teten'kin et al. 2018: 5, 10), as well as with parts of animal skeletons or stones, including those with ochre (Kovrizhka IV: Teten'kin et al. 2018; Podzvonkovaya, 3rd cultural layer: Tashak 2003).

The firing temperatures inside the hearths were quite low but sufficient to obtain low-temperature ceramics. Special studies of Yuchanyan clay hearths showed that the firing temperature was unstable and varied from 300 to 600 °C depending on the point analyzed (Cohen et al. 2017). Paleomagnetic analysis of near-hearth stones from Transbaikalia sites revealed that they were heated at temperatures that varied from 250 to 600 °C (Bol'shoy Yakor': Ineshin, Teten'kin 2017: 42; Kovrizhka IV: Teten'kin et al. 2021). Thermal changes of obsidian artifacts from the Japanese Upper Paleolithic sites most likely resulted from four-hour firing at 650 °C or nine-hour firing at 550 °C (Nakazawa 2002).

The potential use of more advanced heat engineering devices can perhaps be evidenced only by the so-called smoking pits found on the Japanese islands. They consisted of two pits of different size and depth, connected by a chimney (Morisaki et al. 2018: fig. 6.3; Pearson 2006: 243–245). After the invention of pottery, smoking pits widely spread throughout the Japanese archipelago. However, data on when and where precisely they first appeared are currently unavailable. To the best of my knowledge, they have not been reported outside of Japan.

Heat treatment of stone raw materials is also of great interest. Special experiments show that it requires the same fire control skills as firing ceramics, including long-term maintenance of certain temperatures and regulation of heat transfer (Kononenko 1996; Kononenko et al. 1998). However, data on the use of heat treatment for stone are still limited in both Siberia and East Asia.

Thus, stone artifacts preheated to a temperature of 300–400 °C were discovered at the Shuidungou-2 (27–20 000 cal.BP) and Shuidungou-12 (11–12 000 cal.BP) sites in China. However, experts suggest that heat

treatment does not provide a significant effect for microblade and core-and-flake industries that are recorded at both sites (Zhou et al. 2013).

The Ueno A Late Upper Paleolithic site in Northern Honshu provides another example (Yonekura 2010). The distinctive luster, surface texture, and color are identified on 318 out of 8848 artifacts from the site collection, which included bifaces and tools made on medium-sized blades. Simulation experiments show that heat treatment indeed improves the quality of shale that was used for producing tools of this collection (Yonekura et al. 2008). However, it is unclear how widespread this practice was in Japan. On the one hand, in contrast to shale, obsidian, used there as a major source of stone raw materials, does not show any positive effect after preheating. On the other hand, in the northeast of Honshu, where the Ueno A site is located, siliceous shale was the main raw material used (Sano 2007). Therefore, it can be expected that heat treatment might be efficient and popular in this area. Examination of 18 Upper Paleolithic sites of Tohoku demonstrated that 5 to 10% of shale artifacts showed traces of heating, although it remained unclear whether it was accidental or intentional (Yamashita 1988).

A similar situation was recorded on the opposite coast of the Sea of Japan in the Russian Maritime province, where siliceous rocks were also a primary source for tool making. At some local Late Upper Paleolithic sites, tools and flakes with traces of preliminary heating were revealed, what was validated by experimental works (Kononenko et al. 1998). Since heat treatment and firing of clay demand the same set of knowledge and skills, Russian researchers made an assumption that pottery might arise in regions where high quality raw material were absent and people were forced to look for ways to improve the quality of available lithic materials (Kononenko 1996: 127–128).

Importantly, since all East Eurasia data on the use of heat treatment appeared only around the end of the Last Glacial Maximum, it is thought they postdate similar finds in West Eurasia (Flenniken 1987; Gryba 2020; Moník et al. 2021).

Finally, based on the information available to us, it appears that the level of heat technologies remained in East Eurasia at approximately the same level throughout the Upper Paleolithic. A significant shift in fire control skills occurred only in the Early Neolithic farming communities of North-Central China, marked by an increase in the upper limit temperature for pottery firing to 900 °C, as well as the emergence of pottery kilns, engobing practices, and pottery painting (Liu, Chen 2012).

Ochre and other pigments. There is no data on the firing of pigment raw materials, although pigments from a series of Upper Paleolithic sites were intensively studied: Kovrizhka-4 (Teten'kin et al. 2020), Mal'ta (Lbova 2018), Ushki V (Ponkratova et al. 2020), Ust'-Kova (Volkov et al. 2018), Malaya Syya (Lbova et al. 2018), and Yana (Pitul'ko, Ivanova 2010). Research results evidence the use of a wide range of pigment-containing

rocks (hematite, goethite, magnetite, malachite, pyrolusite, etc.), as well as their grinding and, possibly, mixing with components of inorganic and organic origin.

Containers. Data on the use of containers prior to the emergence of ceramic vessels is extremely limited in East Eurasia. Small ivory receptacles found at the Yanskaya site in layers dated to ~27–28.5 ka bp² are the first known containers in this area. One of them was completely preserved and had a subtriangular shape with slightly convex bottom. It was about 3 cm deep and had a maximum of ~ 8–10 cm width (Pitul’ko et al. 2012). Another group of finds includes stone vessel fragments that were found in Transbaikalia at Sukhotino-4 site in layers dated to ~16,8 ka bp (Filatov 2016). These vessels were made of diorite with pecking and, perhaps, abrasive technique. Published sketches and descriptions are very rough but suggest the presence of two types of vessels: a small flat bowl with a slightly convex bottom and approximately 5 cm in diameter, and a larger one with an unclear shape and fragments reaching 12–15 cm in size. In addition to these relics, a small oval cup made from a kneecap of a large mammal (possibly a mammoth) was found at the Mal’ta site, dated to 22–19 ka bp. It is approximately 5–6 cm wide and 4 cm in height³.

Besides, the existence of receptacles perishable materials cannot be ruled out. Shells, nutshells, and bamboo might be used as containers in the south, whereas ostrich eggshells were available for this purpose in the north, though within a rather limited geographical area. “Textile” ornaments on the first ceramic vessels may serve as an indirect sign of the existence of perishable containers. Three kinds of “textile” pottery patterns can be identified in East Asia.

The first one is presented on some vessels of the Gromatukha site in the Middle Amur River region (fig. 2: A). They evoke a simple mat, vertical warp thread of which were fastened by horizontal weft threads. The other two kinds of ornaments resembling “textile” are reported in Japan. Vessels decorated with dense rows of nail indentions, sometimes having different inclination angles between adjacent rows, represent one of them (fig. 2: C). This pattern seems to reflect a more complex weaving scheme, which, in contrast to the ones on the Gromatukha vessels, seems to be better suited for baskets. Vessels with ornaments resembling openwork macramé illustrate the other kind of “textile”-like patterns on the Japanese early ceramic vessels. These ornaments were performed with clay strips giving the impression of a twisted cord due to characteristic incisions (fig. 2: B).

Unfortunately, none of the above textile-like patterns clarify the nature of containers that could be the prototype for the very first ceramic vessels in East Asia. It is unclear whether they were baskets or bags. As common sense suggests, the development of weaving technologies should progress

²Hereafter, all dates are referred to “uncal bp”, unless otherwise stated.

³See picture at: <http://malta.artemiris.org/ru/find/view/88>.

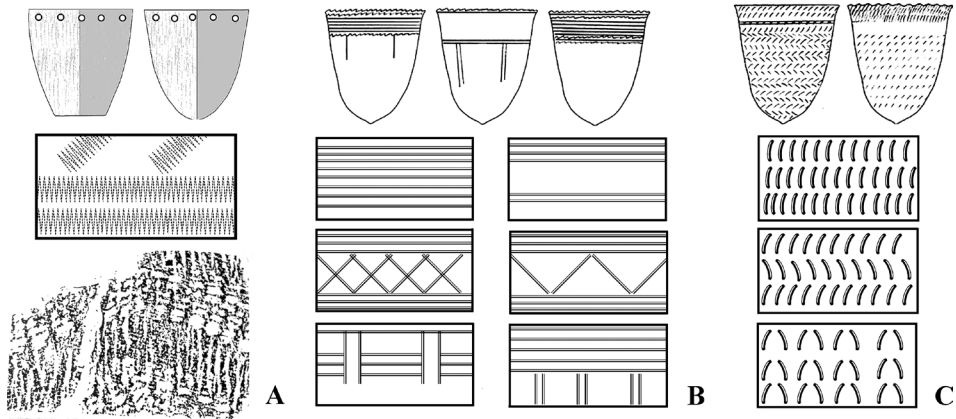


Fig. 2. Textile-like ornaments on the earliest ceramic vessels of East Asia. A – Gromatukha culture; the Middle Amur River; B–C – Incipient Jomon, Paleo-Honshu Island

from soft to hard free-standing products. The latter required more complex weaving techniques and more sophisticated household practices. However, could the bags serve as a prototype for ceramic vessels? The deep shapes of the first ceramic wares, in contrast to the smaller-sized Upper Paleolithic receptacles, partially imply such a possibility, but no more than that.

Cooking technologies. Most researchers are sure that pottery was originated in East Eurasia to cook on fire (Craig et al. 2013; Lucquin et al. 2016; 2018; Uchiyama 2019; Shoda et al. 2020; Patania, Jaffe 2021; Morisaki 2022). Lipid analysis findings and the lack of data evidencing any other ways of using ceramic vessels substantiate this point of view. This means apparently that there should be traces of culinary traditions associated with wet-cooking or cooking in the containers among the pre-pottery archaeological records.

Data in hand, however, does not provide such evidence. We can only guess how people cooked their food. Some of the Upper Paleolithic Japanese hearts constitute the only exception. In terms of design, they may be divided into two groups. Some of them were built inside pits or on the ground surface. Archaeologists find them littered with burnt stones and animal bones. Special experiments showed that those stones were used as “roasters”. At first, they were heated to 700 °C and then food was placed on stones for cooking (Suzuki 2000–2005). The smoking pits, already mentioned above, present the second group. They were used to cook food with hot smoke. Other potential evidence is already synchronous with pottery. Boiling stones were so far discovered only at the Shuidungou-12 site in North-West China, which is already dated to the very Early Holocene (Gao et al. 2014). Similarly, the Yuchanyan Cave hearths showing the activities associated with bone-fat rendering inside vessels were also synchronous with pottery.

Thus, there is a double gap in our data. We cannot yet discern anywhere in East Asia either any sorts of containers resembling the ceramic vessels

in shape or function or any culinary traditions associated with cooking inside containers. This picture is more consistent with the assumption that both the ceramic vessels and cooking inside vessels emerged in parallel to each other. It seems we should ask ourselves what kind of revolution has occurred in East Asia with the emergence of pottery, culinary or technological one?

As for food resources, they were extremely diverse at that time, given the enormous size of the East Asia territory where the earliest ceramic vessels appeared for the first time. During the post-glacial period, hunting for large and medium-sized mammals prevailed in the north while being gradually supplemented with fishing; opportunities to use plant resources were limited there. At the same time, there seemed to be no such clear predominance of hunting in the south. The economy was complex and comprised both hunting for various game species, including birds, small mammals and turtles, as well as procuring a broad-spectrum of other resources, including mollusks and plants. In sum, given that we do not yet know exactly where precisely pottery was invented, it remains puzzling what kind of food resources could bring about its invention.

This statement can be justified only in relation to activities linked to using clay or ceramics, while other technologies were indeed in place, albeit less prominently than in West Eurasia.

The issue of “preparatory development”

Summarizing all the above, we can specify to some extent our vision of the pre-pottery technological evolution in East Eurasia and return on this basis to the question of why the emergence of pottery occurred so suddenly there?

The absence of “trinket-treasure horizon”. Our data review shows that not all of the technologies, which are widely considered as the pottery-making precursors, were missing in East Eurasia. This statement can be justified only in relation to activities linked to using clay or ceramics, while other technologies were in place, albeit less prominently than in West Eurasia. At least, people had enough knowledge and skills not only to arrive at the idea of a pot but also to realize it. They knew what a container was, could achieve a certain temperature in the fire, and maintain it for a while.

This observation spotlights the fact that the true specificity of East Asia is not the absence of preliminary technological development but the lack of a “trinket-treasure horizon”. Moreover, it is interesting to note that even after the invention of pottery, the practical application of clay and ceramics did not gain significant momentum and was primarily limited to the production of pots only. This seems to signify the presence of special cultural conditions in the Upper Paleolithic of East Eurasia, which could constantly prevent the widespread use of these new materials. The only ceramic figurine, found at the Maina site, simply emphasizes

the relevance of this conclusion since it witnesses that people could actually be familiar with clay and ceramics but did not use them.

Importantly, precisely the lack of a “trinket-treasure horizon” gives grounds to think that pottery was invented in the East either “from scratch” or too rapidly compared to West Eurasia, or under some external influence. Of course, this feature may be determined by the low level of our knowledge. However, far from all regions where pottery appeared for the first time have been poorly studied. This is definitely not true for Japan and only partly true for Transbaikalia and the Russian Far East. Furthermore, we are not dealing with organic materials. The use of clay and ceramics leaves behind some vestiges in any case, as exemplified by the Paleolithic Europe or PPN sites.

Not so primitive? Another point to be made touches upon the assumption that pottery likely came into being in East Eurasia as a demand-driven innovation. The following observations are based on my direct examination of most Russian and a part of Japanese pottery collections.

The most striking feature of pottery under consideration is that it was not as primitive as it may be expected. Even the earliest vessels already had a rather large size (up to three-to-five liters), regular shapes and sometimes quite stable forming techniques. They were fabricated of several or even many building elements. The following forming techniques have been recorded to date: forming vessels’ body with coils or slabs by joining them edge-to-edge or in an overlapping manner; reinforcing joints with grass; coating vessel walls with liquid clay; roughening vessel walls by rolling or combing; supporting vessel walls from inside with a hand or stone, which were wrapped by cord (Shewkomud, Yanshina 2012; Yanshina 2017; Yanshina, Kovalenko 2022).

Furthermore, it is evident that special tools such as rolling sticks, cords and combs were in use at that time. Some researchers have even claimed the use of templates (Zhushchikhovskaia 2012; Medvedev, Tsetlin 2013); however, this sounds like a clear exaggeration, as molding with templates is a rather specialized pottery practice. It appears that such claims are not based on firm evidence but on the expectation that pottery-making may have resulted from covering baskets with clay. In any case, I have never seen yet direct traces of templates on the sherds from the collections of the earliest pottery.

Firing temperature was relatively low (no more than 500–600 °C) (Shewkomud, Yanshina 2012; Zhu et al. 2014) but, from the beginning, special techniques were employed to overcome difficulties that arose during the firing stage: adding grass and other additives, usually coarse, into clay paste; using low-fired grog; drilling through holes or applying clay strips near the vessel rims to prevent their cracking; making double-layer vessels body, and creating a special gas atmosphere (resulting in light-colored outer surfaces and dark-grey inner surfaces).

From the very beginning, ceramic vessels also started to serve as a rather mature group identity medium. This can be confirmed by several

facts. On the Paleo-Honshu island, two ceramic traditions were established during the early stage of local pottery-making development: one that used clay strips for vessel decorations, the other that applied fingernail or cord imprints to achieve the same purpose (Taniguchi 2017; Nakazawa et al. 2022). They existed in parallel for quite a long period within the same area without any clear evidence of them being mixed together. Two parallel ceramic traditions were also established in the Amur River region, but in adjacent areas. They shared some features in technology and design, as well as some specific practices relating to raw material choice, surface treatment and ornaments (Yanshina, Kovalenko 2022). The most telling case concerns the fact that some regions, surrounding the Sea of Japan (Hokkaido, Prymorye) persistently avoided the adoption of pottery, although local populations were aware of this novelty and communicated with neighboring pottery-bearing societies (Yanshina 2017).

Experimental vs. early adopter phase. The above observations actualize the issue of an experimental phase. Some researchers consider the earliest stage of pottery development in East Asia, corresponding to the last millennia of the Pleistocene era, as experimental (Gibbs, Jordan 2013). However, this approach might seem somewhat confusing because it implies experimentation with the use of the new utensils, but not with their production. Indeed, the period above was already associated with the appearance of ceramic wares as such. According to the diffusion of innovation theory, it aligns more with an “early adopter” phase, while there should also be room for experiments with making ceramic vessels, which, as of now, remains undocumented in East Asia. We do not see even any hint on making vessels of immature shapes or of shapes imitating other kinds of receptacles, as well as any traces of firing or sculpting failures.

Although the lack of data may explain the absence of this evidence, another plausible explanation is that technical experiments might have been conducted too quickly. In that case, they may well remain archaeologically invisible. However, this scenario seems possible only when people know what they seek to achieve and how to obtain it technically.

Thus, it is highly likely that we have to differentiate a phase related to seeking a proper technology to make ceramic vessels and a phase related to testing their usefulness. While the former phase was not observed in East Asia at all, at least to date, the latter one, in contrast, lasted too long. During the first three millennia (or longer, in case with South China), ceramic ware was actually used almost exclusively in those regions where it was invented, whereas the population of surrounding territories avoided to adopt it. This feature seems to reflect deep cultural or technological differences between various regions in East Asia. Moreover, it also contrasts the East Eurasian scenario with the West Eurasian one, since the latter is characterized by an extremely short duration of the “early adopter” phase literally lasted only a few centuries.

COULD THE EARLY POTTERY OF EAST ASIA HAVE WESTERN ROOTS?

Archaeologists having no apparent alternative solutions often explain the cases of a sudden appearance of “ready-made” novelties, like the emergence of pottery in East Asia, by their “dependent” or “stimulus” invention, or mere borrowing (Kroeber 1940; Clark, Gosser 1995). However, in the Upper Paleolithic oikumene, there was no place to adopt pottery from; therefore, the idea of a pot actually originated in East Asia. At the same time, certain data suggest that there could be some links between Eastern and Western parts of Eurasia during the Upper Paleolithic, which may clarify some aspects of how pottery emerged. In the following, we will provide these data in brief review.

Modern human behavior and the emergence of pottery

Generally, behavioral modernity is understood as a suite of behavioral and cognitive traits that arose in the process of evolution of our species (Foley, Mirazón Lahr 1997; McBrearty, Brooks 2000; Stringer 2002; Henshilwood, Marean 2003; D’Errico 2003; Hoffecker 2005; Klein 2008; Shea 2011; Hiscock 2013; Hodgson 2017).

Archaeological data show that human cognitive abilities and associated behavior were developing very slowly. Their first quite sudden debut occurred yet in the Middle Paleolithic in Africa, but the irreversible exponential growth started only with the onset of the Upper Paleolithic in Europe, West Asia and their immediate surroundings. Accordingly, the beginning of the Upper Paleolithic in these regions is commonly regarded as the starting point of the “behavioral modernity era”, even though the complexity of human culture continued to increase thereafter. It is crucial that most technological forerunners of future pottery-making and the ceramic technology per se emerged in this key area in parallel with other new Upper Paleolithic technologies, commonly associated with “behavioral modernity” and anatomically modern humans (AMH) (Hoffecker 2005; Svoboda 2015).

This introduces an important nuance to the discussion of the origin of pottery by adding the biological aspect to its consideration. Additionally, it encourages us to view pottery-making as a technology that could have been invented in East Asia only at the wave of its peopling by AMH and with the establishment of behavioral modernity.

The origin of behavioral modernity in East Asia is a highly debatable subject (Brumm, Moore 2005; Norton, Jin 2009; Oppenheimer 2009; Derevianko 2001; 2010; Hamilton, Buchanan 2010; Rasmussen et al. 2011; Sanchez-Mazas et al. 2011; Bar-Yosef, Belfer-Cohen 2013; Emergence 2015;

Oxenham, Buckley 2016; Bae 2017; Sikora 2017; Li et al. 2019; Kato 2022; Vallini et al. 2022). Most researchers agree that AMH arrived to East Eurasia at least 50–40 ka bp or a little earlier via two main pathways. Siberia, Central Asia and the Far East were peopled from the north, whereas South Asia, Southeast Asia and Australasia were inhabited from the south. However, few scholars question the Western origin of AMH in East Asia and the fact that all technologies associated with behavioral modernity emerged there only after AMH. Thus, the new approach opens up the new research opportunities that pertain to the analysis of how the establishment of modern human behavior in various regions of East Eurasia might have influenced the invention of pottery.

However, it should be mentioned, appealing to the concept of behavioral modernity alone can not fully explain how pottery was invented in the East, since the ceramic technology was invented in West Eurasia much later than the mass eastern exodus of AMH had started. Therefore, it is likely that relevant knowledge and skills might be introduced to the East later via communication networks formed behind the AMH moving, or we also may suppose that there were more than one wave of AMH dispersal to the East.

Differences between cultures of southern and northern ranges

Cultures established along the northern and southern routes of AMH dispersal differ from each other in terms of traits characteristic of “behavioral modernity”. The discussion around these traits is rather heated. Their list was collected empirically in the absence of clear criteria and proper theoretical ideas for how it should be compiled. Broadly, it comprises two suites of traits, the one mirroring general human abilities (e.g., to music or language) and the other connecting to particular technologies that might be manifested in various shapes and have either global or limited spatiotemporal distribution (e.g., body decoration or distant raw material procurement) (Conard 2010). The latter suite usually allows us to mark out regional traditions and, specifically, to differentiate the southern and northern culture ranges as possibly having different ancestry.

The southern list of modern behavior traits appears to be less specific. It seems to reflect the earliest horizon of the Upper Paleolithic innovations that were spread at the Middle-to-Upper Paleolithic boundary from South Africa to West Asia and before the emergence of technologies associated with the use of clay and ceramics.

The northern case is absolutely different. Data from the north are much more diverse and have many precise analogies in the Upper Paleolithic of Europe – in flaking techniques, settlement architecture, burials, mobile art, and personal ornaments. Importantly, all these data demonstrate not only a general similarity between northern East Eurasian and European cultures, but also direct indicants of those Western cultures that

introduced clay and ceramic into human life. This appears to imply that the use of clay and ceramics was not a necessary attribute of behavioral modernity like an abstract thinking, but the one that depended on the regional or cultural specifics of a particular society.

General spatio-temporal distribution of first ceramics

The technologies associated with behavioral modernity were unevenly spread in West Eurasia in terms of spatiotemporal pattern. Those of them related to the emergence of ceramics went through two sequential phases: initial and “diffusional”.

Although the earliest evidence of targeted usage of clay is represented by clay hearths found in the Aurignacian layers of the Klisoura Cave of to 34–32 ka bp, the initial phase associated with direct development of ceramic technologies may be dated only to 27–20 ka bp (see table 1 and fig. 3 for details and references). During that time, ceramics were used for making zoo- and anthropomorphic figurines, as well as for building purposes (see so-called “structural ceramics”, i.e. remnants of clay constructions such as hearths or other settlement structures). Ceramic finds were strictly associated at that time with Central/Eastern Europe and the Gravettian cultures of mammoth hunters.

Later, following the extinction of these highly developed cultures, clay and ceramics began to penetrate outside their original area. Ceramic figurines, in particular, were found on the Mediterranean coast (Vela Spila, Croatia; Tamar Hat and Afalu-bu-Rhummel, Algeria), in South Siberia (Maina) and in the Magdalenian Caves of Western Europe. In the latter

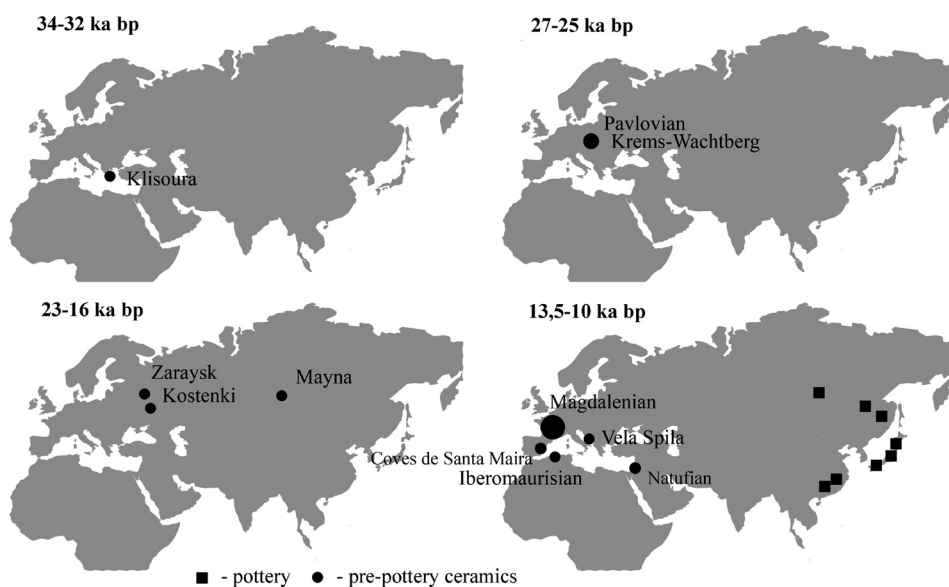


Fig. 3. Spatiotemporal distribution of clay and ceramics findings in Upper Paleolithic Eurasia (see comments in Table 1)

Table 1

Clay and ceramic finds in the Upper Paleolithic of West Eurasia

| Age | Site(s)/Culture | Findings | Epoch | Region | References |
|------------|---|---|-----------------|------------------|-------------------------|
| 37.5–35 | Klisoura Cave 1 | Clay hearths | Aurignacian | Greece | Karkanas et al. 2004 |
| 32–28 | Pavlovian Culture | Ceramic figurines “Structural ceramics” Hearths with clay walls | Gravett | Moravia | Vandiver et al. 1989 |
| 24.7 | Kostenki-4 | Crafts of obscure form made of clay, ceramics and clay-like materials | Eastern Gravett | Russian Plain | Zheltova, Yanshina 2015 |
| 27–18 | Zaraysk A | Crafts of obscure form made of material combining features of clay and ochre Clay lumps | Eastern Gravett | Russian Plain | Yanshina et al. 2017 |
| 17.5–15 | Vela Spila | Ceramic figurines | Epigravett | Croatia | Farbstein et al. 2012 |
| 20.6–19.8* | Tamar Hat Cave | Animal horn? | Iberomaurisian | Algeria | Saxon 1976 |
| 18–14 | Tuc d'Audoubert Bédeilhac Montespan Mas d'Azil et al. | Clay and ceramic figurines and inclear crafts; clay bass-relief images; clay coating of floors and walls; evidence for clay mining; crafts of obscure form made of material combining features of clay and ochre | Magdalenian | French Pyrénées | Bougard 2010 |
| 16 | Maina | Ceramic figurine | Afonovo culture | Southern Siberia | Vandiver, Vasil'ev 2002 |
| 15–11* | Afalou Bou Rhumel | Ceramic figurines | Iberomaurisian | Algeria | Hachi et al 2002 |
| 13.2–10.2 | Coves de Santa Maira | “Structural ceramics” | Epipaleolithic | Spain | Tortosa et al. 2020 |

Note: Age is given in ka cal. BP. Dates with a problematic age are marked with an asterisk.

case, a significant increase in the variety of functional clay applications was evident. Clay began to be used for making stationary bas-relief figures, immobile clay panels or mobile “plaques” for images, leveling floors and walls, etc. By the beginning of the Holocene, clay and ceramics had reached Western Asia, where they began to be used by future farmers (Biton 2010; Gibbs 2015; Makarewicz, Finlayson 2018; Richardson 2018).

This general picture is quite consistent with other often-met cases when technologies spread outside their original regions after climate or social crises. From this point of view, it is important to note that pottery emerged in East Asia roughly at the same time, i.e. during that “diffusional phase” of clay and ceramics development.

Such an amazing co-variation, of course, may be explained by the parallel climatic improvement in West and East Eurasia during the final millennia of the Pleistocene. However, this assumption does not disclose the mystery of the sudden occurrence of ceramics in the East. The other admissible explanation suggests the existence of a chain of communication networks between the two opposite sides of Eurasia, although this suggestion lacks sufficient evidence at present. Strictly speaking, if East Asia was not so far remote from Europe, the rise of pottery would not appear so surprising in this region. On the contrary, it would neatly fit into the bigger picture of the dispersal of ceramic-related technologies started after the extinction of the mammoth hunter cultures.

Evidence of the communication networks

A large body of archaeological data indicates similarities between European and Northern East Eurasia Upper Paleolithic cultures. Most of them have been known and discussed for a long time. Various ideas have been expressed to explain these similarities, from direct migrations to convergent origins based on similar adaptations (Gerasimov 1931; 1964; Okladnikov 1940; 1964; Anikovich 1999; Lisitsyn 1999; Otte, Derevianko 2001; Vishnyatsky 2005; Otte 2007; Lipnina 2002; 2012; Tashak 2014). However, the absence of intermediate assemblages continues to prevent researchers from reaching a final opinion. The latest genetic data, meanwhile, provides a weighty argument to this ongoing discussion (Raghavan et al. 2014; Fu et al. 2013; 2016; Sikora et al. 2019; Mao et al. 2021; Vallini et al. 2022). Gene exchange between ancient Siberian and West Eurasians did occur, and this suggests that cultural similarities between them can be explained by interaction through social networks or even migration of some groups.

One way or another, it is long overdue to collect, summarize, and understand all these materials. Although this task requires a collaborative effort, we will provide a brief review of current finds to illustrate that Siberia and Europe developed as interconnected regions even during the Upper Paleolithic. This, in turn, leads to the conclusion that opportunities for knowledge transfer between West and East Eurasia did exist.

However, to begin with, we should note that this evidence base looks like the two-stage gear system connecting the West Eurasia Upper Paleolithic and East Asia pottery birthplaces via South or South-Central Siberia (fig. 1). Additionally, the visibility of links uniting this complex system is varied. Those that connect Europe and Siberia are well evident, whereas most of those that connect South Siberia and those East Asia places, where pottery were emerged, are not evident at all. Therefore, to be more precise, we will consider these materials separately, first the “input shaft”, then the “output shaft”.

The “input shaft”: from Europe to Siberia. Of this set of evidence, for brevity, we present only the most telling similarities, which concern settlement structure and ritual activities (burials, ornaments, and mobile art). We intently do not involve data on stone tool making. Although they are commonly held to be a basis for comparison, their discussion demands special knowledge. In addition, we have sought to gather data that would mirror not so much general as more specific similarities, linking Siberian to those European cultures that have traces of clay and ceramics usage.

There is a rather clear spatial pattern in the distribution of data given below. They all represent the Upper Paleolithic set of innovation and derived from the “core-area” of the Siberian Upper Paleolithic. It comprises primarily the Angara-Yenisei region and Western and Southern Transbaikalia, as well as the surrounding areas of Altai Mountains and North Mongolia. Geographically, they all belong to the South or South-Central Siberia.

The dispersal of these innovations out of the “core-area” is reconstructed with different clarity. To the north and north-east of Lake Baikal, toward Alaska, they were spreading with no serious obstacles. This is confirmed by genetic data and by close similarity in material culture between “core-area” and some populations of Arctic Siberia, Kamchatka and Alaska (Raghavan et al. 2014; Hoffecker et al. 2016; Graf, Buvit 2017; Pavlova, Pitul’ko 2020). In contrast, far to the east and south-east of Lake Baikal, toward the Sea of Japan, the genetic and cultural commonality of local populations and Siberian “core-area” sharply decreases. The border line runs somewhere near Chita city.

This observation is essential because it breaks apart European clay and ceramic-bearing cultures and East Asia pottery birthplaces and forms a large gap between them. The reason for this pattern is unknown. Chinese researchers, for example, assume they may concern the fact that distinct human populations, perhaps presented by archaic human species, habituated across the major part of North and North-East China (Li et al. 2016).

In term of typology, data presented below, taking as a whole, reflect only the earlier part of the European Upper Paleolithic, its Initial-to-Early and Middle stages, though in Siberia at least some of them dated up to the end of the Paleolithic era. This may signal about the ebbing of European influence on Siberia at the Late Upper Paleolithic.

Dwellings. Dwellings provide two lines of argument in favor of having connections between the Siberian and European inhabitants. The first relates to the specific characteristics of dwellings' design. From this point of view, two sets of shelter structures may be defined in the Upper Paleolithic assemblages of Siberia "core area", one simpler, the other more sophisticated. They both have analogies in West Eurasia, but only the latter allow linking Siberian populations with specific mammoth hunter cultures that were spread in Central and Eastern Europe in the Middle Upper Paleolithic (Gerasimov 1931; 1935; 1964; Okladnikov 1940; 1964; Sergin 1987; 1988; Vasil'ev 1994; Anikovich 1999; Amirkhanov 2000; Zheltova 2015; Iakovleva 2015; Lisitsyn 2019).

The following common features deserve most attention in this respect: the combination of two main types of habitation structures — roundish dwellings with a central hearth and long dwellings with several hearths arranging in a line, the presence of surface and underground structures, lining the outer circuit of dwellings and hearths with stone and animal bones, making pits and caches inside dwellings (but far less frequently in Siberia), as well as inside ritual activity associated with human and animal art representations, human burial, pigmenting floor, and placing the compact groups of anatomically complete animal carcasses.

The earliest expressions of the traits above are documented at Tolbaga and Varvarina Gora sites dated to 35–25 ka bp and located in south Transbaikalia (Konstantinov 2001; Konstantinov 1994; Vasil'ev, Rybin 2009). The following features are documented there: settling the same places repeatedly during long time; hearths arranged in a line back-to-back; near-hearth concentrations of activity waste; using stones and large mammal bones for organizing of residential structures. Later, approximately 22–13 ka bp, three clearly distinguished varieties of dwellings appeared in Siberia "core area":

- (A) Long surface dwellings with several fireplaces arranged in a line and united by a common lining of stones or/and large mammal bones (fig. 4: 1): Sannyi Mys, Sukhotino-4, layer 6, Kosaya Shivera-2 (Konstantinov 2001; 2018; Filatov 2016);
- (B) Long surface dwellings with several fireplaces, each with an individual stone lining, arranged in a line close to each other so that to be in direct contact (fig. 4: 2): Studenoe-2, Ust'-Menza-2, layer 20, Ust'-Menza-3, layer 4, Sukhotino-4, layers 10–11, Mal'ta, dwelling 9 (Konstantinov 2001; Filatov 2016; Gerasimov 1931; 1935; 1964);
- (C) Round surface or slightly underground dwellings with one or two hearths; dwellings had lining of stone or animal bones and were built either along the river in one or several parallel lines or closely concentrated without any order (fig. 4: 3): Mal'ta, Buret', Sukhotino-4, layer 7–9, Ust'-Menza-2, layer 17, Kovrizhka-IV, Listvenka, Uy-1, 2 (Gerasimov 1931; 1935; 1964; Okladnikov 1940; 1964; Vasil'ev 1996; Konstantinov 2001; Filatov 2016; Teten'kin et al. 2021).



Fig. 4. European analogies in the Upper Paleolithic sites of South Siberia: 1 – Sannyi Mys; 2–12, 14, 19, 22, 24 – Mal'ta; 13 – Sukhotino-4; 15 – Studenoye-2; 16 – Listvenka; 17–18 – Afontova Gora II; 20 – Afontova Gora III; 21 – Denisova cave; 23 – Achinskaya; 25–26 – Yana. References: 1–2 – Konstantinov 2001; 3, 17–18 – Abramova 1984; 4–12, 14, 19–20, 23, 24 – Volkova 2011; 13 – Filatov 2016; 15 – Meshcherin, Razgil'deeva 2002; 16 – Akimova, Drozdov 2005; 21 – Shunkov et al. 2016; 22 – Anikovich 1999; 25–26 – Pitul'ko et al. 2012

Notably, all sophisticated dwellings are found only at the sites tethered to Lake Baikal. Farther west and north, along the Yenisei River, in the Altai region and Northern China, as well as to the east of Chita city, they are so far unknown. Only the simplest one-hearth-surface structures are reported there, as well as evidence for settling of the same places repeatedly, near-hearth concentration of activity waste, and sometimes lining fireplaces with stones (Abramova 1979; 1979a; Astakhov 1986; 1999; Akimova 1987; Vasil'ev 1994; 1996; Lisitsyn 2000; Konstantinov 2001).

The second line of argument refers to the general dynamic of dwelling structures. First, the time range of dwellings typical to mammoth hunters is within 30–20 ka bp in Europe and 22–13 ka bp in Siberia; that shows to their consequent chronology. Second, both in Europe and Siberia, the similar process of simplification of shelters is documented toward the end of the Upper Paleolithic, when bigger and more complex structures, being associated with living in larger human groups, were replaced by less sized and compound structures, being associated with more individual way of life (Okladnikov, Kirillov 1980: 57–58). Increased mobility and splitting larger communities into smaller groups, it is supposed to be a reason for this trend that roughly coincided in Siberia with three last millennia of the Pleistocene: Ust'-Karenga, Studenoe-1, Yst'-Menza-1, Ust'Kiakhtha-3, Bol'shoi Yakor' (Konstantinov 1994; Konstantinov 2001; Tashak 2005; Ineshin, Teten'kin 2017).

Burials. The only burial that is currently known in the Siberian “core-area” was discovered at the Mal'ta site, located in Gisbaikalia and dated to 22–19 ka bp. The burial was located in a residential area and contained the remains of a 3–4 year old child. Among his bones, bones from another child were found. The children's skeletons were buried in a stone box dug into a pit with a bottom sprinkled with red ocher. The main skeleton was lying on its back in an extended position. The grave goods included a rich set of ornaments, a bird figurine, an ornamented plaque, a large “dagger” point, as well as some lithic (Lbova 2021). The fact that children were buried at the Mal'ta site is remarkable since children dominate also among separate human remains found at the many other Siberia Upper Paleolithic sites. According to (Shpakova 2001), bones of 8–9 children and only of 3 adults were found at six of these sites. All above may reflect the existence of particular rites associated with the children burials in the Upper Paleolithic Siberia.

In addition, children burials, though dated to the Pleistocene and Holocene boundary, are also found far outside the Siberian “core area”, in Kamchatka (Ushki) (Dikov 1993) and Northern America (Upward Sun River, Anzick) (Potter et al. 2011; 2014; Powell 2005: 137–138; Becerra-Valdivia et al. 2018). Importantly, all these sites, including Mal'ta, are united by genetic closeness of buried humans (Rasmussen et al. 2014; Tackney et al. 2015), as well as some funeral features, including abundant ocher filling, rich grave goods, such as ornaments and “adult” hunting tools. At all of these sites, except for Anzick, burials were made in residential areas, directly near hearths, and what is the most important, they contained two children at once. This line of similarity is in a good accordance with archaeological records evidencing in favor of population spread from Siberia to America via North-East Eurasia and Alaska.

Hence, data in hand, despite their scarcity, allow us to see a certain similarity between European and Siberian burial practices:

1. The lack of regular burial practice, but the separate single burials or human remains are in place in both regions.
2. Ritual burials of children and, specifically, a couple of children. The infant burial from Krems-Wachtberg presents the closest analogies (Einwögerer et al. 2006; Teschler-Nicola et al. 2020), as well as the burials from Sungir' camp (Bader 1967).
3. The genetic affinity of Mal'tese child to the Upper Paleolithic populations of Eastern Europe (Raghavan et al. 2014; Fu et al. 2016; Sikora et al. 2019).
4. Burial rites such as placing burial in a residential area, abundant ochre filling, grave goods included rich ornaments and "adult" hunting tools, and as well covering body though not with a mammoth scapula as in Europe, but with stone slabs (Pettitt 2010).

Human and animal representations. To date, there were found about 40 figurines in the Siberian "core-area", which may be split into two chronological groups. Mal'ta, Buret', and Shestakovo sites form an earlier one (22–19 ka bp) (Lipnina 2002; Volkova 2011), whereas Kovrizhka-IV, Maina, Krasnyi Yar, and Listvenka sites make up a later group (Teten'kin et al. 2018; Vandiver, Vasil'ev 2002; Abramova 1962; Akimova, Drozdov 2005). Respectively, they comprise 34 and 6 figurines foremost made of ivory, and as well of animal bone, antler, stone and ceramics. The earlier group contains both realistic and stylized figurines, while the later gives only stylized figurines.

Human representations produce one of the most powerful arguments in favor of European ancestry of Siberia art tradition. Moreover, they directly link the latter with the Kostenki-Willendorf unity that also gave birth to ceramic technologies. Although most researchers point out to the stylistic distinction of Siberian human figurines, in those remote times, there was no other place in the World where such figurines had been produced. In general, the Siberian collection is much poorer both in terms of quantity and diversity. The absence of corpulent forms, a high proportion of stylized images, the frequent presence of holes for hanging, depicting of hair, and the emphasis on clothes and head constitutes its specific features. Importantly, only a figurine, made of ceramics, has no analogs in the Europe, in contrast to all other ones, made of ivory, bone or stone, that stylistically are a single whole and give a full range of European correspondences.

The emphasis on female depictions is the most prominent shared feature. The presence of both realistic and stylized human representations is also recorded both in Europe and Siberia. Moreover, the manner of stylization is as well similar. In both datasets we have figurines with rod-like body and accentuated head (fig. 4: 6) (see similar figurines in: Anikovich 1999: fig. 3); carving one or two grooves to mark main parts of a human body — a head, torso and legs (fig. 4: 7–8); depiction of female

body in profile where only protruding buttocks are salient (fig. 4: 9–10). The contexts in which these figurines were found are also the same. Sometimes even rare details of images match: hands on the stomach, legs being connected, an accent on the stomach, buttocks or breast, the arrangement of ornament, the presence of headgears or holes for hanging (some of European analogs are given in: Mussi et al. 2000; Volkova 2011: tab. 7).

As for animal representations, they are a bit less numerous and can be divided into three chronological groups. The earliest single find dated to 35–25 ka bp represents a bear head made of animal bone in a 3D manner (Konstantinov 1994). The next group comprises the main corpus of finds dated to 22–16.8 ka bp: a series of 3D ivory figurines of flying birds and unknown animals (Mal'ta), two flat ivory objects, with depictions of a mammoth and snakes made by engraving and carving (Mal'ta), and two flat figurines of mammoth made on ivory and stone pieces (Ust'-Kova; Sukhotino-4) (Volkova 2011; Lbova et al. 2020a; Filatov 2016)⁴. The latest group of 12.3–11.2 ka old comprises the images of a camel and mammoth engraved on the mammoth tusk (Parusinka and Berelekh respectively), as well as a 3D figurine of bird made of bone (Lingjing, China) (Esin et al. 2020; Pitul'ko 2011; Li et al. 2020).

In general, animal representations were not in the center of Siberian mobile art as they were in Europe, but the very fact of their presence is rather telling. Moreover, there were also an overlap in art images, for example, of mammoth one; however, the most specific trait of the Siberian art collection is predilection to the depiction of birds, and of a flying bird specifically. For comparison it is also important that planar and three-dimensional images of animals are in both samples.

Flute. Flutes are regularly found in the Upper Paleolithic assemblages of Europe (Lbova, Kozhevnikova 2016). In Siberia, a fragment of bone flute with one through hole, dated to 38.0–32.0 ka bp, was also found at the Khotyk site in western Transbaikalia (Lbova 2010).

Rondelles? Discs with a central hole, also known as rondelles, were common in the European Upper Paleolithic⁵. They are also known in the Siberian Upper Paleolithic sites, but the Siberian collection is much smaller and differs in some respects⁶. First of all, instead of animal or human representations typical for the European rondelles, Siberian discs are decorated in an abstract manner either with carved wavy lines or with incised radial lines (fig. 4: 20), except for the only disc with a depiction of snakes (fig. 4: 19). Additionally, they often have sub-rectangular outlines. It is important, however, the traits specific to Siberian finds are also present among the Eastern European sample. In Siberia, discs appeared

⁴See also: <http://malta.artemiris.org/ru/find/view/11>.

⁵Their representative sample may be found at: <https://www.donsmaps.com/discsforpdf.html>.

⁶See examples at: <http://malta.artemiris.org/ru/category/view/4>.

later than in Europe, since they are dated to 22–16 ka bp. Additionally, they all derive from sites located in the Angara-Yenisei region – Afontova Gora III; Afontova Gora II; Mal'ta (Abramova 1962: tab. LIX, 12; Astakhov 1999: tab. XXIV, 24; Volkova 2011: fig. 14; Lbova et al. 2020).

Bâtons de commandement? According to (Reynolds 2014: 316), perforated batons or bâtons de commandement first appeared in Russia and Ukraine in the later half of the Upper Paleolithic. There are reasons to consider these crafts to be shaft straighteners; however, they were often decorated with ornaments or both human and animal representations. All Siberian finds were made of bone or ivory and dated to 19–13.5 ka bp. The only one of them had additional (again abstract) decoration; it was discovered at the Studenoe-2 site (fig. 4: 15) (Meshcherin, Razgil'deeva 2002). Other items are derived from the Sukhotino-4, Afontova Gora II, and Listvenka sites (fig. 4: 16–18) (Filatov 2016; Abramova 1984: fig. 130; Astakhov 1999: tab. III; XIII; compare specific shape of batons from Listvenka and Kostenki 21, layer 3: Akimova, Drozdov 2005: fig. 38; Reynolds 2014: fig. 9.3). A similar artifact is known in North America (Haynes 2002).

Ornaments. After technologies associated with making tools, ornaments are the next most widespread attribute of behavioral modernity in Northern East Eurasia. This is a relatively large and diverse category of finds, but still in need of comprehensive classification. It is also currently impossible to define any time-space patterns in their distribution due to difficulties in dating sites where ornaments were found, particularly in the Altai Upper Paleolithic caves. Nonetheless, our preliminary literature review shows that in terms of shape and way of using, all Siberian ornaments have more or less close analogies in Europe (fig. 4–5). The same can be said about raw materials, except for ostrich eggshell. This provides a highly valuable argument for our consideration since it has been recently shown that ornaments were a quite sensitive marker of linguistic and cultural boundaries in the Upper Paleolithic (Vanhaeren, D'Errico 2006). In the following, for the sake of brevity, we will focus only on certain ornaments that have the most evident and specific parallels in the Upper Paleolithic Europe and nowhere else.

Animal tooth pendants (fig. 5: 23) represent one of the most specific traits of the Upper Paleolithic set of ornaments in Northern Eurasia (Vanhaeren, D'Errico 2006; Zhitenev 2007). Both in Siberia and Europe, they were the most popular kind of jewelry and feature either perforations or grooves for hanging. Here and there, both herbivore and small carnivore teeth were used to make them. In Siberia, these ornaments are dated to 50–19 ka bp and found at the Denisova cave (Shunkov et al. 2020; 2016; 2018; 2019; see direct dates from here: Douka et al. 2019), Kara-Bom (Lbova, Volkov 2021), Zhoukoudian cave (D'Errico et al. 2021), Maloyalomanskaya cave (Lbova, Volkov 2021), Yana RHS (Pitul'ko et al. 2012; Pitul'ko, Nikolskiy 2014), and Mal'ta (Lipnina 2002). Interestingly,

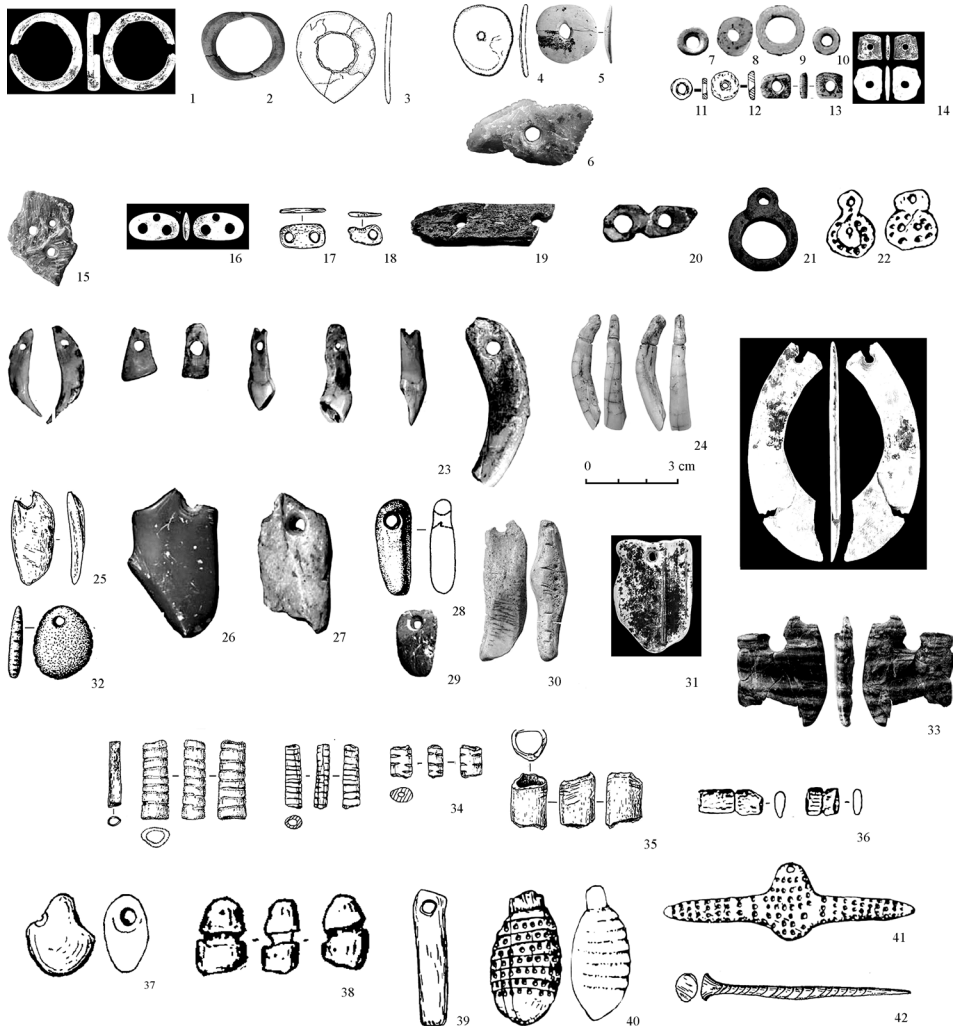


Fig. 5. Basic types of South Siberia ornaments: 1–3—rings; 4–6—disc-shaped bead; 7–14—small roundish beads; 15–22—buttons with three or two holes; 23–24—animal tooth pendants; 25–32—pendants with hole at the edge; 34–36—tubular beads; 24a, 37–41—shaped pendants; 42 (37–42 without scale)—nail-shaped hairpin. Material of the ornaments: 3–4, 8–10—ostrich egg-shell; 1–2, 5, 13–14, 16–22, 24a, 25, 37–42—ivory; 30, 34–35—bone; 23–24—animal teeth; 6, 15, 26–29, 31–33—stone. Sites where the ornaments were found: 1–2, 5, 8–14, 16–18, 20, 23–27, 30–31, 33, 34–35—Denisova cave; 3–4—Podzvonkovaya; 7, 29—Khotyk; 6, 15—Malaya Syya; 22, 37–38, 40–42—Mal'ta; 36—Buret'; 19, 21—Ust'-Kova; 39—Afontova Gora 2; 32, 38—Berelekh. References: Tashak 2009; Lbova 2018; 2021; Lbova et al. 2020; 2020a; Lipnina 2002; Shunkov et al. 2016; 2018; 2020

in the later phase of the Siberian Upper Paleolithic, started at the end of LGM, these ornaments seem to disappear for some reason⁷.

Tubular beads were another very popular kind of ornaments both in Siberia and Europe. They seem to originate from *Dentalium sp.* shells that were used as one of the earliest beads in the world. Until recently, it was held that the oldest examples of such beads in the East were from Sahul; researchers had dated them up to 40 ka bp (Habgood, Franklin 2008: tab. 3). Recently, however, a series of direct dates has showed their early Holocene age (Langley et al. 2019). Thus, currently, for the entire East, the earliest *Dentalium sp.* beads with dates around 23,000–19,000 cal bp are from the Sakitari cave, the Ryukyu islands (Fujita et al. 2016). Taking this in mind, tubular beads may be well considered as one more specific sign of Northern Upper Paleolithic.

Importantly, each of three Siberian varieties of tubes is also known in Europe: long cylindrical tubes both decorated and undecorated (A) (fig. 5: 34), short cylindrical tubes without decoration (B) (fig. 5: 35), and tubes divided into three or two parts by a circum cut, usually with a smaller diameter (C) (fig. 5: 36). In Siberia, bone tubes are dated to 50–13 ka bp and found at the Denisova cave (A) (Shunkov et al. 2020; 2016; 2018; 2019); Kamenka A (A+B) (Lbova, Kozhevnikova 2016: 72); Zhoukoudian cave (A) (D’Errico et al. 2021); Yana RHS (B+C) (Pitul’ko et al. 2012; Pitul’ko, Nikolskiy 2014); Mal’ta (A+B+C) (Lipnina 2002: 150–151, fig. 62, 6, 7); Afontova Gora (A+C) (Lbova, Kozhevnikova 2016: 73). Researchers especially note the affinity of long beads with deep spiral cut found at the Denisova cave and at the Kostenki XIV site⁸. Both sites are close in age. Moreover, tubes found at the Kostenki site differ from similar objects of other European Upper Paleolithic sites to incise manner (Sinitsyn 2005; Lbova, Kozhevnikova 2016: 73).

Diadems, bracelets, or decorated plaques (fig. 4: 22, 26) were also quite widespread in Europe, but mainly in its central and eastern parts (see examples in Gvozdover 1995; Grigorieva 2000; Sinitsyn 2012; Cârciumaru et al. 2019: 95). In Siberia, they are met rather regularly too, but only in the “core area”. Wide and narrow flat plaques with perforation at the ends are interpreted as diadems and bracelets, both decorated and plain, and plaques without holes can be classified as items of unknown purpose (fig. 4: 22, 26). The earliest finds are not younger than 27.0 ka bp; they are made of ivory and derived from the Denisova cave (Shunkov et al. 2020; Derevianko et al. 2018) and Yana RHS (Pitul’ko et al. 2012; Pitul’ko, Pavlova 2014). The latest find made of bone was recently found at Afontova

⁷In contrast, single perforated or intact animal teeth began to appear approximately at this time in Southeast Asia, where they were absent before. Such finds are reported in Hoabinhian sites, primarily in burials (Oxenham et al. 2022; Nguyen 2015), and also in the Yuchanyan cave in southern China (Yuan 2002).

⁸Similar artifacts are known from the several Aurignacian sites: Isturits cave, Gatzarria, Cottés (White, Normand 2015: 156).

Gora II; its date is 15.0–12.0 ka bp (Derevianko et al. 2017). In-between, there is a group of items discovered at Chernoozerie 2 (Schmidt 2019), Ust'-Kova (Lbova et al. 2020a), Gerasimova 1 (Lbova, Volkov 2021), and Mal'ta (Lbova et al. 2020; Lbova, Volkov 2021⁹); they are all made of bones or ivory and referred to 24.0–19.0 ka bp.

Nail-shaped hairpins, according to (Anikovitch 1999: 79–80), are also telling for comparison. They constitute a specific feature of the Russian Plain Upper Paleolithic assemblages Kostenki 1/I and Avdeevo (see also Sinitsyn 2012: fig. 10). In Siberia, similar items were found at Mal'ta site and dated 22.0–19.0 ka bp; they were made of ivory and mostly have circular spiral cut (fig. 5: 42) (Lipnina 2002: fig. 62)¹⁰.

Flat stone pendants with serrated edges are also of interest. They often meet in Eastern Europe at the Gravettian sites. European finds may have various shapes (round, oval, elongated, triangular, etc.) and sometimes engravings on surfaces. According to (Cârciumaru et al. 2016), notching the pendants' edges may be a part of Aurignacian heritage (see, e.g., Vanhaeren, D'Errico 2006: fig. 1).

In Siberia, slight edge notches on the ornaments of various shapes are known from the very early Upper Paleolithic, e.g., on the rings from the Podzvonkovaya site (Tashak 2009) or on the button from the Denisova cave (Shunkov et al. 2020: fig. 8, 8). Later, they became deeper and more prominent: Malaya Syva, Gerasimova-1, Mamony, Mal'ta, Shapova-1, Sukhotino-4, layer 1–3, Berelekh, Oshurkovo (fig. 5: 6, 30, 32) (Lipnina 2002: fig. 62; Kogay, Rogovskoy 2013; Pitul'ko 2011; Pitul'ko et al. 2012; Lbova et al. 2014; Filatov 2016: fig. 3; Lbova, Volkov 2021: 15). There are also items with engravings on flat surfaces in Siberia (Volkova 2011: 253). It should be noted that such ornaments were originally made of bone, ivory or eggshell, and later transitioned to stone.

In Siberia, there are also ornaments of individual or rare shape, which as well may be interesting for our review. For example, in Mal'ta collection, two kettlebell-shaped pendants made of ivory were reported (Lipnina 2002: fig. 62). They have direct analogs among the European Upper Paleolithic, where they are known as the basket-shaped pendants (Vanhaeren, D'Errico 2006: fig. 1: 6, 11). Additionally, it is also known one complete ivory pendant with ovoid body and small vertical protrusion at one of the ends, often called as “beetle” (Lipnina 2002: fig. 76: 5). Similar in shape items meet in Gravettian assemblages, e.g., Kostenki 8, layer II (Sinitsyn 2012: fig. 7, 9), Pavlov I and Předmostí I (Láznichková-Galetová 2021: fig. 8; see also Volkova 2011: tab. 2: 38).

Another example relates to the eight-shaped ivory buttons with two holes arranged in a line, which are met both in Europe (Vanhaeren,

⁹See pictures in 3D Gallery available at: <http://malta.artemiris.org/ru/category/view/5>.

¹⁰See pictures in 3D Gallery available at: <http://malta.artemiris.org/ru/category/view/10>.

D'Errico 2006) and Siberia (fig. 5: 17–22). Some of them may have two holes of different size; examples are from Mal'ta (Lipnina 2002) and Ust'-Kova (Lbova et al. 2020a) (fig. 5: 21–22). Similar items are also known in the Gravettian sites, but have smaller-sized hole shaped as an animal head (Láznicková-Galetová 2021: fig. 8; Akhmetgaleeva 2008). It is interesting that the eight-shaped plaque with no holes is present in the Mal'ta collection. If desired, they can be considered as an anthropomorphic representation (Lipnina 2002: fig. 78).

The “output shaft”: from Siberia to East Asia. The evidence linking the East Asia pottery birthplaces with the Siberian Upper Paleolithic “core area” is only started to protrude. The review that follows is only the first effort to explicate it, and special research is needed for this purpose.

During the preparation of this article, reviewers had doubts about how necessary this section is and how related it is to its main topic. Therefore, to begin with, I would like to make a small digression that may clarify these doubts. The main aim of the following review is to show that despite great differences between the Upper Paleolithic populations of the Siberian “core area” and East Asia, both in genetic and cultural aspects, vestiges evidencing the significant influence of the former on the latter can still be found.

If it was a case, it means that cultural drift from the Upper Paleolithic of Europe to East Asia did not interrupt behind Lake Baikal but only slowed down and took on some other forms. Accordingly, if it was a case, a broad room for future research is opened to understand the reason of this shift and of how various culture components transmitted from the Siberia “core area” to East Asia. Just now, data presented below allows us only to notice that links between East Asia and the Upper Paleolithic of the Siberian “core area” become increasingly pronounced toward the Pleistocene-Holocene boundary and are the most pronounced in the Early Neolithic cultures spread from the Great Khingan Mountains to the Japanese archipelago and from the Bohai Gulf to the Amur River valley.

It is important to note that it is this area (fig. 6) that at the beginning of the Neolithic featured the remarkable cultural unity and concurrently a very high level of culture complexity, even when compared with the early farming communities of the Yellow and the Yangtze Rivers. This observation inevitably entails the issue of the origins of this unity. Its roots should be common to a certain degree for all cultures within this area, but should also go back to highly developed cultures. Siberian Upper Paleolithic cultures appear to fit this role best. It should be stressed that South China falls outside of this cultural unity.

And one last thing, the very existence of this cultural unity within such a vast area may argue in favor of the existence of an extensive communication network in the Upper Paleolithic of East Asia, which might have facilitated the transmission of cultural novelties.

Microblade industry. Microblade technologies emerged in East Eurasia at the end of the LGM and immediately spread across its northern



Fig. 6. Map showing the area that shared some cultural traits that arose at the very beginning of the Local Neolithic, perhaps due to the common roots gone back to the South Siberia Upper Paleolithic. Black dots represent sites or group of sites where related artifacts were found. Squarish pit-dwellings and flat-bottomed deep pots constituted the basic commonality of this area, other its common features are discussed in the text

territories approximately 25–20 ka bp (Keates et al. 2019). The exact location of their invention is a debatable issue, with potential candidates including Transbaikalia, North China, Korea, and the Japanese archipelago (Takakura 2012; Buvit et al. 2015; 2016; Gómez Coutouly 2018; Tabarev 2018; Keates et al. 2019). It should be noted that, in contrast to the previous set of evidence, microblades clearly had eastern ancestry and distribution area. They did not reach the regions far to the west of Lake Baikal (Akimova 2008; 2021; Krivoshapkin et al. 2009; Markin, Kolobova 2020; Berdnikova et al. 2021; Kato 2022). The southern boundary of their dispersal extended to the right bank of the Yellow River (Lu 1998; Qu et al. 2013), although single finds are even derived from the Yangtze

River, where they were discovered in the Xianrengdong and Diaotonghuan Caves together with the earliest traces of pottery (MacNeish 1999).

Microblade flaking provides the strongest evidence in support of the existence of communication networks across Northern Eurasia during the Upper Paleolithic. Although they had strictly eastern origins, the specific trend towards the miniaturization of tools relates them with a similar trend in the evolution of West Eurasian stone implements, which may indicate the existence of co-variation between West and East (Kajiwara 2008). On the other hand, it is believed that microblades have played a crucial role in integrating East Asia into a single communication network due to their wide distribution.

Antropomorphic figurines. After the Siberian Upper Paleolithic findings, the next in time group of anthropomorphic figurines is derived from the Japanese archipelago. The earliest of them come from the Incipient Jomon site located in the Kamikuroiwa Cave in southern Japan (Studies 2009) (fig. 7: 1–2). Thirteen flat engraved pebbles were found in the layer that contained pottery with linear relief decorations. Pebble outlines and engravings displayed stylized human bodies with long hair and sometimes with “aprons” and female breasts. On the reverse side of several figurines, a rounded indentation is shown at the bottom part of the body. Japanese researchers hold these images to be female and connect their origin to the Upper Paleolithic of Northern Eurasia. Stylistically, they are, of course, deeply original, but it is the Lake Baikal images that can be considered as their closest analogies. Both geographical groups of anthropomorphic figurines shared a full-figured human image, a flat cross-section, an accent on hair, and missing limbs in some cases. Slate tiles with engraved images are also known in Transbaikalia (Tashak 2009: 56).

At the end of the Incipient Jomon, a new peculiar tradition of making clay anthropomorphic figurines (*dogu*) appeared (Mizoguchi 2017). The earliest findings are dated to the Younger Dryas-Holocene boundary (fig. 7: 4–5). One of them was found at the Kayumi Ijiri site and dated back to ~11.4 ka bp (Mori et al. 2013). It had a triangular tapering down human torso and female breasts. Its head and shoulders were displayed as slight protrusions without any additional details. The head was found separately but we do not know whether it had been broken off intentionally. The second figurine was found on pit-house floor at the Aidani Kumahara site and dated back to approximately 10.9 ka bp (Matsumuro, Shigeta 2011). It had shape of a truncated human body with a wide base and pronounced female breasts. Its head, legs and arms were missing but there was a 2 cm deep hole at the place of the head.

Although the Incipient Jomon figurines resemble the anthropomorphic figurines of the Near East Neolithic, they are clearly older. Such items not only appeared in Western Asia at the beginning of the Holocene, but moreover they had their own unique features. The Japanese figurines are more similar to the much later West Eurasia human figurines resembling

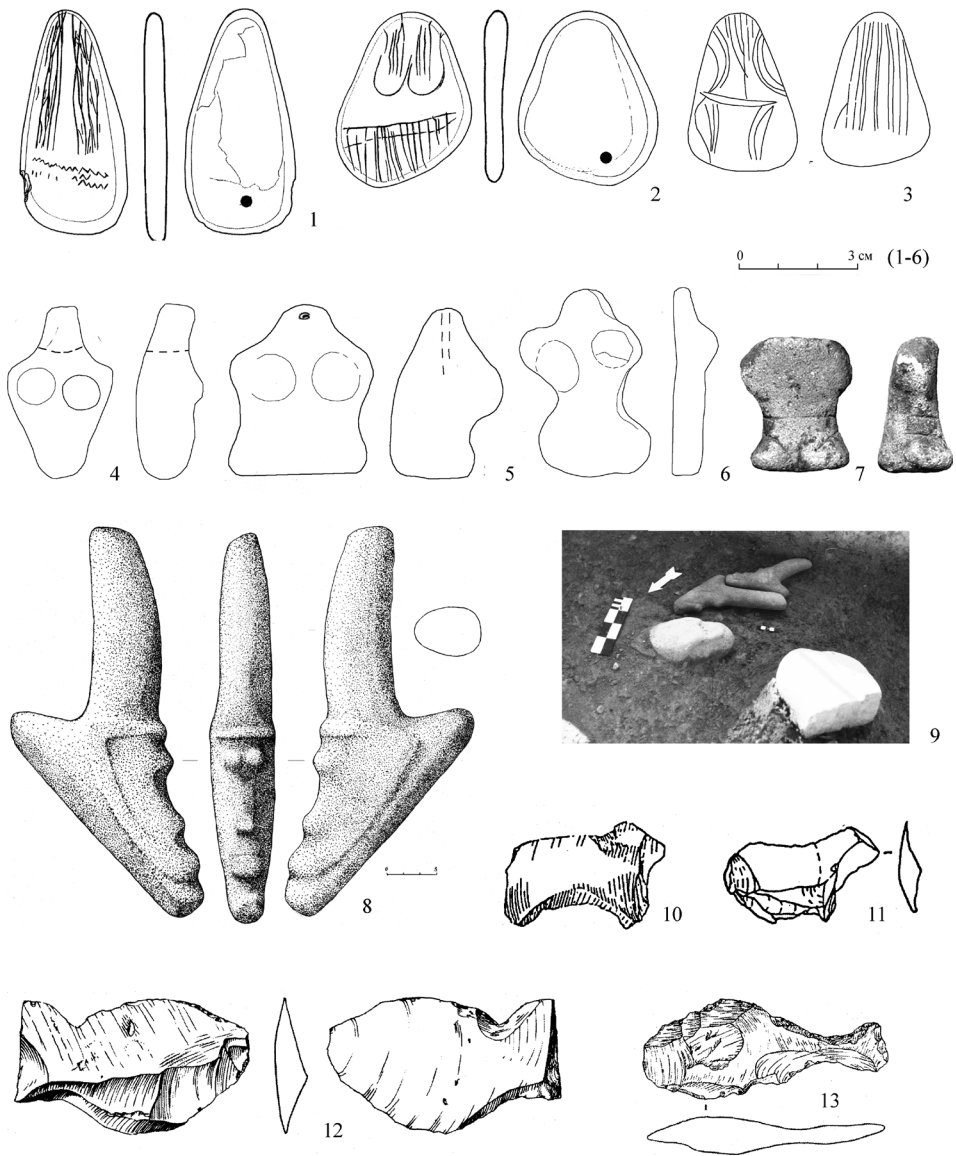


Fig. 7. Human and animal representation found around the Sea of Japan and dated to the Late Pleistocene / Early Holocene boundary. 1–2 – Kamikuroiwa cave, Incipient Jomon; 3 – Rudnaya Pristan', Russia Maritime Province, ~ 7500 ka bp; 4 – Kayumi Ijiri, Late Incipient Jomon; 5 – Aidani Kumahara, Late Incipient Jomon; 6 – Hanawadai, Initial Jomon; 7 – Sergeevka 1, Russia Maritime Province, ~ 7000 ka bp; 8–9 – Goncharka-1, the Lower Amur River, ~10 ka bp; 10, 12 – Ustinovka-1, Russia Maritime Province, 13–8 ka bp; 11 – Malye Kuruktachi, the Middle Amur River, 14–10 ka bp; 13 – Ustinovka-3, Russia Maritime Province, ~ 9,3 ka bp. Material of the figurines: 1–3, 8–13 – stone, 4–7 – ceramics. 7–13 – without scale (See references in the text except for: 3 – Krupyanko, Kononenko 1990; 7 – Batarshv, Popov 2008)

birds because of outstretched arms. Interestingly, the single anthropomorphic figurine found at the Maina site in Siberia has a shape slightly similar to Japanese findings.

Finally, apart from Japan, the full-length anthropomorphic figurines became common only in Siberia and most of the Baikal region, whereas in North China, Manchuria and the Russian Far East mainly human faces have been found so far (Yanshina 2021).

Zoomorphic figurines. Outside the South Siberia “core-area”, the zoomorphic figurines appeared at the turn of the Pleistocene and Holocene in Russian Maritime Province, the Amur Region, and Sakhalin (Tabarev 2004: 56–57). All known crafts were made on stone flakes of suitable shape, which was corrected by edge flaking, and portray the image of fish (Barkasnaya Sopka 2, Goncharka 1, Ustinovka-1, 3, Ogon’ki-5, Gorbatka 3) (Derevianko et al. 1998: 208; Shewkomud, Yanshina 2012: 87–88; Derevianko, Tabarev 2006: fig. 3.20; Tabarev 1996; Vasilevsky 2006: fig. 5.7; Kuznetsov 1996), bear (Malye Kuruktachi, Ustinovka 1) (Tabarev 2000), and bird (Ustinovka 1) (Tabarev 1996: fig. 3) (fig. 7: 10–13). Other images are less recognizable (Dyakov 2000: 129; Tabarev 1996; Shewkomud, Yanshina 2012: 87–88).

Although there are no direct correspondences between Far Eastern and Siberian zoomorphic figurines in terms of images, techniques or materials, the very existence of these figurines in the Far East seems remarkable, given the fact that they were not found anywhere else in East Asia (the only exception is the bone bird found at the Lingjing site, Li et al. 2020). Animal representations appeared in East Asia only in the Early Neolithic and even at that time they met rather rarely and solely within the area under consideration, i.e. in Manchuria and northern part of the sea of Japan basin (see Xinglongwa culture sites, Beifudi site, blade arrowhead culture sites in Hokkaido).

Pairwise installations. The earliest near-hearth installation with certain dualistic meaning was excavated at the Kovrizhka-IV site in Northern Transbaikalia (15.7–15.5 ka bp) (Teten’kin et al. 2018) where two anthropomorphic ivory figurines were discovered inside a surface dwelling. They were lying opposite each other. One of the figurines was placed near the central hearth with its head turned to the east, and the other one was set by the entrance hearth with head facing south or southeastern direction. The rear side of the dwelling was lined with stones in an arc-like pattern. This lining was made up of three pairs of stones, each comprising a rounded boulder and a non-rounded gneiss slab. The same pair of stones was laid at the top of the central hearth, which had previously been covered with sterile sand mixed with black mineral matter.

Interestingly, tools and the figurines were found near the gneiss slab of the central hearth while microblades and debitage were discovered near the boulder of the same hearth. Based on these findings, excavators have supposed that slabs and boulders had different functions. There is no direct reference to what essences might be contradistinguished in this pair. However,

in archaeology, finished tools are often associated with household activities whereas debitage is mostly related to toolmaking or male activities.

A similar assemblage was discovered at the Ust'-Kyakhta-3 site (4th cultural horizon, ~11.5 ka bp) in Transbaikalia (Tashak 2005: 34–35, 59–60). Two pebbles were found in the middle of a dwelling structure, next to a hearth covered with sterile sand, as in the case of Kovrizhka-IV site. The gray anthropomorphic pebble resembling to some extent a corpulent female figure lay on the south-western side of the hearth, while the reddish rodlike pebble, which presumably symbolized masculinity, lay on the opposite north-eastern side of the same hearth.

Another group of similar findings was discovered in the Lower Amur region at the Goncharka-1 site of Osipovsky culture (layer 3B; ~10.5–10 ka bp). One partially preserved assemblage of this site included a large flattened boulder with a pair of small round holes on the upward flat surface and two Y-shaped ground objects of different sizes that were made of basalt (Shewkomud, Yanshina 2012) (fig. 7: 8–9). Both of Y-shaped items also had an anthropomorphic mask at their butt ends where the two “eyes”, the “nose” and the “mouth” were represented in the form of roundish knobs. These objects were placed back-to-back along the north-south line, but their “faces” looked in the opposite directions.

Two other objects of similar shape, material and manufacturing techniques but without masks were found at the same site inside another structure that was interpreted as a burial (Shewkomud, Yanshina 2012: 42–46, fig. 26). The items also have different size and were placed along the west-east line at 0.3 m distance from each other near a flattened boulder with three small round holes arranged in a triangle. Some pottery sherds were scattered between them. The whole assemblage was located near the foot of the presumably buried individual.

Not only are the anthropomorphic associations of these objects noteworthy, but also the fact that they differ in size within each pair, which could symbolize masculinity and femininity. Similar Y-shaped objects are also known at the other Osipovsky sites, but they were discovered outside the context. Some of them also have images in the form of knobs at their butt ends. Previously, researchers interpreted these crafts as a phallus or elk's head representations. In addition, it is hard to miss their vague resemblance to the Y-shaped sticks found at the Mal'ta site and perforated batons of the European Upper Paleolithic.

The Osipovsky vessels provide another interesting case. They are often found in isolated concentrations comprising two vessels, one of which was made of coarse clay paste, while the other was made of fine clay paste. The regular occurrence of such double-vessel concentrations allows us to suggest that it is not just a coincidence. The most representative findings are from the Novotroitskoye-17 site where several such concentrations were excavated (Yanshina, Kositsyna 2019). Each vessel pair was decorated in the same way, but the vessels contained different mineral

impurities: either an excessive amount of coarse rock particles or very fine mineral inclusions. Alternatively, low-fired grog might have been used instead of fine minerals. Several pairs of such vessels were also found at the Goncharka-1 site (Shewkomud, Yanshina 2012).

It is interesting that during the next stage of the local Neolithic, the pottery assemblages of the Kondon culture, which had Osipovsky ancestry, always contained vessels made of both types of clay pastes: those with coarse mineral inclusions and those with fireclay additives.

Around the same time or slightly later, burials of paired vessels appeared in the south of Kyushu Island. The most famous finds derive from the Uenohara site, where two vessels of a rare amphora-like shape were buried in the same pit on a ritual square dating back to the beginning of the Holocene (Pearson 2006; Dmitrukha 2011). Both vessels were positioned upright and placed closely together. Their decoration was limited to the neck area. That of larger size had a square neck, while the other had a round neck. Two pairs of vases from the Jego site, from the same period, provide another example. In this case, pits with vases were separated, but they still formed two pairs. Each pair contained a more complicated and a simpler vessel in terms of shape and ornamentation (Dmitrukha 2011).

In both sites, the vase burials were located at the highest points of plazas and were accompanied by various installations of beautifully polished stone axes, arrows, and other unusual objects (compare to Beifudi ritual plaza of Chinese early farmers: Beifudi 2007; Liu, Chen 2012). It is assumed that all these finds are remnants of group rituals. Later phases of the Jomon culture are full of other examples of the dualistic organization of social space and life (see e.g. Kobayashi 2001). However, whether they are connected with the very first its manifestations is uncertain. All cases listed above are likely to be united by an opposition of male and female beginnings, as well as the use of installations as a form of ritual activity.

Disks. Disks with a through hole in the center, made from the walls of ceramic vessels, provide another example, though not so evident, that connects South Siberia and East Asia (fig. 8: 1–3). These amazing objects were widespread in the Neolithic cultures of Manchuria, Primorye, and the Amur River region, but their origin and functions have always been a mystery. Now, we know that the earliest ones were found in Japan at the Fukui cave site in the layers associated with Incipient Jomon culture and pottery of line-relief decoration (Special exhibition 2009: fig. 160). There are also many such disks found at other Incipient Jomon sites, mainly within the southern scope of their distribution (see, e.g., Kuwahata, Kuriyama 2012). In farther northern regions of the circum-Sea of Japan area, they appeared later together with Early Neolithic assemblages and became their “carte-de-visite” (Yanshina 2021: 185, 252, fig. 68, 75).

The earliest disks from the Fukui cave are dated back to 12.5 ka bp and represent one of the first non-utilitarian crafts in the Sea of Japan area. It is difficult to guess what inspired their creation at such a distant time.

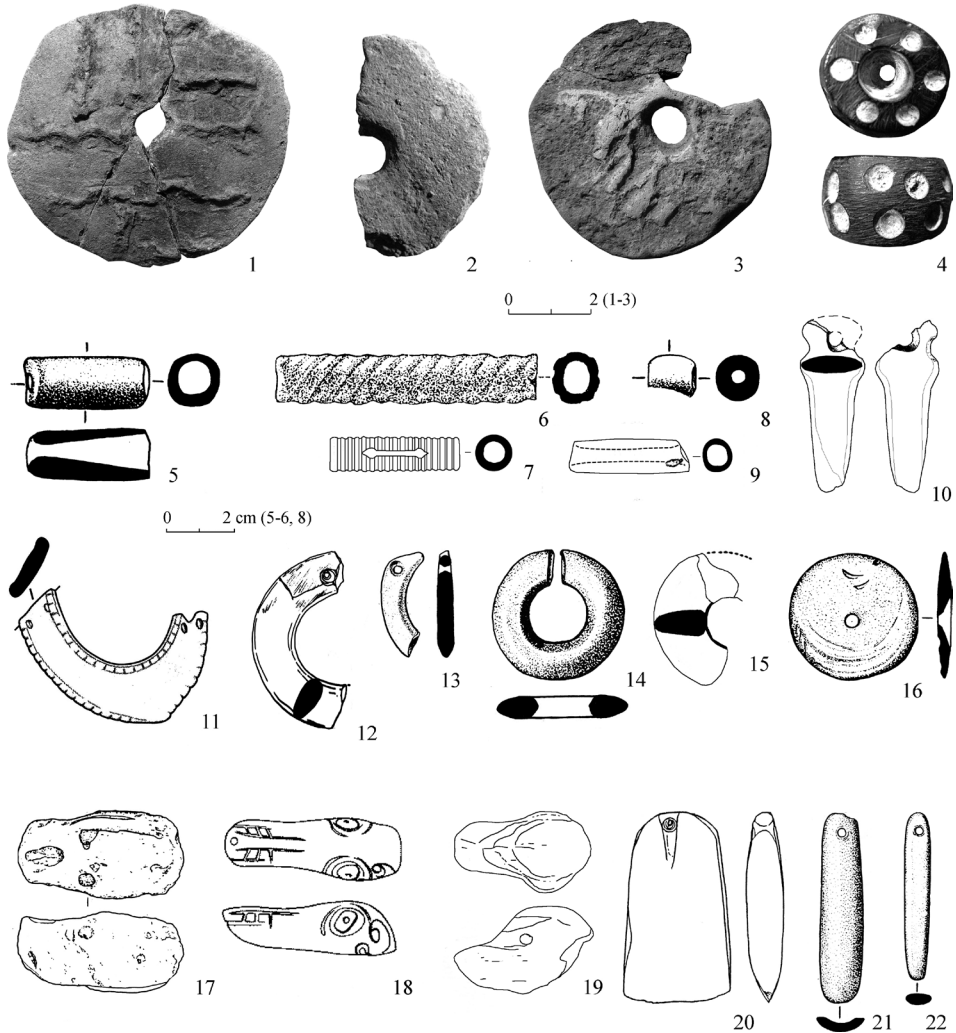


Fig. 8. Ceramic discs (1–3), ornaments (4–22) and animal heads (17–18) found around the Sea of Japan and dated to the Late Pleistocene / Early Holocene boundary. 1–2 – Fukui cave, Incipient Jomon; 3 – Elasu C, North Manchuria, Angangxi culture, 6,5 ka bp; 4 – Ado-Tymovo-2, Sakhalin, ~ 7-7.5 ka bp; 5–6, 8, 14, 16, 21–22 – Chertovye Vorota (Devil’s gate), Russia Maritime Province, 8–7 ka bp; 7, 9 – Baiyinchanghan, South Manchuria, Xinglongwa culture, 6.5–6000 ka bp; 10, 19 – Yachiyo, Northern Hokkaido, ~ 8 ka bp; 15 – Kyoei B, Northern Hokkaido, ~ 7.5–7 ka bp; 17 – Fitutsuyama, Northern Hokkaido, ~ 8 ka bp; 18 – Beifudi, North-East China, ~ 7 ka bp; 20 – Toyosato, Northern Hokkaido, ~ 8 ka bp. References: 1–4 – author’s photo; 10, 15, 17–19, 20 – The blade arrowhead cultures 1999; 5–6, 8, 14, 16, 21–22 – Neolit 1991; 7, 9 – Wagner 2006; 18 – Beifudi 2007

However, their design resembles ivory disks of the South Siberian Mal’ta site and their European Upper Paleolithic counterparts known as rondelles (see above for details). Those of them that were decorated with wavy lines are the most similar to the Fukui disk. The functions of these objects are unknown, but they might have changed over time.

Personal ornaments. It should be further noted the fact that the highly developed set of ornaments suddenly appeared in the Sea of Japan basin and Manchuria at the beginning of the Neolithic (fig. 8). This fact is surprising given that ornaments, at least those made of stone, were previously completely absent in the region. The origin of ornaments within this set remains a mystery, but many of their specific traits appeared for the first time precisely at the Upper Paleolithic sites of South Siberian, and foremost at the Mal'ta site, including the use of jade and similar colored stones, tubular beads, beads with spiral cutting, figure-of-eight items, as well as decoration of surfaces with cupules.

What is also surprising apart from the complex shapes of these ornaments and their possible South Siberian roots is the fact that they were common for such a vast territory. Southern Manchuria provides the most sophisticated and diverse set of them mainly associated with the Early Neolithic Xinglongwa culture (Wagner 2006; Liu, Chen 2012). However, even earlier finds, though not so developed and numerous, are known at the Early Neolithic sites of Hokkaido, Sakhalin, Russian Primorye, the Amur River region, and North Manchuria (Neolit 1991; The blade arrowhead cultures 1999; The excavation 2020).

Differences in ornaments between Far East Asia regions and North-East Siberia should also be stressed. Both sets reproduce the South Siberia Upper Paleolithic examples more or less evidently; however, the North-Eastern Siberia set of objects is much less multifarious and features simpler forms (Dikov 1979; Fedorchenko 2018; Ponkratova 2021). Moreover, in Southern East Asia regions, such as South and Central China, ornaments came into being even later and with completely different and less sophisticated shapes.

Pottery. There is a great temptation to add pottery to this review. However, the only evidence of using clay and ceramics in the South Siberian Upper Paleolithic is represented by a ceramic human figurine found at the Maina site on the Yenisei River (Vandiver, Vasil'ev 2002). On one hand, this find is very significant since it clearly shows that the populations of South Siberia "core-area" were actually familiar with ceramics. On the other hand, there is a huge gap between a single ceramic figurine and mass production of ceramic vessels.

CONCLUSION

The present study was an attempt to understand how it might occur in East Eurasia that pottery was invented there immediately in the form of a mature innovation. The only reasonable answer, consistent with the present-day ideas about how culture and technologies evolve, is that the initial knowledge and skills critical for this genius invention were accumulated in the West of Eurasia and then somehow transferred to the East, where they became the basis for the invention of ceramic vessels.

The data presented above demonstrates also a wide spectrum of observations, connecting the West and East Eurasia during the Upper Paleolithic. On the one hand, they allow for suggesting the existence of co-variation in the development of lithic industries and, to a lesser extent, ceramic-associated technologies. On the other hand, they concern the direct and indirect similarities of the material culture across the northern part of Eurasia, which resemble a cultural drift from west to east. Taking together, these observations confirm the above suggestion on the transmitting of knowledge and skills as a key factor in the emergence of pottery in East Asia and open new perspectives in the research.

The shift in discourse has become possible as a result of expectations arising from the current studies of the innovation processes, as well from the theory of the cumulative nature of culture. They both state nothing might be invented “from scratch” and force us to consider the invention of pottery as an integral part of the broader process started with the establishment of behavior modernity and introduction into human life a wide array of new technologies. Among them, the most crucial for the invention of pottery were those related to the use of clay, production of ceramics, new culinary practices and associated utensils, as well as new methods of fire manipulation. It is not possible to imagine how pottery could have been successfully invented if such the pre-pottery phase were missed.

REFERENCES

- Bae C.J. 2017. Late Pleistocene Human Evolution in Eastern Asia: Behavioral Perspectives. *Current Anthropology*, no. 58 (S17), 514–526.
- Bar-Yosef O., Belfer-Cohen A. 2013. Following Pleistocene Road Signs of Human Dispersals Across Eurasia. *Quaternary International*, no. 285, 30–43.
- Batarshv S.V., Popov A.N. 2008. Sergeevka-1: Neolithic Site in the Khanka Plain, and the Typology of Middle Neolithic Sites in Primorye. *Archaeology, Ethnology & Anthropology of Eurasia*, no. 35 (3), 2–13.
- Becerra-Valdivia L., Waters M., Stafford T., Anzick S., Comeskey D., Devière T., Higham T. 2018. Reassessing the Chronology of the Archaeological Site of Anzick. *PNAS*, no. 115 (27), 7000–7003.
- Beifudi 2007: *Beifudi: a Prehistoric Site in the Yi River Valley*. Beijing.
- Biton R. 2010. *The Clay Repertoire from Pre-Pottery Neolithic B Kfar HaHoresh: Not Just The Usual Bull*. Unpublished M.A. Thesis Written under the Supervision of prof. N. Goring-Morris and Y. Goren. Tel Aviv University.
- Boaretto E., Wu Xiaohong, Yuan Jiarong, Bar-Yosef O., Chu V., Pan Yan, Liu Kexin, Cohen D., Jiao Tianlong, Li Shuicheng, Gu Haibin, Goldberg P., Weiner S. 2009. Radiocarbon Dating of Charcoal and Bone Collagen Associated with Early Pottery at Yuchanyan Cave, Hunan Province, China. *PNAS*, no. 106 (24), 9595–9600.
- Bougard E. 2010. *The Use of Clay in the Upper Paleolithic of Europe: Symbolic Application of a Material*. Oxford. (BARIS. 2069).
- Boyd R, Richerson P.J. 1996. Why Culture Is Common, but Cultural Evolution Is Rare. *Proceedings of the British Academy*, no. 88, 77–93.

- Brumm A., Moore M.W. 2005. Symbolic Revolutions and the Australian Archaeological Record. *Cambridge Archaeological Journal*, no. 15 (2), 157–175.
- Budja M. 2013. Neolithic Pots and Potters in Europe: the End of 'Demic Diffusion' Migratory Model. *Documenta Praehistorica*, no. 40, 39–55.
- Budja M. 2016. Ceramics among Eurasian Hunter-Gatherers: 32 000 Years of Ceramic Technology Use and the Perception of Containment. *Documenta Praehistorica*, no. 43, 61–86.
- Buvit I., Izuho Masami, Terry K., Konstantinov M.V., Konstantinov A.V. 2016. Radiocarbon Dates, Microblades and Late Pleistocene Human Migrations in the Transbaikal, Russia and the Paleo-Sakhalin-Hokkaido-Kuril Peninsula. *Quaternary International*, no. 425, 100–119.
- Buvit I., Terry K., Izuho Masami, Konstantinov M.V. 2015. The Emergence of Modern Behavior in the Trans-Baikal, Russia: Timing and Technology. *Emergence and Diversity of Modern Human Behavior in Paleolithic Asia*. Texas, 490–505.
- Cârciumaru M., Nițu E.-C., Cîrstina O., Goutas N. 2016. The Engraved Stone Pendant from Poiana Cireșului-Piatra Neamț, Romania. New Contributions to the Understanding of Symbolic Behavior in Gravettian. *Archaeology, Ethnology and Anthropology of Eurasia*, no. 44 (4), 35–45.
- Cârciumaru M., Nițu E.-C., Obadă T., Cîrstina O., Covalenco S., Lupu F.I., Leu M., Nicolae A. 2019. Personal Ornaments in the Mid Upper Palaeolithic East of the Carpathians. *Paleo*, no. 30 (1), 80–97.
- Childe V.G. 1956. *Society and Knowledge: The Growth of Human Traditions*. New York.
- Clark J.E., Gosser D. 1995. Reinventing Mesoamerica's First Pottery. *The Emergence of Pottery: Technology and Innovation in Ancient Societies*. London, 209–219
- Cohen D., Bar-Yosef O., Wu Xiaohong, Patania I., Goldberg P. 2017. The Emergence of Pottery in China: Recent Dating of Two Early Pottery Cave Sites in South China. *Quaternary International*, no. 441B, 36–49.
- Conard N.J. 2010. Cultural Modernity: Consensus or Conundrum? *PNAS*, no. 107 (17), 7621–7622.
- Contextualising 2021: *Contextualising Ancient Technology: From Archaeological Case Studies towards a Social Theory of Ancient Innovation Processes*. Berlin.
- Craig O.E., Saul H., Lucquin A., Nishida Yastami, Taché K., Clarke L., Thompson A., Altoft D.T., Uchiyama Jumpei, Gibbs M.K., Isaksson S., Heron C.P., Jordan P. 2013. Earliest Evidence for the Use of Pottery. *Letter*, no. 496, 351–354.
- D'Errico F. 2003. The Invisible Frontier. A Multiple Species Model for the Origin of Behavioral Modernity. *Evolutionary Anthropology*, no. 12, 188–202.
- D'Errico F., Martí A.P., Wei Yi, Gao Xing, Vanhaeren M., Doyon L. 2021. Zhoukoudian Upper Cave Personal Ornaments and Ochre: Rediscovery and Reevaluation. *Journal of Human Evolution*, no. 161, 103088.
- Derevianko A.P. 2001. The Middle to Upper Paleolithic Transition in the Altai (Mongolia and Siberia). *Archaeology, Ethnology & Anthropology of Eurasia*, no. 2, 70–103.
- Derevianko A.P. 2010. Three Scenarios of the Middle to Upper Paleolithic Transition. *Archaeology Ethnology & Anthropology of Eurasia*, no. 38 (3), 2–32.
- Derevianko A.P., Shunkov M.V., Fedorchenko A.Y., Kozlikin M.B. 2018. A Palaeolithic Diadem from Denisova Cave. *Problems of Archaeology, Ethnography, Anthropology of Siberia and Neighboring Territories*. Novosibirsk, 87–90.
- Derevianko A.P., Tabarev A.V. 2006. Paleolithic of the Primorye (Maritime) Province. *Archaeology of the Russian Far East: Essays in Stone Age Prehistory*. (BARIS. 1540). Oxford, 41–55.
- Detecting 2020: *Detecting and Explaining Technological Innovation in Prehistory*. Leiden.

- Djindjian F. 2014. Invention and innovation processes in prehistoric societies. *A Sense of the Past: Studies in Current Archaeological Applications of Remote Sensing and Non-invasive Prospection Methods*. Oxford, 155–163.
- Douka K., Slon V., Jacobs Z., Ramsey C.B., Shunkov M.V., Derevianko A.P., Mafessoni F., Kozlikin M.B., Li Bo, Grün R., Comeskey D., Deviese T., Brown S., Viola B., Kinsley L., Buckley M., Meyer M., Roberts R.G., Pääbo S., Kelso J., Higham T. 2019. Age Estimates for Hominin Fossils and the Onset of the Upper Palaeolithic at Denisova Cave. *Nature*, no. 565, 640–644.
- Einwögerer T., Friesinger H., Händel M., Neugebauer-Maresch C., Simon U., Teschler-Nicola M. 2006. Upper Palaeolithic Infant Burials. Decorations on the Bodies of Newborns Indicate that They Were Probably Important in Their Community. *Nature*, no. 444, 285.
- Emergence 2015: *Emergence and Diversity of Modern Human Behavior in Paleolithic Asia*. Texas: Texas A&M University Press.
- Esin Yu.N., Magail J., Monna F., Ozheredov Yu.I. 2020. Images of Camels on a Mammoth Tusk from West Siberia. *Archaeological Research in Asia*, no. 22, 100180.
- Farbstein R. 2013. Making Art, Making Society: the Social Significance of Small-Scale Innovations and Experimentation in Palaeolithic Portable Art. *World Art*, no. 3 (1), 23–39.
- Farbstein R., Radić D., Brajković D., Miracle R.T. 2012. First Epigravettian Ceramic Figurines from Europe (Vela Spila, Croatia). *PLoS ONE*, no. 7 (7), e41437.
- Flenniken J.J. 1987. The Paleolithic Dyuktai Pressure Blade Technique of Siberia. *Arctic Anthropology*, no. 24 (2), 117–132.
- Fletcher A., Baird D., Spataro M., Fairbairn A. 2017. Early Ceramics in Anatolia: Implications for the Production and Use of the Earliest Pottery. The Evidence from Boncuklu Höyük. *Cambridge Archaeological Journal*, no. 27 (2), 351–369.
- Foley R., Mirazón Lahr M. 1997. Mode 3 Technologies and the Evolution of Modern Humans. *Cambridge Archaeological Journal*, no. 7 (1), 3–36.
- Fu Qiaomei, Meyer M., Gao Xing, Stenzel U., Burbano H., Kelso J., Pääbo S. 2013. DNA Analysis of an Early Modern Human from Tianyuan Cave, China. *PNAS*, no. 110 (6), 2223–2227.
- Fu Qiaomei, Posth C., Hajdinjak M., Petr M., Mallick S., Fernandes D., Furtwängler A., Haak W., Meyer M., Mittnik A., Nickel B., Peltzer A., Rohland N., Slon V., Talamo S., Lazaridis I., Lipson M., Mathieson I., Schiffels S., Skoglund P., Derevianko A.P., Drozdov N., Slavinsky V., Tsybankov A., Cremonesi R.G., Mallegni F., Gély B., Vacca E., González Morales M.R., Straus L.G., Neugebauer-Maresch C., Teschler-Nicola M., Constantin S., Moldovan O.T., Benazzi S., Peresani M., Coppola D., Lari M., Ricci S., Ronchitelli A., Valentin F., Thevenet C., Wehrberger K., Grigorescu D., Rougier H., Crevecoeur I., Flas D., Semal P., Mannino M.A., Cupillard C., Bocherens H., Conard N.J., Harvati K., Moiseyev V., Drucker D.G., Svoboda J., Richards M.P., Caramelli D., Pinhasi R., Kelso J., Patterson N., Krause J., Pääbo S., Reich D. 2016. The Genetic History of Ice Age Europe. *Nature*, no. 534, 200–205.
- Fujita Masaki, Yamasaki Shinji, Katagiri Chiaki, Oshiro Itsuro, Sano Katsuhiko, Kurozumi Taiji, Sugawara Hiroshi, Kunikita Dai, Matsuzaki Hiroyuki, Kano Akihiro, Okumura Tomoyo, Sone Tomomi, Fujita Hikaru, Kobayashi Satoshi, Naruse Toru, Kondo Megumi, Matsu'ura Shuji, Suwa Gen, Kaifu Yousuke 2016. Advanced Maritime Adaptation in the Western Pacific Coastal Region Extends Back to 35,000–30,000 Years Before Present. *PNAS*, no. 113 (40), 11184–11189.
- Gao Xing, Guan Ying, Chen Fu-You, Yi Mingjie, Pei Shuwen, Wang Huimin 2014. The Discovery of Late Paleolithic Boiling Stones at SDG 12, North China. *Quaternary International*, no. 347, 91–96.

- Gerasimov M.M. 1964. The Paleolithic Site Mal'ta: Excavation of 1956–1957. *The Archaeology and Geomorphology of Northern Asia: Selected works*, no. 5. Toronto, 3–32.
- Gibbs K. 2015. Pottery Invention and Innovation in East Asia and the Near East. *Cambridge Archaeological Journal*, no. 25 (1), 339–351.
- Gibbs K. 2022. The Emergence of Ceramics in Southwest Asia: Early Pottery in Farming Communities. *Quaternary International*, September 2020. DOI: 10.1016/j.quaint.2020.09.040.
- Gibbs K., Jourdan P. 2013. Bridging the Boreal Forest: Siberian Archaeology and the Emergence of Pottery among Prehistoric Hunter-Gatherers of Northern Eurasia. *Sibirica*, no. 12 (1), 1–38.
- Godin B. 2014. Invention, Diffusion and Linear Models of Innovation: the Contribution of Anthropology to a Conceptual Framework. *Journal of Innovation Economics & Management*, no. 3, 11–37.
- Gómez Coutouly Y.A. 2018. The Emergence of Pressure Knapping Microblade Technology in Northeast Asia. *Radiocarbon*, no. 60 (3), 821–824.
- Gorodetskaya O., Hsieh Meng-Long, Guo Li-Xin, Chiu Pak-Hei 2021. Paleolithic-Neolithic Transition and Late-to-Postglacial Climate Change in East Asia: a Review of Archaeological Data from Karst Caves in Southern China. *Quaternary International*, no. 610 (5). DOI: 10.1016/j.quaint.2021.09.005.
- Graf K.E., Buvit I. 2017. Human Dispersal from Siberia to Beringia: Assessing a Beringian Standstill in Light of the Archaeological Evidence. *Current Anthropology*, no. 58 (17), 583–603.
- Grasshoff G. 2021. Technological Innovations. *Contextualising Ancient Technology: From Archaeological Case Studies towards a Social Theory of Ancient Innovation Processes*. Berlin, 11–25.
- Gryba E.M. 2020. A Personal Perspective on Microblade and Microblade Core Variability in Northeast Asia and Northwest North America. *Archaeological Survey of Alberta (Occasional Paper)*, no. 39, 51–70.
- Gvozdover M. 1995. *Art of the Mammoth Hunters: the Finds from Avdeevo*. Oxford.
- Habgood P.J., Franklin N.R. 2008. The Revolution that Didn't Arrive: a Review of Pleistocene Sahul. *Journal of Human Evolution*, no. 55 (2), 187–222.
- Hachi S., Fröhlich F., Gendron-Badou A., de Lumley H., Roubet C., Abdessadok S. 2002. Upper Palaeolithic Cooked Clay Figurines from Afalou Bou Rhummel (Babors, Algeria). First Infrared Absorption Spectroscopic Analyses. *L'Anthropologie*, no. 106 (1), 57–97.
- Haidle M.N. 2010. Working-Memory Capacity and the Evolution of Modern Cognitive Potential: Implications from Animal and Early Human Tool Use. *Current Anthropology*, no. 51 (S1), 149–166.
- Hamilton M.J., Buchanan B. 2010. Archaeological Support for the Three-Stage Expansion of Modern Humans across Northeastern Eurasia and into the Americas. *PNAS*, no. 5 (8), e12472.
- Haynes G. 2002. *The Early Settlement of North America: The Clovis Era*. Cambridge University Press.
- Helwing B. 2013. Early Metallurgy in Iran – an Innovative Region as Seen from the Inside. *Metal Matters; Innovative Technologies and Social Change in Prehistory and Antiquity*. Leidorf, 105–137.
- Henshilwood C.S., Marean C.W. 2003. The Origin of Modern Human Behavior: Critique of the Models and Their Test Implications. *Current Anthropology*, no. 44 (5), 627–651.
- Hiscock P. 2013. Early Old World Migrations of Homo Sapiens: Archaeology. *The Encyclopedia of Global Human Migration*. Blackwell, 5–11.

- Hodgson D. 2017. Costly Signalling, the Arts, Archaeology and Human Behavior. *World Archaeology*, no. 49 (4), 1–35.
- Hoffecker J.F. 2005. Innovation and Technological Knowledge in the Upper Paleolithic of Northern Eurasia. *Evolutionary Anthropology*, no. 14, 186–198.
- Hoffecker J.F. 2012. The Evolutionary Ecology of Creativity. *Origins of Human Innovation and Creativity*. (Developments in Quaternary Science, 16). New Amsterdam, 89–102.
- Hoffecker J.F., Elias S.A., O'Rourke D.H., Scott G.R., Bigelow N.H. 2016. Beringia and the Global Dispersal of Modern Humans. *Evolutionary Anthropology: Issues, News, and Reviews*, no. 25 (2), 64–78.
- Hommel P. 2009. Hunter-Gatherer Pottery: an Emerging 14C Chronology. *Ceramics before Farming: The Dispersal of Pottery among Prehistoric Eurasian Hunter-Gatherers*. Walnut Creek, 561–569.
- Hommel P. 2019. What's The Point? Ceramic Globalization in the Early Holocene? *Globalization and the People Without History*. Cambridge, 15–41.
- Iakovleva L. 2015. The Architecture of Mammoth Bone Circular Dwellings of the Upper Palaeolithic Settlements in Central and Eastern Europe and Their Socio-Symbolic Meanings. *Quaternary International*, no. 359–360, 324–334.
- Iizuka Fumie 2018. The Timing and Behavioral Context of the Late-Pleistocene Adoption of Ceramics in Greater East and Northeast Asia and the First People (without Pottery) in the Americas. *PaleoAmerica*, no. 4 (4), 267–324.
- Ineshin E.M., Teten'kin A.V. 2017. *Humans and the Environment in Northern Baikal Siberia during the Late Pleistocene*. Newcastle upon Tyne.
- Jeunesse C. 2021. From Invention to Innovation: Technical Systems in Late Prehistory. *Contextualising Ancient Technology: From Archaeological Case Studies towards a Social Theory of Ancient Innovation Processes*. Berlin: Humboldt University of Berlin, 57–87.
- Jordan P., Cummings V. 2014. Prehistoric Hunter-Gatherer Innovations. *The Oxford Handbook of the Archaeology and Anthropology of Hunter-Gatherers*. Oxford, 585–606.
- Jordan P., Gibbs K., Hommel P., Piezonka H., Silva F., Steele J. 2016. Modelling the Diffusion of Pottery Technologies across Afro-Eurasia: Emerging Insights and Future Research. *Antiquity*, no. 90 (351), 590–603.
- Kajiwara Hiroshi 2008. Microlithization in Eurasia: A Brief Review on the Microblade Reduction Technology and Its Significance as a Behavioral Threshold of the Modern Humans. *Bulletin of Tohoku Fukushi University*, no. 32, 207–234.
- Karkanas P., Koumouzelis M., Kozłowski J.K., Sitlivy V., Sobczyk K., Berna F., Weiner S. 2004. The Earliest Evidence for Clay Hearths: Aurignacian Features in Klisoura Cave 1, Southern Greece. *Antiquity*, no. 78 (300), 513–525.
- Kato Shinji 2022. Upper Paleolithic Human Dispersals and Cultural Diffusions in Eastern Eurasia. *Acta Anthropologica Sinica*, no. 41(e). DOI: 10.16359/j.1000-3193/AAS.2022.0012.
- Keates S.G., Postnov A.V., Kuzmin Y.V. 2019. Towards the Origin of Microblade Technology in Northeastern Asia. *Vestnik Sankt-Peterburgskogo universiteta. Istorija*, no. 64 (2), 390–414.
- Killick D. 2015. Invention and Innovation in African Iron-Smelting Technologies. *Cambridge Archaeological Journal*, no. 25 (1), 307–319.
- Klein R. 2008. Out of Africa and the Evolution of Human Behavior. *Evolutionary Anthropology*, no. 17, 267–281.
- Klimscha F. 2017. Transforming Technical Know-How in Time and Space. Using the Digital Atlas of Innovations to Understand the Innovation Process of Animal Traction and the Wheel. *eTopoi. Journal for Ancient Studies*, no. 6, 16–63.

- Knappett C., Van Der Leeuw S. 2014. A Developmental Approach to Ancient Innovation. The Potter's Wheel in the Bronze Age East Mediterranean. *Pragmatics & Cognition*, no. 22 (1), 64–92.
- Kobayashi Tatsuo 2001. The Duality of Jomon Group Structure. *Bulletin of the Indo-Pacific Prehistory Association*, no. 5, 22–29.
- Kononenko A.V., Kononenko N.A., Kajiwara Hiroshi 1998. Implications of Heat Treatment Experiments on Lithic Materials from the Zerkalnaya River Basin in the Russian Far East. *Proceedings of the Society for California Archaeology*, no. 11, 64–79.
- Kroeber A.L. 1940. Stimulus Diffusion. *American Anthropologist*, no. 42 (1), 1–20.
- Kuwahata Mitsuhiro, Kuriyama Yoko. 2012. *Ojiyama Ruins*. Miyakonojo: Miyakonojo City-Miyazaki Prefecture.
- Kuzmin Ya. 2013. Origin of Old World Pottery as Viewed from the Early 2010s: When, Where and Why. *World Archaeology*, no. 45 (4), 539–556.
- Kuznetsov A.M. 1996. Late Paleolithic Sites of the Russian Maritime Province. *American Beginnings. The Prehistory and Palaeoecology of Beringia*. Chicago; London, 367–382.
- Langley M.C., Clarkson C., Ulm S. 2019. Symbolic Expression in Pleistocene Sahul, Sunda, and Wallacea. *Quaternary Science Reviews*, no. 221, 105883.
- Larrive-Bass S. 2015. *Embodied Materials: The Emergence of Figural Imagery in Prehistoric China*. Unpublished PhD Thesis. Columbia University.
- Láznichková-Galetová M. 2021. Gravettian Ivory Ornaments in Central Europe, Moravia (Czech Republic). *L'anthropologie*, no. 125, 102870.
- Lbova L.V. 2010. Evidence of Modern Human Behavior in the Baikal Zone during the Early Upper Paleolithic Period. *Bulletin of the Indo-Pacific Prehistory Association*, no. 30, 9–13.
- Lbova L.V. 2021. The Siberian Paleolithic Site of Mal'ta: A Unique Source for the Study of Childhood Archaeology. *Evolutionary Human Sciences*, no. 3, E9. DOI: 10.1017/ehs.2021.5.
- Lbova L., Kazakov V.V., Rostiazhenko T.E. 2020. Virtual Prehistory Portable Art Collection of Siberian Mal'ta-Buret' Culture: Ways of Documenting, Classification and Representation. *Annales d'Université "Valahia" Târgoviște. Section d'Archéologie et d'Histoire, Année*, no. 22, 7–18.
- Lbova L., Volkov P., Gubar J., Drozdov N. 2020a. Mammoth Ivory Paleoart Objects from the Upper Paleolithic Assemblage of Ust-Kova (Eastern Siberia): A Technological Approach. *Archaeological Research in Asia*, no. 23, 100196.
- Li Feng, Chen Fu-You, Wang YingHua, Gao Xing 2016. Technology Diffusion and Population Migration Reflected in Blade Technologies in Northern China in the Late Pleistocene. *Science China Earth Sciences*, no. 59, 1540–1553.
- Li Feng, Vanwezer N., Boivin N., Gao Xing, Ott F., Petraglia M., Roberts P. 2019. Heading North: Late Pleistocene Environments and Human Dispersals in Central and Eastern Asia. *PLoS ONE*, no. 14 (5), e0216433.
- Li Zhanyang, Doyon L., Fang Hui, Ledevin R., Queffelec A., Raguin E., D'Errico F. 2020. A Paleolithic Bird Figurine from the Lingjing Site, Henan, China. *PLoS ONE*, no. 15 (6), e0233370.
- Lipnina E.A. 2012. Mal'ta: Paleolithic Cultures and Small Form Sculptures. *Archaeometria*. Tokyo, 71–79.
- Lisitsyn S.N. 2019. The Eastern Frontier of the Gravettian in the Kostenki-Borshchevo Palaeolithic Locality, the Don Basin, Russia. *Vestnik Sankt-Peterburgskogo universiteta. Istorija*, no. 64 (2), 525–554.
- Liu Li, Chen Xingcan 2012. *The Archaeology of China: from the Late Paleolithic to the Early Bronze Age*. New York.

- Lu Lie Dan 1998. The Microblade Tradition in China: Regional Chronologies and Significance in the Transition to Neolithic. *Asian Perspectives*, no. 37 (1), 84–112.
- Lucquin A., Gibbs K., Uchiyama Junzo, Saul H., Ajimoto Mayumi, Eley Y., Radini A., Heron C.P., Shoda Shinya, Nishida Yastami, Lundy J., Jordan P., Isaksson S., Craig O.E. 2016. Ancient Lipids Document Continuity in the Use of Early Hunter-Gatherer Pottery through 9,000 Years of Japanese Prehistory. *PNAS*, no. 113 (15), 3991–3996.
- Lucquin A., Robson H.K., Eley Y., Shoda Shinya, Veltcheva D., Gibbs K., Heron C.P., Isaksson S., Nishida Yastami, Taniguchi Yasuhiro, Nakajima Shota, Kobayashi Kenichi, Jordan P., Kaner S., Craig O.E. 2018. The Impact of Environmental Change on the Use of Early Pottery by East Asian Hunter-Gatherers. *PNAS*, no. 115 (31), 7931–7936.
- MacNeish R. 1999. A Paleolithic-Neolithic Sequence from South China Jiangxi Province, PRC. *Interdisciplinary Perspectives on the Origins of the Japanese*. Kyoto, 233–255.
- Makarewicz C.A., Finlayson B. 2018. Constructing Community in the Neolithic of Southern Jordan: Quotidian Practice in Communal Architecture. *PLoS ONE*, no. 13 (6), e0193712.
- Mao Xiaowei, Zhang Hucai, Qiao Shiyu, Liu Yichen, Chang Fengqin, Xie Ping, Zhang Ming, Wang Tianyi, Li Mian, Cao Peng, Yang Ruowei, Liu Feng, Dai Qingyan, Feng Xiaotian, Ping Wanjing, Lei Chuzhao, Olsen J., Bennett E., Fu Qiaomei. 2021. The Deep Population History of Northern East Asia from the Late Pleistocene to the Holocene. *Cell*, no. 184, 3256–3266.
- Markin S.V., Kolobova K.A. 2020. The Sartan Upper Paleolithic Assemblages of the Northwestern Altai. *Archaeology, Ethnology & Anthropology of Eurasia*, no. 48 (1), 29–40.
- Matsumuro T., Shigeta T. 2010. A New Example of Dogu of Incipient Jomon in Shiga Prefecture: Aidani-kumahara Site. *Kokogaku Janaru*, 608, 29–31.
- McBrearty S., Brooks A.S. 2000. The Revolution that Wasn't: a New Interpretation of the Origin of Modern Human Behavior. *Journal of Human Evolution*, no. 39, 453–563.
- Medvedev V.E., Tsetlin Yu.B. 2013. Technological Analysis of the Earliest Ceramics from the Amur Region (13000–10000 BP). *Archaeology, Ethnology & Anthropology of Eurasia*, no. 41 (2), 94–107.
- Mesoudi A., Thornton A. 2018. What Is Cumulative Cultural Evolution? *Royal Society Collection*. DOI: 10.1098/rspb.2018.0712.
- Metal matters 2013: *Metal Matters; Innovative Technologies and Social Change in Prehistory and Antiquity*. Leidorf.
- Mizoguchi Koji 2017. Anthropomorphic Clay Figurines of the Jomon Period of Japan. *The Oxford Handbook of Prehistoric Figurines*. Oxford, 519–544.
- Moník M., Nerudová Z., Schnabl P. 2021. Investigation of Heat-Treated Artefacts from Pleistocene Sites. *Journal of Archaeological Science: Reports*, no. 37, 102920.
- Mori Yuichi., Nakamura Toshio, Hondo Hiroyuki, Kawasaki Shino, Oku Yoshiji. 2013. Radiocarbon Ages and Significance from Kayumi Ijiri, Sujikai and Uchi-gaito Sites, Mie Prefecture, Central Japan. *Summaries of Researches Using AMS at Nagoya University*, no. 25, 177–182.
- Morisaki Kazuki 2022. What Motivated Early Pottery Adoption in the Japanese Archipelago: A Critical Review. *Quaternary International*, no. 608–609, 65–74.
- Morisaki Kazuki, Izuho Masami, Sato Hiroyuki 2018. Human Adaptive Responses to Environmental Change during the Pleistocene-Holocene Transition in the Japanese Archipelago. *Lithic Technological Organization and Paleoenvironmental Change*. Springer International Publishing AG, Cham.

- Morisaki Kazuki, Kunikita Dai, Sato Hiroyuki 2018a. Holocene Climatic Fluctuation and Lithic Technological Change in Northeastern Hokkaido (Japan). *Journal of Archaeological Science: Reports*, no. 17, 1018–1024.
- Muller A., Clarkson C., Shipton C. 2017. Measuring Behavioural and Cognitive Complexity in Lithic Technology throughout Human Evolution. *Journal of Anthropological Archaeology*, no. 48, 166–180.
- Mussi M., Cinq Mars J., Bolduc P. 2000. Echoes from the Mammoth Steppe: the Case of the Balzi Rossi. *Hunters of the Golden Age*. Leiden, 105–124.
- Nakazawa Yuichi 2002. An Experimental Examination for Detecting Thermal Traits on Obsidian Artifacts. *The Effects of Fire and Heat on Obsidian*. US Department of Interior, BLM, 203–219.
- Nakazawa Yuichi, Naganuma Masaki, Tsutsumi Takashi 2022. The Emergence and Transmission of Early Pottery in the Late-Glacial Japan. *Quaternary International*, no. 608–609, 75–87.
- Nguyen Viet 2015. First Archaeological Evidence of Symbolic Activities from the Pleistocene of Vietnam. *Emergence and Diversity of Modern Human Behavior in Paleolithic Asia*. Texas, 133–139.
- Norton C., Jin J. 2009. The Evolution of Modern Human Behavior in East Asia: Current Perspectives. *Evolutionary Anthropology*, no. 18, 247–260.
- Okladnikov A.P. 1964. Paleolithic Remains in the Lena River Basin. *The Archaeology and Geomorphology of Northern Asia: Selected Works*, no. 5. Toronto, 33–79.
- Oppenheimer S. 2009. The Great Arc of Dispersal of Modern Humans: Africa to Australia. *Quaternary International*, no. 202, 2–13.
- Oswalt W.H. 1976. *An Anthropological Analysis of Food-Getting Technology*. New-York.
- Otte M. 2007. Arguments for Population Movement of Anatomically Modern Humans from Central Asia to Europe. *Rethinking the Human Revolution*. Cambridge, 359–366.
- Otte M., Derevianko A.P. 2001. The Aurignacian in Altai. *Antiquity*, no. 75, 44–49.
- Oxenham M., Buckley H.R. 2016. The Population History of Mainland and Island Southeast Asia. *The Routledge Handbook of Bioarchaeology in Southeast Asia and the Pacific Islands*. New-York.
- Oxenham M., Willis A., Nguyen Lan Cuong, Matsumura Hirofumi 2022. Hunter-Gatherer Mortuary Variability in Vietnam. *The Oxford Handbook of Early Southeast Asia*. New-York.
- Ozdoğan M. 2009. Earliest Use of Pottery in Anatoliya. *Early Farmers, Late Foragers, and Ceramic Traditions: on the Beginning of Pottery in the Near East and Europe*. Newcastle; Tyne, 22–44.
- Patania I., Jaffe Y. 2021. Collaboration, Not Competition: A Geoarchaeological Approach to the Social Context of the Earliest Pottery. *Journal of Anthropological Archaeology*, no. 62, 101297.
- Pavlova E.Yu., Pitul'ko V.V. 2020. Late Pleistocene and Early Holocene Climate Changes and Human Habitation in the Arctic Western Beringia Based on Revision of Palaeobotanical Data. *Quaternary International*, no. 549, 5–25.
- Pearson R. 2006. Jomon Hot Spot: Increasing Sedentism in South-Western Japan in the Incipient Jomon (14 000–9250 cal. BC) and the Earliest Jomon (9250–5300 cal. BC) Periods. *World Archaeology*, no. 38 (2), 239–258.
- Perreault Ch., Brantingham P.J., Kuhn S.L., Wurz S., Gao Xing 2013. Measuring the Complexity of Lithic Technology. *Current Anthropology*, no. 54 (S8), 397–406.
- Petrova N. 2019. The Development of Neolithic Pottery Technology in Eastern Jazira and the Zagros Mountains. *Documenta Praehistorica*, no. 46, 128–136.

- Pettitt P. 2010. *The Palaeolithic Origins of Human Burials*. London; New-York.
- Pitul'ko V.V. 2011. The Berelekh Quest: A Review of Forty Years of Research in the Mammoth Graveyard in Northeast Siberia. *Geoarchaeology: An International Journal*, no. 26 (1), 5–32.
- Pitul'ko V.V., Pavlova E.Yu., Nikolskiy P.A., Ivanova V.V. 2012. The Oldest Art of the Eurasian Arctic: Personal Ornaments and Symbolic Objects from Yana RHS, Arctic Siberia. *Antiquity*, no. 86, 642–659.
- Ponkratova I.Yu. 2021. Chronology and Environmental Context of the Early Prehistoric Peopling of Kamchatka, the Russian North Far East. *Quaternary Science Reviews*, no. 252, 106702.
- Potter B., Irish J., Reuther J., Gelvin-Reymiller C., Holliday V. 2011. A Terminal Pleistocene Child Cremation and Residential Structure from Eastern Beringia. *Science*, no. 331, 1058–1062.
- Potter B., Irish J., Reuther J., Gelvin-Reymiller C., McKinney H. 2014. New Insights into Eastern Beringian Mortuary Behavior: A Terminal Pleistocene Double Infant Burial at Upward Sun River. *PNAS*, no. 111 (48), 17060–17065.
- Powell J. 2005. *The First Americans Race, Evolution, and the Origin of Native Americans*. Cambridge.
- Qu Tongli, Bar-Yosef O., Wang Youping, Wu Xiaohong 2013. The Chinese Upper Paleolithic: Geography, Chronology, and Techno-Typology. *Journal of Archaeological Research*, no. 21, 1–73.
- Radivojević M., Roberts B.W. 2021. Early Balkan Metallurgy: Origins, Evolution and Society, 6200–3700 BC. *Journal of World Prehistory*, no. 34, 195–278.
- Raghavan M., Skoglund P., Graf K.E., Metspalu M., Albrechtsen A., Moltke I., Rasmussen S., Stafford Jr. T.W., Orlando L., Metspalu E., Karmin M., Tambets K., Rootsi S., Mägi R., Campos P.F., Balanovska E., Balanovsky O., Khusnutdinova E., Litvinov S., Osipova L.P., Fedorova S.A., Voevoda M.I., DeGiorgio M., Sicheritz-Ponten T., Brunak S., Demeshchenko S., Kivisild T., Villemers R., Nielsen R., Jakobsson M., Willerslev E. 2014. Upper Palaeolithic Siberian Genome Reveals Dual Ancestry of Native Americans. *Nature*, no. 505, 87–91.
- Rasmussen M., Anzick S.L., Waters M.R., Skoglund P., DeGiorgio M., Stafford Jr. T.W., Rasmussen S., Moltke I., Albrechtsen A., Doyle S.M., Poznik G.D., Gudmundsdottir V., Yadav R., Malaspina A.-S., White V S.S., Allentoft M.E., Cornejo O.E., Tambets K., Eriksson A., Heintzman P.D., Karmin M., Korneliussen T.S., Meltzer D.J., Pierre T.L., Stenderup J., Saag L., Warmuth V.M., Lopes M.C., Malhi R.S., Brunak S., Sicheritz-Ponten T., Barnes I., Collins M., Orlando L., Balloux F., Manica A., Gupta R., Metspalu M., Bustamante C.D., Jakobsson M., Nielsen R., Willerslev E. 2014. The Genome of a Late Pleistocene Human from a Clovis Burial Site in Western Montana. *Nature*, no. 506, 225–229.
- Rasmussen M., Guo Xiaosen, Wang Yong, Lohmueller K., Rasmussen S., Albrechtsen A., Skotte L., Lindgreen S., Metspalu M., Jombart T., Kivisild T., Zhai Weiwei, Eriksson A., Manica A., Orlando L., De La Vega F., Tridico S., Metspalu E., Nielsen K., Ávila-Arcos M.C., Moreno-Mayar J.V., Muller C., Dortch J., Gilbert M.T., Lund O., Wesolowska A., Karmin M., Weinert L.A., Wang Bo, Li Jun, Tai Shuaishuai, Xiao Fei, Hanihara Tsunehiko, van Driem G., Jha A.R., Ricaut F.X., de Knijff P., Migliano A.B., Romero G.I., Kristiansen K., Lambert D.M., Brunak S., Forster P., Brinkmann B., Nehlich O., Bunce M., Richards M., Gupta R., Bustamante C.D., Krogh A., Foley R.A., Lahr M.M., Balloux F., Sicheritz-Pontén T., Villemers R., Nielsen R., Wang Jun, Willerslev E. 2011. An Aboriginal Australian Genome Reveals Separate Human Dispersals into Asia. *Science*, no. 334 (6052), 94–98.

- Renfrew C. 1984. *Approach to Social Archaeology*. Cambridge; Massachusetts.
- Reynolds N. 2014. *The Mid Upper Palaeolithic of European Russia: Chronology, Culture History and Context. A Study of Five Gravettian Backed Lithic Assemblages*. Thesis Submitted for the Degree of Doctor of Philosophy in Archaeology. Oxford.
- Richardson A. 2018. Pre-pottery clay innovation in the Zagros Foothills. *Oxford Journal of Archaeology*, no. 38 (1), 1–16.
- Sanchez-Mazas A., Di D., Ricci M.E. 2011. A Genetic Focus on the Peopling History of East Asia: Critical Views. *Rice*, no. 4, 159–169.
- Sano Katsuhiko 2007. Emergence and Mobility of Microblade Industries in the Japanese islands. *Origin and Spread of Microblade Technology in Northern Asia and North America*. Burnaby, 79–90.
- Saxon E.-C. 1976. Preneolithic Pottery: New Evidence from North Africa. *Proceedings of the Prehistoric Society*, no. 42, 327–329.
- Shea J.J. 2011. Homo Sapiens Is as Homo Sapiens Was. *Current Anthropology*, no. 52 (1), 1–35.
- Shoda Shinya, Lucquin A., Yanshina O., Kuzmin Yu., Shevkomud I., Medvedev V., Derevianko E., Lapshina Z., Craig O.E., Jordan P. 2020. Late Glacial Hunter-Gatherer Pottery in the Russian Far East: Indications of Diversity in Origins and Use. *Quaternary Science Reviews*, no. 229, 106–124.
- Shunkov M., Fedorchenko A., Kozlikin M., Derevianko A. 2020. Initial Upper Palaeolithic Ornaments and Formal Bone Tools from the East Chamber of Denisova Cave in the Russian Altai. *Quaternary International*, no. 559, 47–67.
- Sikora M.A. 2017. Genomic View of the Pleistocene Population History of Asia. *Current Anthropology*, no. 58 (17), 397–405.
- Sikora M., Pitulko V.V., Sousa V.C., Allentoft M.E., Vinner L., Rasmussen S., Wilerslev E. 2019. The Population History of Northeast Siberia since the Pleistocene. *Nature*, no. 570, 182–188.
- Silva F., Steele J., Gibbs K., Jordan P. 2014. Modeling Spatial Innovation Diffusion from Radiocarbon Dates and Regression Residuals: the Case of Early Old World Pottery. *Radiocarbon*, no. 56 (2), 723–732.
- Sinityn A.A. 2012. Figurative and Decorative Art of Kostenki: Chronological and Cultural Differentiation. *L'art pléistocène dans le monde / Pleistocene art of the world / Arte Pleistoceno en el Mundo Actes du Congrès IFRAO, Tarascon-sur-Ariège, Septembre 2010 – Symposium «Art Mobilier Pléistocène», 1–12*.
- Special exhibition 2009: *Special Exhibition. Beginning of the Jomon Culture: What Took Place in 15000 Years Ago?* Sakura: National Museum of Japanese History.
- Stringer C. 2002. Modern Human Origins: Progress and Prospects. *Philosophical Transactions of the Royal Society of London*, no. 357, 563–579.
- Studies 2009: Studies of the Kamikuroiwa Site in the Ehime Prefecture, Japan. *Bulletine of the National Museum of Japanese History*, no. 154.
- Suzuki Chuji. 2000–2005. Examination Records for Stone Oven Cooking Using Stone Heaps. *Suzaku. Bulletin of the Museum of Kyoto*, no. 12–17.
- Svoboda J. 2015. Perspectives on the Upper Palaeolithic in Eurasia: the Case of the Dolní Vestonice-Pavlov Sites. *Human Origin Sites and the World Heritage Convention in Eurasia*. Paris; Mexico, 190–203.
- Tackney J., Potter B., Raff J., Powers M., Watkins W.S., Warner D., Reuther J., Irish J., O'Rourke D. 2015. Two Contemporaneous Mitogenomes from Terminal Pleistocene Burials in Eastern Beringia. *PNAS*, no. 112 (45), 13833–13838.
- Takakura Jun 2012. Emergence and Development of the Pressure Microblade Production: a View from the Upper Paleolithic of Northern Japan. *The Emergence of Pressure Blade Making*. New York.

- Taniguchi Yasuhiro 2017. The Beginning of Pottery Technology in Japan: The Dating and Function of Incipient Jomon Pottery. *The Emergence of Pottery in West Asia*. Oxford & Philadelphia, 155–165.
- Teschler-Nicola M., Fernandes D., Händel M., Einwögerer T., Simon U., Neugebauer-Maresch C., Tangl S., Heime P., Dobsak T., Retzmann A., Prohaska T., Irrgerher J., Kennett D.J., Olalde I., Reich D., Pinhasi R. 2020. Ancient DNA Reveals Monozygotic Newborn Twins from the Upper Palaeolithic. *Communications Biology*, no. 3 (1), 650.
- Teten'kin A.V., Demonterova E.I., Kaneva E.V., Henry A., Gauvrit Roux E. 2020. Ocher in Late Paleolithic Contexts at the Kovrizhka IV Site, the Baikal-Patom Highlands (Eastern Siberia, Russia). *Archaeology, Ethnology and Anthropology of Eurasia*, no. 48 (3), 33–43.
- Teten'kin A.V., Zhmur O.V., Demonterova E.I., Kaneva E.V., Salnaya N.V. 2018. Ivory Figurines and the Symbolic Context of a Paleolithic Dwelling at Kovrizhka IV on the Lower Vitim River, Eastern Siberia. *Archaeology, Ethnology & Anthropology of Eurasia*, no. 46 (4), 3–12.
- The blade arrowhead cultures 1999: *The Blade Arrowhead Cultures over Northeast Asia*. Sapporo. (Archaeological Series. Vol. 6)
- The emergence 2017: *The Emergence of Pottery in West Asia*. Oxford & Philadelphia: Oxbow Books.
- The excavation 2020: The Excavation of Zone III of the Xiaonanshan site in Raohe County, Heilongjiang Province in 2015. *Chinese Archaeology*. № 20, 87–96.
- The prehistory 1998: *The Prehistory & History of Glassmaking Technology*. Westerville Ohio.
- Tortosa A., Perez J. G., Carriyn Marco Y., Seguí Seguí J.R., Pardo J.F.J., Estruch C.M., Cebrián C.C.V. 2020. Cordage, Basketry and Containers at the Pleistocene–Holocene Boundary in Southwest Europe. Evidence from Coves de Santa Maira (Valencian region, Spain). *Vegetation History and Archaeobotany*, 29, 581–594.
- Uchiyama Junzo 2019. Why Did Northern Foragers Make Pottery? Investigating the Role of Incipient Jomon Ceramics within Wider Hunter-Gatherer Subsistence Strategies in Prehistoric Japan. *Ceramics in Circumpolar Prehistory: Technology, Lifeways and Cuisine*. Cambridge: Cambridge University Press, 17–36.
- Vallini L., Marciani G., Aneli S., Bortolini E., Benazzi S., Pievani T., Pagani L. 2022. Genetics and Material Culture Support Repeated Expansions into Paleolithic Eurasia from a Population Hub out of Africa. *Genome Biology and Evolution*, no. 14 (4), *evac045*.
- Vandiver P. 2022. Upper Paleolithic Ceramic Figurines and Similarities to Some Late Pleistocene Pigment and Pottery Materials and Technologies of Eurasia. *Quaternary International*, no. 608–609, 8–32.
- Vandiver P., Soffer O., Klima B., Svoboda J. 1989. The Origins of Ceramic Technology at Dolni Vestonice, Czechoslovakia. *Science*, no. 246, 1002–1008.
- Vandiver P., Vasil'ev S. 2002. A 16,000 Year-Old Ceramic Human-Figurine from Maina, Russia. *MRS Proceedings*, no. 712, II6.9. DOI: 10.1557/PROC-712-II6.9.
- Vanhaeren M., D'Errico F. 2006. Aurignacian Ethno-Linguistic Geography of Europe Revealed by Personal Ornaments. *Journal of Archaeological Science*, no. 33, 1105–1128.
- Vasil'ev S.G., Rybin E.P. 2009. Tolbaga: Upper Paleolithic Settlement Patterns in the Trans-Baikal Region. *Archaeology Ethnology & Anthropology of Eurasia*, no. 37/4, 13–34.
- Vasilevsky A.A. 2006. The Upper Paleolithic of Sakhalin Island. *Archaeology of the Russian Far East: Essays in Stone Age Prehistory*. (BARIS. 1540). Oxford, 75–101.

- Vishnyatsky L. 2005. How Many Core Areas? The “Upper Paleolithic Revolution” in an East Eurasian Perspective. *Journal of the Israel Prehistoric Society*, no. 35, 143–158.
- Wagner M. 2006. *Neolithikum und Frühe Bronzezeit in Nordchina vor 8000 bis 3500 Jahren* (Die Nordöstliche Tiefebene – Südteil). (Archäologie in Eurasien. Bd. 21). Mainz.
- White R., Normand C. 2015. Early and Archaic Aurignacian Personal Ornaments from Isturitz Cave: Technological and Regional Perspectives. *Paleoethnology*, no. 7, 138–164.
- Wu Rui, Deng Zequn, Zhang Zhigang, Li Jiazhi, Peng Shifan, Liu Shizhong. 2005. Scientific Research on the Pottery Unearthed from the Xianrendong Site in Wanian, Jiangxi. *Kao Gu Xue Bao*, no. 7, 542–549.
- Wu Xiaohong, Zhang Chi, Goldberg P., Cohen D., Pan Yan, Arpin T., Bar-Yosef O. 2012. Early Pottery at 20,000 Years Ago in Xianrendong Cave, China. *Science*, no. 336 (6089), 1696–1700.
- Yamashita Hideki. 1988. The Distribution of Burnt Stone Artifacts in Sites of the Pre-Ceramic Age in Japan. *Bulletin of Museum of Kyoto*, no. 1, 64–65.
- Yanshina O. 2017. The Earliest Pottery of the Eastern Part of Asia: Similarities and Differences. *Quaternary International*, no. 441, 69–80.
- Yanshina O., Kovalenko S. 2022. New Data and Insights into How Pottery Appeared along the Amur River. *Quaternary International*, no. 608–609, 154–177.
- Yanshina O.V., Lev S.Yu., Belousov P.E. 2017. “Ceramics” from the Zaraysk Upper Paleolithic Site. *Archaeology, Ethnology & Anthropology of Eurasia*, no. 45 (2), 3–15.
- Yanshina O., Sobolev A. 2018. The Earliest Pottery of Xianrendong Cave: What Do We Know about It? *Journal of Ancient Technology Laboratory*, no. 14 (3), 9–22.
- Yonekura Kaoru 2010. Experimental Study on Heat Alteration of Palaeolithic Material: Preliminary Results from Shale in the Northeastern Region of Japan. *Asian Perspectives*, no. 49 (2), 348–361.
- Yonekura Kaoru, Hasegawa Hiroyuki, Hotta Atsushi, Suzuki Tetsuya 2008. A Novel Approach to Studies of Prehistoric Exploitation of Stone Tool Materials Using Material Composition, Surface Morphology, Microstructure and Mechanical Properties. *Archaeometry*, no. 50, 727–746.
- Yuan Jiarong 2002. Rice and Pottery 10000 yrs. bp at Yuchanyan, Dao County, Hunan Province. *The Origin of Pottery and Agriculture*. New Delhi, 157–166.
- Zheltova M.N. 2015. Kostenki 4: Gravettian of the East Not Eastern Gravettian. *Quaternary International*, no. 359–360, 362–371.
- Zheltova M.N, Yanshina O.V. 2015. “Ceramics” and Pigments of Kostenki-1 Site (Russia): Research Results and Perspectives. *Forgotten Times and Spaces: New Perspectives in Paleoanthropological, Paleoethnological and Archeological Studies*. Brno, 340–347.
- Zhou ZhenYu, Guan Ying, Gao Xing, Wang Chunxue 2013. Heat Treatment and Associated Early Modern Human Behaviors in the Late Paleolithic at the Shuidonggou Site. *Chinese Science Bulletin*, no. 58, 1801–1810.
- Zhu Jian, Zhang Yi, Wang Tao, Zhao Chai Hong, Jin Chen Yu, Glascock M.D., Wang Changsui. 2014. Determining the Firing Temperature of Low-Fired Ancient Pottery: an Example from the Donghiling Site, Beijing, China. *Archaeometry*, no. 56 (4), 562–572.
- Zhushchikhovskaia I.S. 2012. The Most Ancient Ceramics. The Course of Technological Innovation. *Anthropology & Archeology of Eurasia*, no. 51 (1), 62–78.
- Abramova Z.A. 1962. *Paleoliticheskoye iskusstvo na territorii SSSR* [Paleolithic Art in the USSR]. Moscow; Leningrad.

- Abramova Z.A. 1979. *Paleolit Eniseya. Afontovskaya kul'tura* [Paleolithic of the Yenisei River. Afontovo Culture]. Novosibirsk.
- Abramova Z.A. 1979a. *Paleolit Eniseya. Kokorevskaya kul'tura* [Paleolithic of the Yenisei River. Kokorevo Culture]. Novosibirsk.
- Abramova Z.A. 1984. Pozdnyy paleolit Aziatskoy chasti SSSR [Late Paleolithic of Asian Part of USSR]. *Paleolit SSSR* [Paleolithic of USSR]. Moscow, 302–347
- Akimova E.V. 1987. Zhilishchnyy kompleks na paleoliticheskoy stoyanke Listvenka [Dwelling Structure at the Listvenka Paleolithic Site]. *Problemy antropologii i arkheologii kamennogo veka Evrazii: Materialy nauchnoy konferentsii, 9–12 dekabrya 1987 g.* [Issues of the Stone Age Anthropology and Archaeology in Eurasia: Proceeding of Scientific Conference, 9–12 December 1987]. Irkutsk, 83–85.
- Akimova E.V. 2008. Rannesartanskaya industriya melkikh plastin v finale pozdnego paleolita Srednego Eniseya: k probleme formirovaniya arkheologicheskikh refugiumov [Early Sartan Small Blade Industry in the Final Late Paleolithic of Middle Yenisei: the Problem of Archaeological Refugium Forming]. *Problemy biologicheskoy i kul'turnoy adaptatsii chelovecheskikh populyatsiy. T. 1: Arkheologiya. Adaptatsionnye strategii drevnego naseleniya Severnoy Evrazii: syr'e i priemy obrabotki* [Problems of Biological and Cultural Adaptation of Human Populations. Vol. 1: Archaeology. Adaptation Strategies of the Ancient Population of Northern Eurasia: Raw Materials and Processing Techniques]. Saint Petersburg, 37–47.
- Akimova E.V. 2021. Problemy izucheniya i interpretatsii paleolita Ust'-Kovy [The Issues of Studying and Interpretation the Ust'-Kova Paleolithic Site]. *Izvestiya laboratorii drevnikh tekhnologiy*, no. 17 (1), 9–31.
- Akimova E.V., Drozdov N.I. 2005. *Paleolit Eniseya. Listvenka* [The Paleolith of the Yenisei River. Listvenka Site]. Novosibirsk; Krasnoyarsk.
- Amirkhanov Kh.A. 2000. *Zarayskaya stoyanka* [Zaraysk site]. Moscow.
- Anikov M.V. 1999. O migratsiyakh v paleolite [On the Paleolithic Migrations]. *Stratum plus*, no. 1, 72–82.
- Astakhov S.N. 1986. *Paleolit Tuvy* [Paleolith Tuvy]. Novosibirsk.
- Astakhov S.N. 1999. *Paleolit Eniseya. Paleoliticheskie stoyanki na Afontovoy gore v g. Krasnoyarske* [The Paleolith of the Yenisei River. Afontova Gora Site, Krasnoyarsk City]. Saint Petersburg.
- Akhmetgaleeva N.V. 2008. Zoomorfnaya podveska iz bivnya mamonta so stoyanki Byki 7 [Ivory Zoomorphic Pendant from the Byki 7 Site]. *Kratkiye soobshcheniya Instituta arkheologii*, vol. 222, 18–25.
- Bader O.N. 1967. Pogrebeniya v verkhnem paleolite i mogila na stoyanke Sungir' [Upper Paleolithic Burials and the Interment at the Sungir' Site]. *Sovetskaya arkheologiya*, no. 3, 142–159.
- Berdnikova N.E., Berdnikov I.M., Vorob'eva G.A., Lipnina E.A. 2021. Sredniy i pozdnyy etapy verkhnego paleolita Baykalo-Eniseyskoy Sibiri: khronologiya i obshchaya kharakteristika [Middle and Late Stages of the Upper Paleolithic of Baikal-Yenisei Siberia: Chronology and General Characteristics]. *Vestnik Irkutskogo gosudarstvennogo universiteta. Seriya «Geoarkheologiya, etnologiya i antropologiya»*, no. 38, 59–77.
- Vasil'ev S.A. 1994. Final'nyy paleolit Sibiri i madlen Frantsii: sravnitel'nyy analiz struktury stoyanok [Final Paleolithic of Siberia and Magdalénien: Comparative Study of Camps' Structure]. *Arkheologicheskiye vesti*, no. 3, 158–165.
- Vasil'ev S.A. 1996. *Pozdnyy paleolit Verkhnego Eniseya (Po materialam mnogoslonykh stoyanok rayona Mayny)* [Late Paleolithic of the Upper Yenisei River (based on the Data from Maina Site)]. Saint Petersburg.

- Volkov P.V., Lbova L.V., Gubar Yu.S., Shvets O.L. 2018. Ust'-Kovinskiy mamont: rezul'taty mikroskopicheskogo issledovaniya [A Mammoth Figure from Ust'-Kova Site: Results of Microscopic Study]. *Vestnik Novosibirskogo gosudarstvennogo universiteta. Seriya: Istoriya, filologiya*, no. 17 (7), 57–66.
- Volkova Yu.S. 2011. *Iskusstvo malykh form Severnoy Azii v epokhu verkhnego paleolita*: dis. ... kand. ist. nauk [Mobile Art of North Asia at the Upper Paleolithic. PhD in hist. sci. diss.]. Kemerovo: KemGU.
- Gerasimov M.M. 1931. *Mal'ta: Paleoliticheskaya stoyanka* [Mal'ta: A Paleolithic Site]. Irkutsk.
- Gerasimov M.M. 1935. Raskopki paleoliticheskoy stoyanki v sele Mal'ta [Excavations of the Paleolithic Site in the Village of Mal'ta]. *Izvestiya Gosudarstvennoy akademii istorii material'noy kul'tury*, no. 118, 78–124.
- Grigorieva G.V. 2000. Ukrasheniya i ornamentirovannye bivni iz verkhnepaleoliticheskogo poseleniya Yudinovo [Ornaments and Ornamented Tusks from the Upper Palaeolithic Site at Yudinovo]. *Stratum plus*, no. 1, 326–331.
- Derevianko A.P., Volkov P.V., Lee Hong-Jong. 1998. *Selemdzhinskaya pozdnepaleoliticheskaya kul'tura* [The Seledmzha Late Upper Paleolithic culture]. Novosibirsk.
- Derevianko A.P., Slavinsky V.S., Tsybankov A.A., Lysenko D.N., Drozdov N.I., Gladyshev S.A., Rybin E.P., Stasyuk I.V., Kharevich V.M., Akimova E.V., Slepchenko S.M., Zolnikov I.D., Klementiev A.M., Galukhin L.L., Bogdanov E.S. 2017. Arkheologicheskie komplekсы pozdnego paleolita stoyanki Afontova Gora II (po materialam raskopok 2014 goda) [Palaeolithic Assemblages of Afontova Gora II (based on the Materials of 2014 Excavations)]. *Stratum plus*, no. 1, 175–201.
- Dikov N.N. 1979. *Drevnie kul'tury Severo-Vostochnoy Azii* [Early Cultures of North-east Asia]. Moscow.
- Dikov N.N. 1993. *Paleolit Kamchatki i Chukotki v svyazi s problemoy pervonachal'nogo zaseleniya Ameriki* [Paleolithic of Kamchatka and Chukotka in Light of the Problem of the Peopling of America]. Magadan.
- Dmitrukha I.V. 2011. Vazy nachal'nogo dzemona na yuge Kyusyu [Vases of Initial Jomon in Southern Kyushu]. *Drevnosti po obe storony velikogo okeana* [Antiquities on Both Sides of the Great Ocean]. Vladivostok, 78–108.
- Dyakov V.I. 2000. *Primor'ye v rannem golotsene. Mezoliticheskoye poseleniye Ustinovka-4* [Primorye in the Early Holocene: Mesolithic Settlement of Ustinovka-4]. Vladivostok.
- Zhitenev V.S. 2007. Podveski iz zubov zhivotnykh ranney i sredney epokh verkhnego paleolita Russkoy Ravniny [Pendants Made of Animal Teeth from the Sites on the Russian Plain Dating to the Early and Middle Upper Paleolithic]. *Problemy kamennogo veka (K yubileyu M.D. Gvozdover)* [Stone Age Issue: to the M.D. Gvozdover Anniversary]. Moscow, 40–61.
- Kogay S.A., Rogovskoy E.O. 2013. Ornamentirovannye predmety iz raskopok paleoliticheskogo mestonakhozhdeniya Mamony II (Irkutsk) [Ornamented Objects from the Paleolithic Site of Mamony II (Irkutsk)]. *Izvestiya Irkutskogo gosudarstvennogo universiteta. Seriya: Geoarkheologiya. Etnologiya i antropologiya*, no. 1 (2), 62–70.
- Kononenko N.A. 1996. Stoyanka Ustinovka-3 i problemy perekhoda ot paleolita k neolitu v Primor'e [The Site Ustinovka-3 and Transition from the Paleolithic to Neolithic]. *Pozdnyy paleolit – ranniy neolit Vostochnoy Azii i Severnoy Ameriki* [Late Paleolithic – Early Neolithic of East Asia and North Amerika]. Vladivostok, 117–136.
- Konstantinov A.V. 2001. *Drevnie zhilishcha Zabaikal'ya (paleolit, mezolit)* [Ancient Dwellings of Transbaikalis (The Paleolithic and Mesolithic Epochs)]. Novosibirsk.

- Konstantinov A.V. 2018. Paleoliticheskie zhilishcha poseleniy Kosaya Shivera-1, 2 (Zapadnoye Zabayka'l'e) [Paleolithic Dwellings of Kosaya Shivera-1, 2 Settlements (Western Transbaikalia)]. *Gumanitarnyy vector*, no. 13 (6), 56–68.
- Konstantinov M.V. 1994. *Kamennyy vek vostochnogo regiona Baykal'skoy Azii: K Vsemirnomu arkheologicheskomu kongressu (Zabayka'l'ye, 1996)* [Stone Age of the Eastern Part of Baikalian Asia: Toward the World Archaeological Congress (Transbaikalia, 1996)]. Ulan-Ude; Chita.
- Krivoshapkin A.I., Kolobova K.A., Kharevich V.M. 2009. Industriya stoyanki Dodekatym-2 (Uzbekistan): Novye dannye po verkhnemu paleolitu regiona [Dodekatym-2 (Uzbekistan) Industry: New Data on the Upper Paleolithic]. *Vestnik Novosibirskogo gosudarstvennogo universiteta. Seriya: Istoriya, filologiya*, no. 8 (5), 74–97.
- Krupyanko A.A., Kononenko N.A. 1990. Original'nye izdeliya iz ranneneoliticheskogo kompleksa poseleniya Rudnaya Pristan' (Primorye) [Unique Items from the Early Neolithic Site of Rudnaya Pristan' (Prymorye)]. *Paleoetnologiya Sibiri. Tezisy dokladov XXX regional'noy studencheskoy konferentsii, 29–31 marta 1990 g.* [Palaeoethnology of Siberia. Proceeding of XXX Regional Student Conference, March 29–31, 1990]. Irkutsk, 197–198.
- Lbova L.V. 2018. Pigmenty i pigmentosoderzhashchie materialy v Mal'tinskoy kollektzii [Pigments and Pigment-Containing Materials in Mal'ta Collection]. *Evraziya v kaynozoe. Stratigrafiya, paleoekologiya, kul'tury* [Eurasia in the Cenozoic. Stratigraphy, Paleoecology, Cultures], iss. 7, 134–141.
- Lbova L.V., Volkov P.V. 2021. *Drevneyshee iskusstvo Sibiri (tekhnologii, formy, simvoly)* [The Oldest Art of Siberia (Technologies, Shapes and Symbols)]. Saint Petersburg.
- Lbova L.V., Volkov P.V., Dolgorukova N.A., Barkov A.V., Larichev V.E. 2014. Predmety neutilitarnogo naznacheniya verkhnepaleoliticheskogo mestonakhozhdeniya Malaya Syya (tekhnologicheskii aspekt) [Items of the Non-utilitarian Purpose in the Collection of Upper Paleolithic Malaya Syya Site (Technological Aspect)]. *Vestnik Novosibirskogo gosudarstvennogo universiteta. Seriya: Istoriya, filologiya*, no. 13 (5), 91–100.
- Lbova, L., Kozhevnikov D.V. 2016. *Muzykal'naya deyatelnost' i fonoinstrumenty* [Musical Activity and Phonoinstruments]. Novosibirsk.
- Lbova L.V., Kulik N.A., Gubar Yu.S. 2018. Petrograficheskii i spektral'nyy analiz pigmentsoderzhashchikh materialov v sostave kollektzii Maloy Syi [Petrographic and Spectral Analysis of Pigment-Containing Materials in the Collection of Malaya Syya Site]. *Problemy arkheologii, etnografii, antropologii Sibiri i sopredel'nykh territoriy* [Problems of Archaeology, Ethnography, Anthropology of Siberia and Neighboring Territories]. Novosibirsk, 115–118.
- Lipnina E.A. 2002. *Mal'tiyskoe mestonakhozhdenie paleoliticheskikh kul'tur: sovremennoe sostoyanie izuchennosti i perspektivy issledovaniy*: dis. ... kand. ist. nauk [Mal'ta Site of the Paleolithic Cultures: Modern Study and the Perspectives. PhD in hist. sci. diss.]. Novosibirsk.
- Lisitsyn N.F. 1999. O Evropeysko-Sibirskikh kontaktakh v pozdnem paleolite [About the European-Siberian Contacts in the Late Palaeolithic]. *Stratum plus*, no. 1, 121–125.
- Lisitsyn N.F. 2000. *Pozdnyy paleolit Chulymo–Eniseyskogo mezhdurech'ya* [The Upper Paleolithic of the Ghulim-Yenisei Region]. Saint Petersburg.
- Meshcherin M.N., Razgil'deeva I.I. 2002. O nakhodkakh proizvedeniy iskusstva «malykh form» na paleoliticheskom poselenii Studenoe-2 [Finds of Art Representations of “Small Shapes” at the Paleolithic Settlement of Studenoe-2]. *Istoriia i kul'tura Vostoka Azii* [History and Culture of Eastern Asia], vol. 2. Novosibirsk, 116–120.

- Neolit 1991: *Neolit yuga Dal'nego Vostoka: Drevnee poselenie v peshchere Chertovye Vorota* [The Neolithic of the Russian Far East: The Ancient Settlement in the Devil's Gate Cave] Moscow.
- Okladnikov A.P. 1940. Buret': Novaya paleoliticheskaya stoyanka na Angare [Buret': A New Paleolithic Site on the Angara]. *Sovetskaya arkheologiya*, no. 5, 290–293.
- Okladnikov A.P., Kirillov I.I. 1980. *Yugo-Vostochnoe Zabaykal'e v epokhu kamnya i ranney bronzy* [South-East Transbaikalia in the Stone and Bronze Ages]. Novosibirsk.
- Pitul'ko V.V., Ivanova V.V. 2010. Proizvodstvo i primeneniye krasnogo mineral'nogo krasitelya na paleoliticheskoy Yanskoy stoyanke [Producing and Using of Red Mineral Pigments at the Yanskaya Paleolithic Site]. *III Severnyy arkheologicheskiy kongress. Tezisy dokladov [III Northern Archaeological Congress. Abstracts]*. Ekaterinburg; Khanty-Mansiysk, 46–47.
- Pitul'ko V.V., Nikolskiy P.A. 2014. Lichnye ukrasheniya (podveski) iz raskopok Yanskoy stoyanki: massovyye i edinichnye tipy izdeliy [Personal Adornments (Pendants) Unearthed at Yana Site: Serial and Specific Types of Artifacts]. *Kamenny vek: ot Atlantiki do Pasifiki* [Stone Age, from the Atlantic to Pacific]. Saint Petersburg, 408–418.
- Pitul'ko V.V., Pavlova E.Yu. 2014. Iskusstvo Yanskoy stoyanki: diademy i braslety iz bivnya mamonta (predvaritel'nyy analiz kollektsii) [The Art of Yana RHS: Diadems and Bracelets of Ivory (Preliminary Analysis of Collection)]. *Arkheologiya Arktiki* [Arctic Archaeology], iss. 2. Ekaterinburg, 140–161.
- Ponkratova I.Yu., Gubar Yu.S., Volkov P.V., Lbova L.V. 2020. Okrashennyye artefakty so stoyanki Ushki V (Poluostrov Kamchatka) [Painted Artifacts from Ushki V (Kamchatka Peninsula)]. *Kratkie soobshcheniya Instituta arkheologii*, no. 261, 50–67.
- Sergin V. 1987. Paleoliticheskie zhilishcha i ritual [Paleolithic Settlements and Ritual]. *Religioznye predstavleniya v pervobytnom obshchestve* [Religious Notions in Prehistory]. Moscow, 63–66.
- Sergin V. 1988. Klassifikatsiya paleoliticheskikh poseleniy s zhilishchami na territorii SSSR [Classification of Paleolithic Settlements with Dwellings Located in USSR Territory]. *Sovetskaya arkheologiya*, no. 3, 5–20.
- Sinityn A.A. 2005. Stilisticheskiy aspekt analiza. Kremnevyy inventar', ornamenti, natel'nye ukrasheniya [Stylistic Aspects of Analysis of Personal Ornaments, Art, and Flint Inventory]. *Aktual'nye voprosy Evraziyskogo paleolitovedeniya* [Topical Issues of Eurasia Paleolithic Study]. Novosibirsk, 172–178.
- Tabarev A.V. 1996. Dekorativnyye elementy v rannegolotsenovykh industriyakh Dal'nego Vostoka. Problema interpretatsii [Art Elements in the Far East Early Holocene Industries]. *Pozdnyy paleolit — ranniy neolit Vostochnoy Azii i Severnoy Ameriki* [Late Paleolithic — Early Neolithic of East Asia and North America]. Vladivostok, 213–218.
- Tabarev A.V. 2000. O naibolee rannikh svidetel'stvakh sushchestvovaniya kul'ta medvedya v Evrazii i Severnoy Amerike [The Earliest Evidence of Bear Cult in Eurasia and North America]. *Medved' v drevnikh i sovremennykh kul'turakh Sibiri* [Bear in the Ancient and Current Cultures of Siberia]. Novosibirsk, 10–14.
- Tabarev A.V. 2004. *Osvoenie chelovekom tikhookeanskikh poberezhnykh na rubezhe pleystotsena i golotsena*: dis. v vide nauchnogo doklada ... d-ra ist. nauk [Human Development of Pacific Coasts at the Pleistocene and Holocene Boundary. Doctoral Dissertation of Historical Science in the Form of Scientific Report]. Novosibirsk: IAET SO RAN.
- Tabarev A.V. 2018. Mikroplastinchatye nukleusy v final'nopeylestotsenovykh — rannegolotsenovykh kompleksakh severnoy Mongolii: Osobennosti i preem-

- stvennost' tekhnologiy [Microblade Cores in the North Mongol Final Pleistocene — Early Holocen Assemblages: Features and Continuity of Technology]. *Gumanitarnye nauki v Sibiri*, no. 25 (2), 62—65.
- Tashak V.I. 2003. Ochagi paleoliticheskogo poselenia Podzvonkovaya kak istochnik po izucheniyu dukhovnoy kul'tury drevnego naseleniya Zabaykal'ya [Hearths from the Upper Paleolithic Site of Podzvonkovaya as a Source for the Study of the Spiritual Culture of the Ancient Population of Transbaikalia]. *Arkheologiya, etnologiya i antropologiya Evrazii*, no. 3, 70—78.
- Tashak V.I. 2005. *Paleoliticheskie i mezoliticheskie pamyatniki Ust'-Kyakhta* [Paleolithic and Mesolithic Sites of Ust'-Kyakhta]. Ulan-Ude.
- Tashak V.I. 2009. Simvolizm v nachale verkhnego paleolita Zapadnogo Zabaykal'ya [Symbolic Behaviour at the Turn of the Upper Paleolithic in West Trasbaikalia]. *Zapiski Instituta istorii material'noy kul'tury RAN*, no. 4, 50—62.
- Tashak V.I. 2014. Stanovlenie rannego verkhnego paleolita Zapadnogo Zabaykal'ya (po materialam Nizhnego kompleksa stoyanki Podzvonkovaya) [Emergence of The Initial Upper Paleolithic in West Transbaikalia (base on the Data from Podzvonkovaya Site)]. *Stratum plus*, no. 1, 149—164.
- Tashak V.I., Antonova Yu.E. 2012. K voprosu o dobyche ognya i ego kul'te v paleolite Zapadnogo Zabaykal'ya [On the Question of Fire-Making and Cult of Fire in the Western Transbaikal Paleolithic]. *Vestnik Novosibirskogo gosudarstvennogo universiteta, Seriya: Istoriya, filologiya*, no. 11 (7), 56—67.
- Teten'kin A.V., Demonterova E.I., Poplevko G.N., Razgil'deeva I.I., Sal'naya N.V., Genri A. 2021. Pozdnepaleoliticheskiy kompleks kul'turnogo gorizonta 2G stoyanki Kovrizhka IV na r. Vitim (Baykalo-Patomskoe nagor'e) [Upper Palaeolithic Complex of Cultural Horizon 2G of Kovrizhka IV Site on the Vitim River (Baikal-Patom Highland)]. *Stratum plus*, no. 1, 259—300.
- Fedorchenko A.I. 2018. Paleoliticheskie kamennye ukrasheniya kul'turnogo sloya VI Ushkovskikh stoyanok: kontekst, tekhnologiya, funktsii [Paleolithic Stone Ornaments from Cultural Layer VI of Ushki Sites: Context, Technology, Functions]. *Ural'skiy istoricheskiy vestnik*, no. 2 (59), 115—123.
- Filatov E.A. 2016. *Sukhotinskiy geoarkheologicheskiy kompleks: nauchnyy putevoditel' po paleoliticheskim pamyatnikam Sukhotinskogo geoarkheologicheskogo kompleksa* [Sukhotino Geoarchaeological Complex: Handbook of Paleolithic Sites]. Chita.
- Shewkomud I.Ya., Yanshina O.V. 2012. *Nachalo neolita v Priamur'e. Poselenie Goncharka-1* [The Beginning of the Neolithic in the Amur River Region. Goncharka-1]. Saint Petersburg: MAE RAN.
- Shmidt I.V. 2019. «Diadema» paleoliticheskoy stoyanki Chernoozer'e 2 (Priirtysh'e): Problemy interpretatsii [“Diadem” of Paleolithic Site Chernoozerie 2 (Middle Irtysh Region): Problems of Interpretation]. *Izvestiya Irkutskogo gosudarstvennogo universiteta. Seriya: Geoarkheologiya. Etnologiya. Antropologiya*, no. 28, 38—51.
- Shpakova E.G. 2001. Odontologicheskie materialy perioda paleolita na territorii Sibiri [Odontological Materials of the Palaeolithic Period in Siberia]. *Arkheologiya, etnologiya i antropologiya Evrazii*, no. 4 (8), 64—76.
- Shunkov M.V., Fedorchenko A.Yu., Kozlikin M.B. 2018. Personal'nye ukrasheniya ranney stadii verkhnego paleolita iz yuzhnoy galerei Denisovoy peshchery [The Early Upper Palaeolithic Personal Ornaments from the Southern Chamber of Denisova Cave]. *Problemy arkheologii, etnografii, antropologii Sibiri i sopredel'nykh territoriy* [Problems of Archaeology, Ethnography, Anthropology of Siberia and Neighboring Territories]. Novosibirsk, 198—201.
- Shunkov M.V., Fedorchenko A.Yu., Kozlikin M.B. 2019. Kostyanye orudiya i personal'nye ukrasheniya nachala verkhnego paleolita iz yuzhnoy galerei

- Denisovoy peshchery (kolleksiya 2019 g.) [Bone Tools and Personal Adornments of the Early Upper Paleolithic from the South Chamber of Denisova Cave (Collection of 2019)]. *Problemy arkheologii, etnografii, antropologii Sibiri i sopredel'nykh territoriy* [Problems of Archaeology, Ethnography, Anthropology of Siberia and Neighboring Territories]. Novosibirsk, 306–312.
- Shunkov M.V., Fedorchenko A.Yu., Kozlikin M.B., Belousova N.E., Pavlenok G.D. 2016. Kostyanye orudiya i ukrasheniya rannego verkhnego paleolita iz Tsentral'nogo zala Denisovoy peshchery: kolleksiya 2016 g. [Bone Tools and Ornaments from the Early Upper Paleolithic Deposits in the Main Chamber of Denisova Cave: Collection of 2016]. *Problemy arkheologii, etnografii, antropologii Sibiri i sopredel'nykh territoriy* [Problems of Archaeology, Ethnography, Anthropology of Siberia and Neighboring Territories]. Novosibirsk, 221–227.
- Yanshina O.V. 2021. *Perekhod ot paleolita k neolitu v Kitae* [The Paleolithic to Neolithic Transition in China]. Saint Petersburg: MAE RAN.
- Yanshina O.V., Kositsyna S.F. 2019. K voprosu o zhilishchakh osipovskoy kul'tury [Notes to the Issue of the Osypovsky Dwellings]. *Zapiski Grodekovskogo muzeya. Drevnyaya istoriya yuga Dal'nego Vostoka* [Notes of the Grodekovsky Museum. Ancient History of Southern Far East]. Khabarovsk, 181–201.

МОГЛА ЛИ РАННЯЯ КЕРАМИКА ВОСТОЧНОЙ АЗИИ ИМЕТЬ ЗАПАДНЫЕ КОРНИ?

О.В. Яншина

Уже относительно давно установлено, что керамическая посуда появилась на востоке Евразии внезапно и без каких-либо очевидных признаков необходимого подготовительного этапа. Хотя это обстоятельство сильно контрастирует с тем, как развивались аналогичные события на западе, оно до сих пор не имеет приемлемого объяснения. Данная статья направлена на его поиск и предлагает рассматривать появление керамической посуды на востоке Азии как своего рода эпифеномен, побочный результат или следствие «верхнепалеолитической революции», породившей современного человека и его культуру. Несмотря на свою необычность, этот подход прямо вытекает из современной научной картины мира.

Во-первых, в свете теории кумулятивного характера культуры и концепций, объясняющих характер и динамику развития инновационных процессов, в том числе древних, отсутствие видимого подготовительного периода на востоке Азии представляется серьёзной исследовательской проблемой, поскольку сложные инновации, особенно такие как гончарство, не могут возникать «на пустом месте».

Во-вторых, керамические технологии возникают на западе Евразии хотя и в рамках «верхнепалеолитической революции», но всё-таки в завершающей её фазе — в культурах среднего верхнего палеолита Европы. Это позволяет рассматривать их как закономерный результат развития целого спектра материальных и социальных технологий, а также стоящего за ними анатомически современного человека. Поэтому нет

ничего невероятного в предположении, что современные люди в ходе колонизации восточной части Евразии могли принести с собой знания и умения, необходимые для последующего изобретения керамической посуды *in situ*.

В-третьих, археологические материалы недвусмысленно свидетельствуют о том, что в процессе расселения анатомически современного человека на восток на новых территориях формировались верхнепалеолитические культуры, близкие по облику к европейским или западно-евразийским, а также возникали коммуникационные сети, через которые западные и восточные сообщества древних евразийцев могли обмениваться информацией. Правда, эти данные связывают с западом Евразии пока только Центральную Азию и прилегающие территории Сибири.

В статье подробно разбираются все наблюдения, свидетельствующие в пользу предлагаемого подхода к пониманию особенностей становления гончарства на востоке Евразии. Первые два раздела посвящены проблеме подготовительного периода, приводится краткий обзор соответствующих находок и материалов, а также их анализ с учётом современных подходов к пониманию инновационного процесса, в последнем разделе суммируются данные, отражающие наличие в верхнем палеолите северной Евразии коммуникативных сетей.

Ключевые слова: Восточная Азия, происхождение гончарства, древние технологии, верхний палеолит, «современное поведение», коммуникационные сети.

ЛИТЕРАТУРА

- Bae C.J. 2017. Late Pleistocene Human Evolution in Eastern Asia: Behavioral Perspectives. *Current Anthropology*. No. 58 (S17), 514–526.
- Bar-Yosef O., Belfer-Cohen A. 2013. Following Pleistocene Road Signs of Human Dispersals Across Eurasia. *Quaternary International*. No. 285, 30–43.
- Batarshv S.V., Popov A.N. 2008. Sergeyevka-1: Neolithic Site in the Khanka Plain, and the Typology of Middle Neolithic Sites in Primorye. *Archaeology, Ethnology & Anthropology of Eurasia*. No. 35 (3), 2–13.
- Becerra-Valdivia L., Waters M., Stafford T., Anzick S., Comeskey D., Devière T., Higham T. 2018. Reassessing the Chronology of the Archaeological Site of Anzick. *PNAS*. No. 115 (27), 7000–7003.
- Beifudi 2007: *Beifudi: a Prehistoric Site in the Yi River Valley*. Beijing.
- Biton R. 2010. *The Clay Repertoire from Pre-Pottery Neolithic B Kfar HaHoresh: Not Just the Usual Bull*. M.A. Thesis Written under the Supervision of Prof. N. Goring-Morris and Y. Goren. Tel Aviv University.
- Boaretto E., Wu Xiaohong, Yuan Jiarong, Bar-Yosef O., Chu V., Pan Yan, Liu Kexin, Cohen D., Jiao Tianlong, Li Shuicheng, Gu Haibin, Goldberg P., Weiner S. 2009. Radiocarbon Dating of Charcoal and Bone Collagen Associated with Early Pottery at Yuchanyan Cave, Hunan Province, China. *PNAS*. No. 106 (24), 9595–9600.
- Bougard E. 2010. *The Use of Clay in the Upper Paleolithic of Europe: Symbolic Application of a Material*. Oxford. (BARIS. 2069).

- Boyd R., Richerson P.J. 1996. Why Culture Is Common, but Cultural Evolution Is Rare. *Proceedings of the British Academy*. No. 88, 77–93.
- Brumm A., Moore M.W. 2005. Symbolic Revolutions and the Australian Archaeological Record. *Cambridge Archaeological Journal*. No. 15 (2), 157–175.
- Budja M. 2013. Neolithic Pots and Potters in Europe: the End of ‘Demic Diffusion’ Migratory Model. *Documenta Praehistorica*. No. 40, 39–55.
- Budja M. 2016. Ceramics among Eurasian Hunter-Gatherers: 32 000 Years of Ceramic Technology Use and the Perception of Containment. *Documenta Praehistorica*. No. 43, 61–86.
- Buvit I., Izuho Masami, Terry K., Konstantinov M.V., Konstantinov A.V. 2016. Radiocarbon Dates, Microblades and Late Pleistocene Human Migrations in the Transbaikal, Russia and the Paleo-Sakhalin-Hokkaido-Kuril Peninsula. *Quaternary International*. No. 425, 100–119.
- Buvit I., Terry K., Izuho Masami, Konstantinov M.V. 2015. The Emergence of Modern Behavior in the Trans-Baikal, Russia: Timing and Technology. *Emergence and Diversity of Modern Human Behavior in Paleolithic Asia*. Texas, 490–505.
- Cârciumaru M., Nițu E.-C., Cîrstina O., Goutas N. 2016. The Engraved Stone Pendant from Poiana Cireșului-Piatra Neamț, Romania. New Contributions to the Understanding of Symbolic Behavior in Gravettian. *Archaeology, Ethnology and Anthropology of Eurasia*. No. 44 (4), 35–45.
- Cârciumaru M., Nițu E.-C., Obadă T., Cîrstina O., Covalenco S., Lupu F.I., Leu M., Nicolae A. 2019. Personal Ornaments in the Mid Upper Palaeolithic East of the Carpathians. *Paleo*. No. 30 (1), 80–97.
- Childe V.G. 1956. *Society and Knowledge: The Growth of Human Traditions*. New York.
- Clark J.E., Gosser D. 1995. Reinventing Mesoamerica’s First Pottery. *The Emergence of Pottery: Technology and Innovation in Ancient Societies*. London, 209–219.
- Cohen D., Bar-Yosef O., Wu Xiaohong, Patania I., Goldberg P. 2017. The Emergence of Pottery in China: Recent Dating of Two Early Pottery Cave Sites in South China. *Quaternary International*. No. 441B, 36–49.
- Conard N.J. 2010. Cultural Modernity: Consensus or Conundrum? *PNAS*. No. 107 (17), 7621–7622.
- Contextualising 2021: *Contextualising Ancient Technology: From Archaeological Case Studies towards a Social Theory of Ancient Innovation Processes*. Berlin.
- Craig O.E., Saul H., Lucquin A., Nishida Yastami, Taché K., Clarke L., Thompson A., Altoft D.T., Uchiyama Jumpei, Gibbs M.K., Isaksson S., Heron C.P., Jordan P. 2013. Earliest Evidence for the Use of Pottery. *Letter*. No. 496, 351–354.
- D’Errico F. 2003. The Invisible Frontier. A Multiple Species Model for the Origin of Behavioral Modernity. *Evolutionary Anthropology*. No. 12, 188–202.
- D’Errico F., Martí A.P., Wei Yi, Gao Xing, Vanhaeren M., Doyon L. 2021. Zhoukoudian Upper Cave Personal Ornaments and Ochre: Rediscovery and Reevaluation. *Journal of Human Evolution*. No. 161, 103088.
- Derevianko A.P. 2001. The Middle to Upper Paleolithic Transition in the Altai (Mongolia and Siberia). *Archaeology, Ethnology & Anthropology of Eurasia*. No. 2, 70–103.
- Derevianko A.P. 2010. Three Scenarios of the Middle to Upper Paleolithic Transition. *Archaeology Ethnology & Anthropology of Eurasia*. No. 38 (3), 2–32.
- Derevianko A.P., Shunkov M.V., Fedorchenko A.Y., Kozlikin M.B. 2018. A Palaeolithic Diadem from Denisova Cave. *Problems of Archaeology, Ethnography, Anthropology of Siberia and Neighboring Territories*. Novosibirsk, 87–90.
- Derevianko A.P., Tabarev A.V. 2006. Paleolithic of the Primorye (Maritime) Province. *Archaeology of the Russian Far East: Essays in Stone Age Prehistory*. (BARIS. 1540). Oxford, 41–55.

- Detecting 2020: *Detecting and Explaining Technological Innovation in Prehistory*. Leiden.
- Djindjian F. 2014. Invention and Innovation Processes in Prehistoric Societies. *A Sense of the Past: Studies in Current Archaeological Applications of Remote Sensing and Non-invasive Prospection Methods*. Oxford, 155–163.
- Douka K., Slon V., Jacobs Z., Ramsey C.B., Shunkov M.V., Derevianko A.P., Mafessoni F., Kozlikin M.B., Li Bo, Grün R., Comeskey D., Deviese T., Brown S., Viola B., Kinsley L., Buckley M., Meyer M., Roberts R.G., Pääbo S., Kelso J., Higham T. 2019. Age Estimates for Hominin Fossils and the Onset of the Upper Palaeolithic at Denisova Cave. *Nature*. No. 565, 640–644.
- Einwögerer T., Friesinger H., Händel M., Neugebauer-Maresch C., Simon U., Teschler-Nicola M. 2006. Upper Palaeolithic Infant Burials. Decorations on the Bodies of Newborns Indicate that They Were Probably Important in Their Community. *Nature*. No. 444, 285.
- Emergence 2015: *Emergence and Diversity of Modern Human Behavior in Paleolithic Asia*. Texas: Texas A&M University Press.
- Esin Yu.N., Magail J., Monna F., Ozheredov Yu.I. 2020. Images of Camels on a Mammoth Tusk from West Siberia. *Archaeological Research in Asia*. No. 22, 100180.
- Farbstein R. 2013. Making Art, Making Society: the Social Significance of Small-Scale Innovations and Experimentation in Palaeolithic Portable Art. *World Art*. No. 3 (1), 23–39.
- Farbstein R., Radić D., Brajković D., Miracle R.T. 2012. First Epigravettian Ceramic Figurines from Europe (Vela Spila, Croatia). *PLoS ONE*. No. 7 (7), e41437.
- Flenniken J.J. 1987. The Paleolithic Dyuktai Pressure Blade Technique of Siberia. *Arctic Anthropology*. No. 24 (2), 117–132.
- Fletcher A., Baird D., Spataro M., Fairbairn A. 2017. Early Ceramics in Anatolia: Implications for the Production and Use of the Earliest Pottery. The Evidence from Boncuklu Höyük. *Cambridge Archaeological Journal*. No. 27 (2), 351–369.
- Foley R., Mirazón Lahr M. 1997. Mode 3 Technologies and the Evolution of Modern Humans. *Cambridge Archaeological Journal*. No. 7 (1), 3–36.
- Fu Qiaomei, Meyer M., Gao Xing, Stenzel U., Burbano H., Kelso J., Pääbo S. 2013. DNA Analysis of an Early Modern Human from Tianyuan Cave, China. *PNAS*. No. 110 (6), 2223–2227.
- Fu Qiaomei, Posth C., Hajdinjak M., Petr M., Mallick S., Fernandes D., Furtwängler A., Haak W., Meyer M., Mittnik A., Nickel B., Peltzer A., Rohland N., Slon V., Talamo S., Lazaridis I., Lipson M., Mathieson I., Schiffels S., Skoglund P., Derevianko A.P., Drozdov N., Slavinsky V., Tsybankov A., Cremonesi R.G., Mallegni F., Gély B., Vacca E., González Morales M.R., Straus L.G., Neugebauer-Maresch C., Teschler-Nicola M., Constantin S., Moldovan O.T., Benazzi S., Peresani M., Coppola D., Lari M., Ricci S., Ronchitelli A., Valentin F., Thevenet C., Wehrberger K., Grigorescu D., Rougier H., Crevecoeur I., Flas D., Semal P., Mannino M.A., Cupillard C., Bocherens H., Conard N.J., Harvati K., Moiseyev V., Drucker D.G., Svoboda J., Richards M.P., Caramelli D., Pinhasi R., Kelso J., Patterson N., Krause J., Pääbo S., Reich D. 2016. The Genetic History of Ice Age Europe. *Nature*. No. 534, 200–205.
- Fujita Masaki, Yamasaki Shinji, Katagiri Chiaki, Oshiro Itsuro, Sano Katsuhiko, Kurozumi Taiji, Sugawara Hiroshi, Kunikita Dai, Matsuzaki Hiroyuki, Kano Akihiro, Okumura Tomoyo, Sone Tomomi, Fujita Hikaru, Kobayashi Satoshi, Naruse Toru, Kondo Megumi, Matsu'ura Shuji, Suwa Gen, Kaifu Yousuke 2016. Advanced Maritime Adaptation in the Western Pacific Coastal Region Extends Back to 35,000–30,000 Years Before Present. *PNAS*. No. 113 (40), 11184–11189.

- Gao Xing, Guan Ying, Chen Fu-You, Yi Mingjie, Pei Shuwen, Wang Huimin 2014. The Discovery of Late Paleolithic Boiling Stones at SDG 12, North China. *Quaternary International*. No. 347, 91–96.
- Gerassimov M.M. 1964. The Paleolithic Site Mal'ta: Excavation of 1956–1957. *The Archaeology and Geomorphology of Northern Asia: Selected works*. No. 5. Toronto, 3–32.
- Gibbs K. 2015. Pottery Invention and Innovation in East Asia and the Near East. *Cambridge Archaeological Journal*. No. 25 (1), 339–351.
- Gibbs K. 2022. The Emergence of Ceramics in Southwest Asia: Early Pottery in Farming Communities. *Quaternary International*, September 2020. DOI: 10.1016/j.quaint.2020.09.040.
- Gibbs K., Jourdan P. 2013. Bridging the Boreal Forest: Siberian Archaeology and the Emergence of Pottery among Prehistoric Hunter-Gatherers of Northern Eurasia. *Sibirica*. No. 12 (1), 1–38.
- Godin B. 2014. Invention, Diffusion and Linear Models of Innovation: the Contribution of Anthropology to a Conceptual Framework. *Journal of Innovation Economics & Management*. No. 3, 11–37.
- Gómez Coutouly Y.A. 2018. The Emergence of Pressure Knapping Microblade Technology in Northeast Asia. *Radiocarbon*. No. 60 (3), 821–824.
- Gorodetskaya O., Hsieh Meng-Long, Guo Li-Xin, Chiu Pak-Hei 2021. Paleolithic-Neolithic Transition and Late-to-Postglacial Climate Change in East Asia: a Review of Archaeological Data from Karst Caves in Southern China. *Quaternary International*. No. 610 (5). DOI: 10.1016/j.quaint.2021.09.005.
- Graf K.E., Buvit I. 2017. Human Dispersal from Siberia to Beringia: Assessing a Beringian Standstill in Light of the Archaeological Evidence. *Current Anthropology*. No. 58 (17), 583–603.
- Grasshoff G. 2021. Technological Innovations. *Contextualising Ancient Technology: From Archaeological Case Studies towards a Social Theory of Ancient Innovation Processes*. Berlin, 11–25.
- Gryba E.M. 2020. A Personal Perspective on Microblade and Microblade Core Variability in Northeast Asia and Northwest North America. *Archaeological Survey of Alberta (Occasional Paper)*. No. 39, 51–70.
- Gvozdover M. 1995. *Art of the Mammoth Hunters: the Finds from Avdeevo*. Oxford.
- Habgood P.J., Franklin N.R. 2008. The Revolution that Didn't Arrive: a Review of Pleistocene Sahul. *Journal of Human Evolution*. No. 55 (2), 187–222.
- Hachi S., Fröhlich F., Gendron-Badou A., de Lumley H., Roubet C., Abdessadok S. 2002. Upper Palaeolithic Cooked Clay Figurines from Afalou Bou Rhummel (Babors, Algeria). First Infrared Absorption Spectroscopic Analyses. *L'Anthropologie*. No. 106 (1), 57–97.
- Haidle M.N. 2010. Working-Memory Capacity and the Evolution of Modern Cognitive Potential: Implications from Animal and Early Human Tool Use. *Current Anthropology*. No. 51 (S1), 149–166.
- Hamilton M.J., Buchanan B. 2010. Archaeological Support for the Three-Stage Expansion of Modern Humans across Northeastern Eurasia and into the Americas. *PNAS*. No. 5 (8), e12472.
- Haynes G. 2002. *The Early Settlement of North America: The Clovis Era*. Cambridge University Press.
- Helwing B. 2013. Early Metallurgy in Iran — an Innovative Region as Seen from the Inside. *Metal Matters; Innovative Technologies and Social Change in Prehistory and Antiquity*. Leidorf, 105–137.
- Henshilwood C.S., Marean C.W. 2003. The Origin of Modern Human Behavior: Critique of the Models and Their Test Implications. *Current Anthropology*. No. 44 (5), 627–651.

- Hiscock P. 2013. Early Old World Migrations of Homo Sapiens: Archaeology. *The Encyclopedia of Global Human Migration*. Blackwell, 5–11.
- Hodgson D. 2017. Costly Signalling, the Arts, Archaeology and Human Behavior. *World Archaeology*. No. 49 (4), 1–35.
- Hoffecker J.F. 2005. Innovation and Technological Knowledge in the Upper Paleolithic of Northern Eurasia. *Evolutionary Anthropology*. No. 14, 186–198.
- Hoffecker J.F. 2012. The Evolutionary Ecology of Creativity. *Origins of Human Innovation and Creativity*. (Developments in Quaternary Science, 16). New Amsterdam, 89–102.
- Hoffecker J.F., Elias S.A., O'Rourke D.H., Scott G.R., Bigelow N.H. 2016. Beringia and the Global Dispersal of Modern Humans. *Evolutionary Anthropology: Issues, News, and Reviews*. No. 25 (2), 64–78.
- Hommel P. 2009. Hunter-Gatherer Pottery: an Emerging 14C Chronology. *Ceramics before Farming: The Dispersal of Pottery among Prehistoric Eurasian Hunter-Gatherers*. Walnut Creek, 561–569.
- Hommel P. 2019. What's The Point? Ceramic Globalization in the Early Holocene? *Globalization and the People Without History*. Cambridge, 15–41.
- Iakovleva L. 2015. The Architecture of Mammoth Bone Circular Dwellings of the Upper Palaeolithic Settlements in Central and Eastern Europe and Their Socio-Symbolic Meanings. *Quaternary International*. No. 359–360, 324–334.
- Iizuka Fumie 2018. The Timing and Behavioral Context of the Late-Pleistocene Adoption of Ceramics in Greater East and Northeast Asia and the First People (without Pottery) in the Americas. *PaleoAmerica*. No. 4 (4), 267–324.
- Ineshin E.M., Teten'kin A.V. 2017. *Humans and the Environment in Northern Baikal Siberia during the Late Pleistocene*. Newcastle upon Tyne.
- Jeunesse C. 2021. From Invention to Innovation: Technical Systems in Late Prehistory. *Contextualising Ancient Technology: From Archaeological Case Studies towards a Social Theory of Ancient Innovation Processes*. Berlin: Humboldt University of Berlin, 57–87.
- Jordan P., Cummings V. 2014. Prehistoric Hunter-Gatherer Innovations. *The Oxford Handbook of the Archaeology and Anthropology of Hunter-Gatherers*. Oxford, 585–606.
- Jordan P., Gibbs K., Hommel P., Piezonka H., Silva F., Steele J. 2016. Modelling the Diffusion of Pottery Technologies across Afro-Eurasia: Emerging Insights and Future Research. *Antiquity*. No. 90 (351), 590–603.
- Kajiwarra Hiroshi 2008. Microlithization in Eurasia: A Brief Review on the Microblade Reduction Technology and Its Significance as a Behavioral Threshold of the Modern Humans. *Bulletin of Tohoku Fukushi University*. No. 32, 207–234.
- Karkanas P., Koumouzelis M., Kozłowski J.K., Sitlivy V., Sobczyk K., Berna F., Weiner S. 2004. The Earliest Evidence for Clay Hearths: Aurignacian Features in Klisoura Cave 1, Southern Greece. *Antiquity*. No. 78 (300), 513–525.
- Kato Shinji 2022. Upper Paleolithic Human Dispersals and Cultural Diffusions in Eastern Eurasia. *Acta Anthropologica Sinica*. No. 41(e). DOI: 10.16359/j.1000-3193/AAS.2022.0012.
- Keates S.G., Postnov A.V., Kuzmin Y.V. 2019. Towards the Origin of Microblade Technology in Northeastern Asia. *Вестник Санкт-Петербургского университета. История*. No. 64 (2), 390–414.
- Killick D. 2015. Invention and Innovation in African Iron-Smelting Technologies. *Cambridge Archaeological Journal*. No. 25 (1), 307–319.
- Klein R. 2008. Out of Africa and the Evolution of Human Behavior. *Evolutionary Anthropology*. No. 17, 267–281.

- Klimscha F. 2017. Transforming Technical Know-How in Time and Space. Using the Digital Atlas of Innovations to Understand the Innovation Process of Animal Traction and the Wheel. *eTopoi. Journal for Ancient Studies*. No. 6, 16–63.
- Knappett C., Van Der Leeuw S. 2014. A Developmental Approach to Ancient Innovation. The Potter's Wheel in the Bronze Age East Mediterranean. *Pragmatics & Cognition*. No. 22 (1), 64–92.
- Kobayashi Tatsuo 2001. The Duality of Jomon Group Structure. *Bulletin of the Indo-Pacific Prehistory Association*. No. 5, 22–29.
- Kononenko A.V., Kononenko N.A., Kajiwara Hiroshi 1998. Implications of Heat Treatment Experiments on Lithic Materials from the Zerkalnaya River Basin in the Russian Far East. *Proceedings of the Society for California Archaeology*. No. 11, 64–79.
- Kroeber A.L. 1940. Stimulus Diffusion. *American Anthropologist*. No. 42 (1), 1–20.
- Kuwahata Mitsuhiro, Kuriyama Yoko. 2012. *Ojiyama Ruins*. Miyakonojo: Miyakonojo City-Miyazaki Prefecture.
- Kuzmin Ya. 2013. Origin of Old World Pottery as Viewed from the Early 2010s: When, Where and Why. *World Archaeology*. No. 45 (4), 539–556.
- Kuznetsov A.M. 1996. Late Paleolithic Sites of the Russian Maritime Province. *American Beginnings. The Prehistory and Palaeoecology of Beringia*. Chicago; London, 367–382.
- Langley M.C., Clarkson C., Ulm S. 2019. Symbolic Expression in Pleistocene Sahul, Sunda, and Wallacea. *Quaternary Science Reviews*. No. 221, 105883.
- Larrive-Bass S. 2015. *Embodied Materials: The Emergence of Figural Imagery in Pre-historic China*. Unpublished PhD Thesis. Columbia University.
- Láznicková-Galetová M. 2021. Gravettian Ivory Ornaments in Central Europe, Moravia (Czech Republic). *L'anthropologie*. No. 125, 102870.
- Lbova L.V. 2010. Evidence of Modern Human Behavior in the Baikal Zone during the Early Upper Paleolithic Period. *Bulletin of the Indo-Pacific Prehistory Association*. No. 30, 9–13.
- Lbova L.V. 2021. The Siberian Paleolithic Site of Mal'ta: A Unique Source for the Study of Childhood Archaeology. *Evolutionary Human Sciences*. No. 3, E9. DOI: 10.1017/ehs.2021.5.
- Lbova L., Kazakov V.V., Rostiazhenko T.E. 2020. Virtual Prehistory Portable Art Collection of Siberian Mal'ta-Buret' Culture: Ways of Documenting, Classification and Representation. *Annales d'Université "Valahia" Târgoviște. Section d'Archéologie et d'Histoire, Année*. No. 22, 7–18.
- Lbova L., Volkov P., Gubar J., Drozdov N. 2020a. Mammoth Ivory Paleoart Objects from the Upper Paleolithic Assemblage of Ust-Kova (Eastern Siberia): A Technological Approach. *Archaeological Research in Asia*. No. 23, 100196.
- Li Feng, Chen Fu-You, Wang YingHua, Gao Xing 2016. Technology Diffusion and Population Migration Reflected in Blade Technologies in Northern China in the Late Pleistocene. *Science China Earth Sciences*. No. 59, 1540–1553.
- Li Feng, Vanwezer N., Boivin N., Gao Xing, Ott F., Petraglia M., Roberts P. 2019. Heading North: Late Pleistocene Environments and Human Dispersals in Central and Eastern Asia. *PLoS ONE*. No. 14 (5), e0216433.
- Li Zhanyang, Doyon L., Fang Hui, Ledevin R., Queffelec A., Raguin E., D'Errico F. 2020. A Paleolithic Bird Figurine from the Lingjing Site, Henan, China. *PLoS ONE*. No. 15 (6), e0233370.
- Lipnina E.A. 2012. Mal'ta: Paleolithic Cultures and Small Form Sculptures. *Archaeometria*. Tokyo, 71–79.

- Lisitsyn S.N. 2019. The Eastern Frontier of the Gravettian in the Kostenki-Borshchevo Palaeolithic Locality, the Don Basin, Russia. *Вестник Санкт-Петербургского университета. История*. No. 64 (2), 525–554.
- Liu Li, Chen Xingcan 2012. *The Archaeology of China: from the Late Paleolithic to the Early Bronze Age*. New York.
- Lu Lie Dan 1998. The Microblade Tradition in China: Regional Chronologies and Significance in the Transition to Neolithic. *Asian Perspectives*. No. 37 (1), 84–112.
- Lucquin A., Gibbs K., Uchiyama Junzo, Saul H., Ajimoto Mayumi, Eley Y., Radini A., Heron C.P., Shoda Shinya, Nishida Yastami, Lundy J., Jordan P., Isaksson S., Craig O.E. 2016. Ancient Lipids Document Continuity in the Use of Early Hunter-Gatherer Pottery through 9,000 Years of Japanese Prehistory. *PNAS*. No. 113 (15), 3991–3996.
- Lucquin A., Robson H.K., Eley Y., Shoda Shinya, Veltcheva D., Gibbs K., Heron C.P., Isaksson S., Nishida Yastami, Taniguchi Yasuhiro, Nakajima Shota, Kobayashi Kenichi, Jordan P., Kaner S., Craig O.E. 2018. The Impact of Environmental Change on the Use of Early Pottery by East Asian Hunter-Gatherers. *PNAS*. No. 115 (31), 7931–7936.
- MacNeish R. 1999. A Paleolithic-Neolithic Sequence from South China Jiangxi Province, PRC. *Interdisciplinary Perspectives on the Origins of the Japanese*. Kyoto, 233–255.
- Makarewicz C.A., Finlayson B. 2018. Constructing Community in the Neolithic of Southern Jordan: Quotidian Practice in Communal Architecture. *PLoS ONE*. No. 13 (6), e0193712.
- Mao Xiaowei, Zhang Hucui, Qiao Shiyu, Liu Yichen, Chang Fengqin, Xie Ping, Zhang Ming, Wang Tianyi, Li Mian, Cao Peng, Yang Ruowei, Liu Feng, Dai Qingyan, Feng Xiaotian, Ping Wanjing, Lei Chuzhao, Olsen J., Bennett E., Fu Qiaomei. 2021. The Deep Population History of Northern East Asia from the Late Pleistocene to the Holocene. *Cell*. No. 184, 3256–3266.
- Markin S.V., Kolobova K.A. 2020. The Sartan Upper Paleolithic Assemblages of the Northwestern Altai. *Archaeology, Ethnology & Anthropology of Eurasia*. No. 48 (1), 29–40.
- Matsumuro T., Shigeta T. 2010. A New Example of Dogu of Incipient Jomon in Shiga Prefecture: Aidani-kumahara Site. *Kokogaku Janaru*. No. 608, 29–31.
- McBrearty S., Brooks A.S. 2000. The Revolution that Wasn't: a New Interpretation of the Origin of Modern Human Behavior. *Journal of Human Evolution*. No. 39, 453–563.
- Medvedev V.E., Tsetlin Yu.B. 2013. Technological Analysis of the Earliest Ceramics from the Amur Region (13000–10000 BP). *Archaeology, Ethnology & Anthropology of Eurasia*. No. 41 (2), 94–107.
- Mesoudi A., Thornton A. 2018. What Is Cumulative Cultural Evolution? *Royal Society Collection*. DOI: 10.1098/rspb.2018.0712.
- Metal matters 2013: *Metal Matters; Innovative Technologies and Social Change in Prehistory and Antiquity*. Leidorf.
- Mizoguchi Koji 2017. Anthropomorphic Clay Figurines of the Jomon Period of Japan. *The Oxford Handbook of Prehistoric Figurines*. Oxford, 519–544.
- Moník M., Nerudová Z., Schnabl P. 2021. Investigation of Heat-Treated Artefacts from Pleistocene Sites. *Journal of Archaeological Science: Reports*. No. 37, 102920.
- Mori Yuichi., Nakamura Toshio, Hondo Hiroyuki, Kawasaki Shino, Oku Yoshiji. 2013. Radiocarbon Ages and Significance from Kayumi Ijiri, Sujikai and Uchi-gaito Sites, Mie Prefecture, Central Japan. *Summaries of Researches Using AMS at Nagoya University*. No. 25, 177–182.

- Morisaki Kazuki 2022. What Motivated Early Pottery Adoption in the Japanese Archipelago: A Critical Review. *Quaternary International*. No. 608–609, 65–74.
- Morisaki Kazuki, Izuho Masami, Sato Hiroyuki 2018. Human Adaptive Responses to Environmental Change during the Pleistocene-Holocene Transition in the Japanese Archipelago. *Lithic Technological Organization and Paleoenvironmental Change*. Springer International Publishing AG, Cham.
- Morisaki Kazuki, Kunikita Dai, Sato Hiroyuki 2018a. Holocene Climatic Fluctuation and Lithic Technological Change in Northeastern Hokkaido (Japan). *Journal of Archaeological Science: Reports*. No. 17, 1018–1024.
- Muller A., Clarkson C., Shipton C. 2017. Measuring Behavioural and Cognitive Complexity in Lithic Technology throughout Human Evolution. *Journal of Anthropological Archaeology*. No. 48, 166–180.
- Mussi M., Cinq Mars J., Bolduc P. 2000. Echoes from the Mammoth Steppe: the Case of the Balzi Rossi. *Hunters of the Golden Age*. Leiden, 105–124.
- Nakazawa Yuichi 2002. An Experimental Examination for Detecting Thermal Traits on Obsidian Artifacts. *The Effects of Fire and Heat on Obsidian*. US Department of Interior, BLM, 203–219.
- Nakazawa Yuichi, Naganuma Masaki, Tsutsumi Takashi 2022. The Emergence and Transmission of Early Pottery in the Late-Glacial Japan. *Quaternary International*. No. 608–609, 75–87.
- Nguyen Viet 2015. First Archaeological Evidence of Symbolic Activities from the Pleistocene of Vietnam. *Emergence and Diversity of Modern Human Behavior in Paleolithic Asia*. Texas, 133–139.
- Norton C., Jin J. 2009. The Evolution of Modern Human Behavior in East Asia: Current Perspectives. *Evolutionary Anthropology*. No. 18, 247–260.
- Okladnikov A.P. 1964. Paleolithic Remains in the Lena River Basin. *The Archaeology and Geomorphology of Northern Asia: Selected Works*. No. 5. Toronto, 33–79.
- Oppenheimer S. 2009. The Great Arc of Dispersal of Modern Humans: Africa to Australia. *Quaternary International*. No. 202, 2–13.
- Oswalt W.H. 1976. *An Anthropological Analysis of Food-Getting Technology*. New-York.
- Otte M. 2007. Arguments for Population Movement of Anatomically Modern Humans from Central Asia to Europe. *Rethinking the Human Revolution*. Cambridge, 359–366.
- Otte M., Derevianko A.P. 2001. The Aurignacian in Altai. *Antiquity*. No. 75, 44–49.
- Oxenham M., Buckley H.R. 2016. The Population History of Mainland and Island Southeast Asia. *The Routledge Handbook of Bioarchaeology in Southeast Asia and the Pacific Islands*. New-York.
- Oxenham M., Willis A., Nguyen Lan Cuong, Matsumura Hirofumi 2022. Hunter-Gatherer Mortuary Variability in Vietnam. *The Oxford Handbook of Early Southeast Asia*. New-York.
- Ozdoğan M. 2009. Earliest use of pottery in Anatoliya. *Early farmers, late foragers, and ceramic traditions: on the beginning of pottery in the Near East and Europe*. Newcastle; Tyne, 22–44.
- Patania I., Jaffe Y. 2021. Collaboration, Not Competition: A Geoarchaeological Approach to the Social Context of the Earliest Pottery. *Journal of Anthropological Archaeology*. No. 62, 101297.
- Pavlova E.Yu., Pitul'ko V.V. 2020. Late Pleistocene and Early Holocene Climate Changes and Human Habitation in the Arctic Western Beringia Based on Revision of Palaeobotanical Data. *Quaternary International*. No. 549, 5–25.
- Pearson R. 2006. Jomon Hot Spot: Increasing Sedentism in South-Western Japan in the Incipient Jomon (14 000–9250 cal. BC) and the Earliest Jomon (9250–5300 cal. BC) Periods. *World Archaeology*. No. 38 (2), 239–258.

- Perreault Ch., Brantingham P.J., Kuhn S.L., Wurz S., Gao Xing 2013. Measuring the Complexity of Lithic Technology. *Current Anthropology*. No. 54 (S8), 397–406.
- Petrova N. 2019. The Development of Neolithic Pottery Technology in Eastern Jazira and the Zagros Mountains. *Documenta Praehistorica*. No. 46, 128–136.
- Pettitt P. 2010. *The Palaeolithic Origins of Human Burials*. London; New-York.
- Pitul'ko V.V. 2011. The Berelekh Quest: A Review of Forty Years of Research in the Mammoth Graveyard in Northeast Siberia. *Geoarchaeology: An International Journal*. No. 26 (1), 5–32.
- Pitul'ko V.V., Pavlova E.Yu., Nikolskiy P.A., Ivanova V.V. 2012. The Oldest Art of the Eurasian Arctic: Personal Ornaments and Symbolic Objects from Yana RHS, Arctic Siberia. *Antiquity*. No. 86, 642–659.
- Ponkratova I.Yu. 2021. Chronology and Environmental Context of the Early Prehistoric Peopling of Kamchatka, the Russian North Far East. *Quaternary Science Reviews*. No. 252, 106702.
- Potter B., Irish J., Reuther J., Gelvin-Reymiller C., Holliday V. 2011. A Terminal Pleistocene Child Cremation and Residential Structure from Eastern Beringia. *Science*. No. 331, 1058–1062.
- Potter B., Irish J., Reuther J., Gelvin-Reymiller C., McKinney H. 2014. New Insights into Eastern Beringian Mortuary Behavior: A Terminal Pleistocene Double Infant Burial at Upward Sun River. *PNAS*. No. 111 (48), 17060–17065.
- Powell J. 2005. *The First Americans Race, Evolution, and the Origin of Native Americans*. Cambridge.
- Qu Tongli, Bar-Yosef O., Wang Youping, Wu Xiaohong 2013. The Chinese Upper Palaeolithic: Geography, Chronology, and Techno-Typology. *Journal of Archaeological Research*. No. 21, 1–73.
- Radivojević M., Roberts B.W. 2021. Early Balkan Metallurgy: Origins, Evolution and Society, 6200–3700 BC. *Journal of World Prehistory*. No. 34, 195–278.
- Raghavan M., Skoglund P., Graf K.E., Metspalu M., Albrechtsen A., Moltke I., Rasmussen S., Stafford Jr. T.W., Orlando L., Metspalu E., Karmin M., Tambets K., Rootsi S., Mägi R., Campos P.F., Balanovska E., Balanovsky O., Khusnutdinova E., Litvinov S., Osipova L.P., Fedorova S.A., Voevoda M.I., DeGiorgio M., Sicheritz-Ponten T., Brunak S., Demeshchenko S., Kivisild T., Villems R., Nielsen R., Jakobsson M., Willerslev E. 2014. Upper Palaeolithic Siberian Genome Reveals Dual Ancestry of Native Americans. *Nature*. No. 505, 87–91.
- Rasmussen M., Anzick S.L., Waters M.R., Skoglund P., DeGiorgio M., Stafford Jr. T.W., Rasmussen S., Moltke I., Albrechtsen A., Doyle S.M., Poznik G.D., Gudmundsdottir V., Yadav R., Malaspina A.-S., White V.S.S., Allentoft M.E., Cornejo O.E., Tambets K., Eriksson A., Heintzman P.D., Karmin M., Korneliusson T.S., Meltzer D.J., Pierre T.L., Stenderup J., Saag L., Warmuth V.M., Lopes M.C., Malhi R.S., Brunak S., Sicheritz-Ponten T., Barnes I., Collins M., Orlando L., Balloux F., Manica A., Gupta R., Metspalu M., Bustamante C.D., Jakobsson M., Nielsen R., Willerslev E. 2014. The Genome of a Late Pleistocene Human from a Clovis Burial Site in Western Montana. *Nature*. No. 506, 225–229.
- Rasmussen M., Guo Xiaosen, Wang Yong, Lohmueller K., Rasmussen S., Albrechtsen A., Skotte L., Lindgreen S., Metspalu M., Jombart T., Kivisild T., Zhai Weiwei, Eriksson A., Manica A., Orlando L., De La Vega F., Tridico S., Metspalu E., Nielsen K., Ávila-Arcos M.C., Moreno-Mayar J.V., Muller C., Dortch J., Gilbert M.T., Lund O., Wesolowska A., Karmin M., Weinert L.A., Wang Bo, Li Jun, Tai Shuaishuai, Xiao Fei, Hanihara Tsunehiko, van Driem G., Jha A.R., Ricaut F.X., de Knijff P., Migliano A.B., Romero G.I., Kristiansen K.,

- Lambert D.M., Brunak S., Forster P., Brinkmann B., Nehlich O., Bunce M., Richards M., Gupta R., Bustamante C.D., Krogh A., Foley R.A., Lahr M.M., Baloux F., Sicheritz-Pontén T., Villemes R., Nielsen R., Wang Jun, Willerslev E. 2011. An Aboriginal Australian Genome Reveals Separate Human Dispersals into Asia. *Science*. No. 334 (6052), 94–98.
- Renfrew C. 1984. *Approach to Social Archaeology*. Cambridge; Massachusetts.
- Reynolds N. 2014. *The Mid Upper Palaeolithic of European Russia: Chronology, Culture History and Context. A Study of Five Gravettian Backed Lithic Assemblages*. Thesis Submitted for the Degree of Doctor of Philosophy in Archaeology. Oxford.
- Richardson A. 2018. Pre-pottery Clay Innovation in the Zagros Foothills. *Oxford Journal of Archaeology*. No. 38 (1), 1–16.
- Sanchez-Mazas A., Di D., Ricci M.E. 2011. A Genetic Focus on the Peopling History of East Asia: Critical Views. *Rice*. No. 4, 159–169.
- Sano Katsuhiko 2007. Emergence and Mobility of Microblade Industries in the Japanese islands. *Origin and Spread of Microblade Technology in Northern Asia and North America*. Burnaby, 79–90.
- Saxon E.-C. 1976. Preneolithic Pottery: New Evidence from North Africa. *Proceedings of the Prehistoric Society*. No. 42, 327–329.
- Shea J.J. 2011. Homo Sapiens Is as Homo Sapiens Was. *Current Anthropology*. No. 52 (1), 1–35.
- Shoda Shinya, Lucquin A., Yanshina O., Kuzmin Yu., Shevkomud I., Medvedev V., Derevianko E., Lapshina Z., Craig O.E., Jordan P. 2020. Late Glacial Hunter-Gatherer Pottery in the Russian Far East: Indications of Diversity in Origins and Use. *Quaternary Science Reviews*. No. 229, 106–124.
- Shunkov M., Fedorchenko A., Kozlikin M., Derevianko A. 2020. Initial Upper Palaeolithic Ornaments and Formal Bone Tools from the East Chamber of Denisova Cave in the Russian Altai. *Quaternary International*. No. 559, 47–67.
- Sikora M.A. 2017. Genomic View of the Pleistocene Population History of Asia. *Current Anthropology*. No. 58 (17), 397–405.
- Sikora M., Pitulko V.V., Sousa V.C., Allentoft M.E., Vinner L., Rasmussen S., Willerslev E. 2019. The Population History of Northeast Siberia since the Pleistocene. *Nature*. No. 570, 182–188.
- Silva F., Steele J., Gibbs K., Jordan P. 2014. Modeling Spatial Innovation Diffusion from Radiocarbon Dates and Regression Residuals: the Case of Early Old World Pottery. *Radiocarbon*. No. 56 (2), 723–732.
- Sinityn A.A. 2012. Figurative and Decorative Art of Kostenki: Chronological and Cultural Differentiation. *L'art pléistocène dans le monde / Pleistocene art of the world / Arte Pleistoceno en el Mundo Actes du Congrès IFRAO, Tarascon-sur-Ariège, Septembre 2010 – Symposium “Art Mobilier Pléistocène”, 1–12*. Special exhibition 2009: *Special Exhibition. Beginning of the Jomon Culture: What Took Place in 15000 Years Ago?* Sakura: National Museum of Japanese History.
- Stringer C. 2002. Modern Human Origins: Progress and Prospects. *Philosophical Transactions of the Royal Society of London*. No. 357, 563–579.
- Studies 2009: Studies of the Kamikuroiwa Site in the Ehime Prefecture, Japan. *Bulletine of the National Museum of Japanese History*. No. 154.
- Suzuki Chuji. 2000–2005. Examination Records for Stone Oven Cooking Using Stone Heaps. *Suzaku. Bulletin of the Museum of Kyoto*. No. 12–17.
- Svoboda J. 2015. Perspectives on the Upper Palaeolithic in Eurasia: the Case of the Dolní Vestonice-Pavlov Sites. *Human Origin Sites and the World Heritage Convention in Eurasia*. Paris; Mexico, 190–203.

- Tackney J., Potter B., Raff J., Powers M., Watkins W.S., Warner D., Reuther J., Irish J., O'Rourke D. 2015. Two Contemporaneous Mitogenomes from Terminal Pleistocene Burials in Eastern Beringia. *PNAS*. No. 112 (45), 13833–13838.
- Takakura Jun 2012. Emergence and Development of the Pressure Microblade Production: A View from the Upper Paleolithic of Northern Japan. *The Emergence of Pressure Blade Making*. New York.
- Taniguchi Yasuhiro 2017. The Beginning of Pottery Technology in Japan: The Dating and Function of Incipient Jomon Pottery. *The Emergence of Pottery in West Asia*. Oxford & Philadelphia, 155–165.
- Teschler-Nicola M., Fernandes D., Händel M., Einwögerer T., Simon U., Neugebauer-Maresch C., Tangl S., Heime P., Dobsak T., Retzmann A., Prohaska T., Irrgeher J., Kennett D.J., Olalde I., Reich D., Pinhasi R. 2020. Ancient DNA Reveals Monozygotic Newborn Twins from the Upper Palaeolithic. *Communications Biology*. No. 3 (1), 650.
- Teten'kin A.V., Demonterova E.I., Kaneva E.V., Henry A., Gauvrit Roux E. 2020. Ocher in Late Paleolithic Contexts at the Kovrizhka IV Site, the Baikal-Patom Highlands (Eastern Siberia, Russia). *Archaeology, Ethnology and Anthropology of Eurasia*. No. 48 (3), 33–43.
- Teten'kin A.V., Zhmur O.V., Demonterova E.I., Kaneva E.V., Salnaya N.V. 2018. Ivory Figurines and the Symbolic Context of a Paleolithic Dwelling at Kovrizhka IV on the Lower Vitim River, Eastern Siberia. *Archaeology, Ethnology & Anthropology of Eurasia*. No. 46 (4), 3–12.
- The blade arrowhead cultures 1999: *The Blade Arrowhead Cultures over Northeast Asia*. Sapporo. (Archaeological Series. Vol. 6)
- The emergence 2017: *The Emergence of Pottery in West Asia*. Oxford & Philadelphia: Oxbow Books.
- The excavation 2020: The Excavation of Zone III of the Xiaonanshan site in Raoh County, Heilongjiang Province in 2015. *Chinese Archaeology*. No. 20, 87–96.
- The prehistory 1998: *The Prehistory & History of Glassmaking Technology*. Westerville Ohio.
- Tortosa A., Perez J. G., Carriyn Marco Y., Seguí Seguí J.R., Pardo J.F.J., Estruch C.M., Cebrián C.C.V. 2020. Cordage, basketry and containers at the Pleistocene – Holocene boundary in southwest Europe. Evidence from Coves de Santa Maira (Valencian region, Spain). *Vegetation History and Archaeobotany*. No. 29, 581–594.
- Uchiyama Junzo 2019. Why Did Northern Foragers Make Pottery? Investigating the Role of Incipient Jomon Ceramics within Wider Hunter-Gatherer Subsistence Strategies in Prehistoric Japan. *Ceramics in Circumpolar Prehistory: Technology, Lifeways and Cuisine*. Cambridge: Cambridge University Press, 17–36.
- Vallini L., Marciani G., Aneli S., Bortolini E., Benazzi S., Pievani T., Pagani L. 2022. Genetics and Material Culture Support Repeated Expansions into Paleolithic Eurasia from a Population Hub out of Africa. *Genome Biology and Evolution*. No. 14 (4), *evac045*.
- Vandiver P. 2022. Upper Paleolithic Ceramic Figurines and Similarities to Some Late Pleistocene Pigment and Pottery Materials and Technologies of Eurasia. *Quaternary International*. No. 608–609, 8–32.
- Vandiver P., Soffer O., Klima B., Svoboda J. 1989. The Origins of Ceramic Technology at Dolni Vestonice, Czechoslovakia. *Science*. No. 246, 1002–1008.
- Vandiver P., Vasil'ev S. 2002. A 16,000 Year-Old Ceramic Human-Figurine from Maina, Russia. *MRS Proceedings*. No. 712, II6.9. DOI: 10.1557/PROC-712-II6.9.
- Vanhaeren M., D'Errico F. 2006. Aurignacian Ethno-Linguistic Geography of Europe Revealed by Personal Ornaments. *Journal of Archaeological Science*. No. 33, 1105–1128.

- Vasil'ev S.G., Rybin E.P. 2009. Tolbaga: Upper Paleolithic Settlement Patterns in the Trans-Baikal Region. *Archaeology Ethnology & Anthropology of Eurasia*. No. 37/4, 13–34.
- Vasilevsky A.A. 2006. The Upper Paleolithic of Sakhalin Island. *Archaeology of the Russian Far East: Essays in Stone Age Prehistory*. (BARIS. 1540). Oxford, 75–101.
- Vishnyatsky L. 2005. How Many Core Areas? The “Upper Paleolithic Revolution” in an East Eurasian Perspective. *Journal of the Israel Prehistoric Society*. No. 35, 143–158.
- Wagner M. 2006. *Neolithikum und Fruhe Bronzezeit in Nordchina vor 8000 bis 3500 Jahren* (Die Nordostliche Tiefebene – Sudteil). (Archaeologie in Eurasien. Bd. 21). Mainz.
- White R., Normand C. 2015. Early and Archaic Aurignacian Personal Ornaments from Isturitz Cave: Technological and Regional Perspectives. *Paleoethnology*. No. 7, 138–164.
- Wu Rui, Deng Zequn, Zhang Zhigang, Li Jiazhi, Peng Shifan, Liu Shizhong. 2005. Scientific Research on the Pottery Unearthed from the Xianrendong Site in Wanian, Jiangxi. *Kao Gu Xue Bao*. No. 7, 542–549.
- Wu Xiaohong, Zhang Chi, Goldberg P., Cohen D., Pan Yan, Arpin T., Bar-Yosef O. 2012. Early Pottery at 20,000 Years Ago in Xianrendong Cave, China. *Science*. No. 336 (6089), 1696–1700.
- Yamashita Hideki. 1988. The Distribution of Burnt Stone Artifacts in Sites of the Pre-Ceramic Age in Japan. *Bulletin of Museum of Kyoto*. No. 1, 64–65.
- Yanshina O. 2017. The Earliest Pottery of the Eastern Part of Asia: Similarities and Differences. *Quaternary International*. No. 441, 69–80.
- Yanshina O., Kovalenko S. 2022. New Data and Insights into How Pottery Appeared along the Amur River. *Quaternary International*. No. 608–609, 154–177.
- Yanshina O.V., Lev S.Yu., Belousov P.E. 2017. “Ceramics” from the Zaraysk Upper Paleolithic Site. *Archaeology, Ethnology & Anthropology of Eurasia*. No. 45 (2), 3–15.
- Yanshina O., Sobolev A. 2018. The Earliest Pottery of Xianrendong Cave: What Do We Know about It? *Journal of Ancient Technology Laboratory*. No. 14 (3), 9–22.
- Yonekura Kaoru 2010. Experimental Study on Heat Alteration of Palaeolithic Material: Preliminary Results from Shale in the Northeastern Region of Japan. *Asian Perspectives*. No. 49 (2), 348–361.
- Yonekura Kaoru, Hasegawa Hiroyuki, Hotta Atsushi, Suzuki Tetsuya 2008. A Novel Approach to Studies of Prehistoric Exploitation of Stone Tool Materials Using Material Composition, Surface Morphology, Microstructure and Mechanical Properties. *Archaeometry*. No. 50, 727–746.
- Yuan Jiarong 2002. Rice and Pottery 10000 yrs. bp at Yuchanyan, Dao County, Hunan Province. *The Origin of Pottery and Agriculture*. New Delhi, 157–166.
- Zheltova M.N. 2015. Kostenki 4: Gravettian of the East Not Eastern Gravettian. *Quaternary International*. No. 359–360, 362–371.
- Zheltova M.N., Yanshina O.V. 2015. “Ceramics” and Pigments of Kostenki-1 Site (Russia): Research Results and Perspectives. *Forgotten Times and Spaces: New Perspectives in Paleoanthropological, Paleoethnological and Archeological Studies*. Brno, 340–347.
- Zhou ZhenYu, Guan Ying, Gao Xing, Wang Chunxue 2013. Heat Treatment and Associated Early Modern Human Behaviors in the Late Paleolithic at the Shuidonggou Site. *Chinese Science Bulletin*. No. 58, 1801–1810.

- Zhu Jian, Zhang Yi, Wang Tao, Zhao Chai Hong, Jin Chen Yu, Glascock M.D., Wang Changsui 2014. Determining the Firing Temperature of Low-Fired Ancient Pottery: An Example from the Donghiling Site, Beijing, China. *Archaeometry*. No. 56 (4), 562–572.
- Zhushchikhovskaia I.S. 2012. The Most Ancient Ceramics. The Course of Technological Innovation. *Anthropology & Archeology of Eurasia*. No. 51 (1), 62–78.
- Абрамова З.А. 1962. Палеолитическое искусство на территории СССР. М.; Л.
- Абрамова З.А. 1979. Палеолит Енисея. Афонтовская культура. Новосибирск.
- Абрамова З.А. 1979а. Палеолит Енисея. Кокоревская культура. Новосибирск.
- Абрамова З.А. 1984. Поздний палеолит Азиатской части СССР. *Палеолит СССР*. М., 302–347.
- Акимова Е.В. 1987. Жилищный комплекс на палеолитической стоянке Лиственка. *Проблемы антропологии и археологии каменного века Евразии: Материалы научной конференции, 9–12 декабря 1987 г.* Иркутск, 83–85.
- Акимова Е.В. 2008. Раннесартанская индустрия мелких пластин в финале позднего палеолита Среднего Енисея: к проблеме формирования археологических рефигиумов. *Проблемы биологической и культурной адаптации человеческих популяций. Т. 1. Археология. Адаптационные стратегии древнего населения Северной Евразии: сырьё и приёмы обработки.* СПб., 37–47.
- Акимова Е.В. 2021. Проблемы изучения и интерпретации палеолита Усть-Ковы. *Известия лаборатории древних технологий.* № 17 (1), 9–31.
- Акимова Е.В., Дроздов Н.И. 2005. *Палеолит Енисея. Лиственка.* Новосибирск; Красноярск.
- Амирханов Х.А. 2000. *Зарайская стоянка.* М.
- Аникович М.В. 1999. О миграциях в палеолите. *Stratum plus.* № 1, 72–82.
- Астахов С.Н. 1986. *Палеолит Тувы.* Новосибирск.
- Астахов С.Н. 1999. *Палеолит Енисея. Палеолитические стоянки на Афонтовой горе в г. Красноярске.* СПб.
- Ахметгалеева Н.В. 2008. Зооморфная подвеска из бивня мамонта со стоянки Быки-7. *Краткие сообщения Института археологии.* Вып. 222, 18–25.
- Бадер О.Н. 1967. Погребения в верхнем палеолите и могила на стоянке Сунгирь. *Советская археология.* № 3, 142–159
- Бердникова Н.Е., Бердников И.М., Воробьёва Г.А., Липнина Е.А. 2021. Средний и поздний этапы верхнего палеолита Байкало-Енисейской Сибири: хронология и общая характеристика. *Вестник Иркутского государственного университета. Серия: «Геоархеология, этнология и антропология».* № 38, 59–77.
- Васильев С.А. 1994. Финальный палеолит Сибири и мадлен Франции: Сравнительный анализ структуры стоянок. *Археологические вести.* № 3, 158–165.
- Васильев С.А. 1996. *Поздний палеолит Верхнего Енисея (по материалам многослойных стоянок района Майны).* СПб.
- Волков П.В., Лбова Л.В., Губар Ю.С., Швец О.Л. 2018. Усть-Ковинский мамонт: результаты микроскопического исследования. *Вестник Новосибирского государственного университета. Серия: История, филология.* № 17 (7), 57–66.
- Волкова Ю.С. 2011. *Искусство малых форм Северной Азии в эпоху верхнего палеолита:* дис. ... канд. ист. наук. Кемерово: КемГУ.
- Герасимов М.М. 1931. *Мальта: Палеолитическая стоянка.* Иркутск.
- Герасимов М.М. 1935. Раскопки палеолитической стоянки в селе Мальта. *Известия Государственной академии истории материальной культуры.* № 118, 78–124.
- Григорьева Г.В. 2000. Украшения и орнаментированные бивни из верхнепалеолитического поселения Юдиново. *Stratum plus.* № 1, 326–331.

- Деревянко А.П., Волков П.В., Ли Хон Джон. 1998. *Селемджинская позднепалеолитическая культура*. Новосибирск.
- Деревянко А.П., Славинский В.С., Цыбанков А.А., Лысенко Д.Н., Гладышев С.А., Рыбин Е.П., Стасюк И.В., Харевич В.М., Акимова Е.В., Слепченко С.М., Зольников И.Д., Клементьев А.М., Галухин Л.Л., Богданов Е.С. 2017. Археологические комплексы позднего палеолита стоянки Афонтова Гора II (по материалам раскопок 2014 г.). *Stratum plus*. № 1, 175–201.
- Диков Н.Н. 1979. *Древние культуры Северо-Восточной Азии*. М.
- Диков Н.Н. 1993. *Палеолит Камчатки и Чукотки в связи с проблемой первоначального заселения Америки*. Магадан.
- Дмитруха И.В. 2011. Вазы начального дзедмона на юге Кюсю. *Древности по обе стороны великого океана*. Владивосток, 78–108.
- Дьяков В.И. 2000. *Приморье в раннем голоцене. Мезолитическое поселение Устиновка-4*. Владивосток.
- Житенев В.С. 2007. Подвески из зубов животных ранней и средней эпох верхнего палеолита Русской равнины. *Проблемы каменного века. К юбилею М.Д. Гвоздовер*. М., 40–61.
- Когай С.А., Роговской Е.О. 2013. Орнаментированные предметы из раскопок палеолитического местонахождения Мамоны II (Иркутск). *Известия Иркутского государственного университета. Серия: Геоархеология. Этнология и антропология*. № 1 (2), 62–70.
- Кононенко Н.А. 1996. Стоянка Устиновка-3 и проблемы перехода от палеолита к неолиту в Приморье. *Поздний палеолит — ранний неолит Восточной Азии и Северной Америки*. Владивосток, 117–136.
- Константинов А.В. 2001. *Древние жилища Забайкалья (палеолит, мезолит)*. Новосибирск.
- Константинов А.В. 2018. Палеолитические жилища поселений Косая Шивера-1, 2 (Западное Забайкалье). *Гуманитарный вектор*. № 13 (6), 56–68.
- Константинов М.В. 1994. *Каменный век восточного региона Байкальской Азии: К Всемирному археологическому конгрессу (Забайкалье, 1996)*. Улан-Удэ; Чита.
- Кривошапкин А.И., Колобова К.А., Харевич В.М. 2009. Индустрия стоянки Додекатым-2 (Узбекистан): Новые данные по верхнему палеолиту региона. *Вестник Новосибирского государственного университета. Серия: История, филология*. № 8 (5), 74–97.
- Крупянко А.А., Кононенко Н.А. 1990. Оригинальные изделия из раннеэолитического комплекса поселения Рудная Пристань (Приморье). *Палеоэтнология Сибири: Тезисы докладов XXX региональной студенческой конференции, 29–31 марта 1990 г.* Иркутск, 197–198.
- Лбова Л.В. 2018. Пигменты и пигментосодержащие материалы в Мальтинской коллекции. *Евразия в кайнозое. Стратиграфия, палеоэкология, культуры*. Вып. 7, 134–141.
- Лбова Л.В., Волков П.В. 2021. Древнейшее искусство Сибири (технологии, формы, символы). СПб.
- Лбова Л.В., Волков П.В., Долгорукова Н.А., Барков А.В., Ларичев В.Е. 2014. Предметы неутилитарного назначения верхнепалеолитического местонахождения Малая Сыя (технологический аспект). *Вестник Новосибирского государственного университета. Серия: История, филология*. № 13 (5), 91–100.
- Лбова Л.В., Кожевникова Д.В. 2016. *Музыкальная деятельность и фоноинструменты*. Новосибирск.

- Лбова Л.В., Кулик Н.А., Губар Ю.С. 2018. Петрографический и спектральный анализ пигментсодержащих материалов в составе коллекции Малой Сзыи. *Проблемы археологии, этнографии, антропологии Сибири и сопредельных территорий*. Новосибирск, 115–118.
- Липнина Е.А. 2002. *Мальтийское местонахождение палеолитических культур: современное состояние изученности и перспективы исследования*: дис. ... канд. ист. наук. Иркутск: ИркГУ.
- Лисицын Н.Ф. 1999. О европейско-сибирских контактах в позднем палеолите. *Stratum plus*. № 1, 121–125.
- Лисицын Н.Ф. 2000. *Поздний палеолит Чулымо-Енисейского междуречья*. СПб.
- Мещерин М.Н., Разгильдеева И.И. 2002. О находках произведений искусства «малых форм» на палеолитическом поселении Студёное-2. *История и культура Востока Азии*. Т. 2. Новосибирск, 116–120.
- Неолит 1991: *Неолит юга Дальнего Востока: Древнее поселение в пещере Чертовы Ворота*. М.
- Окладников А.П. 1940. Буреть: Новая палеолитическая стоянка на Ангаре. *Советская археология*. № 5, 290–293.
- Окладников А.П., Кириллов И.И. 1980. *Юго-Восточное Забайкалье в эпоху камня и ранней бронзы*. Новосибирск.
- Питулько В.В., Иванова В.В. 2010. Производство и применение красного минерального красителя на палеолитической Янской стоянке. *III Северный археологический конгресс. Тезисы докладов*. Екатеринбург; Ханты-Мансийск, 46–47.
- Питулько В.В., Никольский П.А. 2014. Личные украшения (подвески) из раскопок Янской стоянки: Массовые и единичные типы изделий. *Каменный век: От Атлантики до Пасифики*. СПб., 408–418.
- Питулько В.В., Павлова Е.Ю. 2014. Искусство Янской стоянки: диадемы и браслеты из бивня мамонта (предварительный анализ коллекции). *Археология Арктики*. Вып. 2. Екатеринбург, 140–161.
- Понкратова И.Ю., Губар Ю.С., Волков П.В., Лбова Л.В. 2020. Окрашенные артефакты со стоянки Ушки V (полуостров Камчатка). *Краткие сообщения Института археологии*. № 261, 50–67.
- Сергин В. 1987. Палеолитические жилища и ритуал. *Религиозные представления в первобытном обществе*. М., 63–66.
- Сергин В. 1988. Классификация палеолитических поселений с жилищами на территории СССР. *Советская археология*. № 3, 5–20.
- Синицын А.А. 2005. Стилистический аспект анализа. Кремневый инвентарь, орнаменты, нательные украшения. *Актуальные вопросы Евразийского палеолитоведения*. Новосибирск, 172–178.
- Табарев А.В. 1996. Декоративные элементы в раннеголоценовых индустриях Дальнего Востока. Проблема интерпретации. *Поздний палеолит — ранний неолит Восточной Азии и Северной Америки*. Владивосток, 213–218.
- Табарев А.В. 2000. О наиболее ранних свидетельствах существования культа медведя в Евразии и Северной Америке. *Медведь в древних и современных культурах Сибири*. Новосибирск, 10–14.
- Табарев А.В. 2004. *Освоение человеком тихоокеанских побережий на рубеже плейстоцена и голоцена*: дис. в виде научного доклада ... д-ра ист. наук. Новосибирск: ИАЭТ СО РАН.
- Табарев А.В. 2018. Микропластинчатые нуклеусы в финально-плейстоценовых — раннеголоценовых комплексах северной Монголии: Особенности

- и преемственности технологии. *Гуманитарные науки в Сибири*. № 25 (2), 62–65.
- Ташак В.И. 2003. Очаги палеолитического поселения Подзвонковая как источник по изучению духовной культуры древнего населения Забайкалья. *Археология, этнология и антропология Евразии*. № 3, 70–78.
- Ташак В.И. 2005. *Палеолитические и мезолитические памятники Усть-Кяхты*. Улан-Удэ.
- Ташак В.И. 2009. Символизм в начале верхнего палеолита Западного Забайкалья. *Записки Института истории материальной культуры*. № 4, 50–62.
- Ташак В.И. 2014. Становление раннего верхнего палеолита Западного Забайкалья (по материалам Нижнего комплекса стоянки Подзвонковая). *Stratum plus*. № 1, 149–164.
- Ташак В.И., Антонова Ю.Е. 2012. К вопросу о добыче огня и его культе в палеолите Западного Забайкалья. *Вестник Новосибирского государственного университета. Серия: История, филология*. № 11 (7), 56–67.
- Тетенькин А.В., Демонтерова Е.И., Поплевко Г.Н., Разгильдеева И.И., Сальная Н.В., Генри А. 2021. Позднепалеолитический комплекс культурного горизонта 2Г стоянки Коврижка IV на р. Витим (Байкало-Патомское нагорье). *Stratum plus*. № 1, 259–300.
- Федорченко А.И. 2018. Палеолитические каменные украшения культурного слоя VI Ушковских стоянок: контекст, технология, функции. *Уральский исторический вестник*. № 2 (59), 115–123.
- Филатов Е.А. 2016. *Сухотинский геoarхеологический комплекс: Научный путеводитель по палеолитическим памятникам Сухотинского геoarхеологического комплекса*. Чита.
- Шевкомуд И.Я., Яншина О.В. 2012. *Начало неолита в Приамурье. Поселение Гончарка-1*. СПб.: МАЭ РАН.
- Шмидт И.В., 2019. «Диадема» палеолитической стоянки Черноозерье 2 (Прииртышье): Проблемы интерпретации. *Известия Иркутского государственного университета. Серия: Геoarхеология. Этнология. Антропология*. № 28, 38–51.
- Шпакова Е.Г. 2001. Одонтологические материалы периода палеолита на территории Сибири. *Археология, этнология и антропология Евразии*. № 4 (8), 64–76.
- Шуныхов М.В., Федорченко А.Ю., Козликин М.Б. 2018. Персональные украшения ранней стадии верхнего палеолита из южной галереи Денисовой пещеры. *Проблемы археологии, этнографии, антропологии Сибири и сопредельных территорий*. Новосибирск, 198–201.
- Шуныхов М.В., Федорченко А.Ю., Козликин М.Б. 2019. Костяные орудия и персональные украшения начала верхнего палеолита из южной галереи Денисовой пещеры (коллекция 2019 г.). *Проблемы археологии, этнографии, антропологии Сибири и сопредельных территорий*. Новосибирск, 306–312.
- Шуныхов М.В., Федорченко А.Ю., Козликин М.Б., Белоусова Н.Е., Павленок Г.Д. 2016. Костяные орудия и украшения раннего верхнего палеолита из Центрального зала Денисовой пещеры: коллекция 2016 г. *Проблемы археологии, этнографии, антропологии Сибири и сопредельных территорий*. Новосибирск, 221–227.
- Яншина О.В. 2021. Переход от палеолита к неолиту в Китае. СПб.: МАЭ РАН.
- Яншина О.В., Косицына С.Ф. 2019. К вопросу о жилищах осиповской культуры. *Записки Гродековского музея. Древняя история юга Дальнего Востока*. Хабаровск, 181–201.