

Vessels on the Vitim: ‘Neolithic’ Ceramics of the Upper Vitim Basin

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Introduction

The site-complex of Ust'-Karenga has been a focus of heated debate within the Russian archaeological community since the excavation of a sealed cultural layer containing pottery sherds in association with a characteristically Upper Palaeolithic stone tool assemblage in the mid 1970s. Over the last decade and a half, these on-going discussions have begun to draw attention from a global archaeological audience (Gronenborn 2008; MacKenzie 2009; Jordan and Gibbs 2013; Jordan and Zvelebil 2009; Kuzmin and Orlova 2000; van Berg and Cauwe 1998). Thus far, however, publications on this site and its materials, particularly its pottery, have remained brief or linguistically inaccessible to non-Russian scholars. Outside Russia, what information has been published has tended to be buried in papers focused primarily on dating, or nestled within generalized models for the origin and spread of pottery technology; no detailed, accurate, and up-to-date description of this material currently exists.

The aim of this chapter, therefore, is simply to address this significant gap and provide a more holistic presentation of the so-called ‘Neolithic’ pottery assemblages of the Upper Vitim Basin in specific regional context. The chapter will not only describe the ceramic material in detail, but will consider it in the wider context of the cultural assemblage as a whole. It will also combine and summarize results of recent analytical research at Ust'-Karenga, the full details of which will be published elsewhere (Hommel et al. in press a; in press b). Ultimately, it will go on to present our current interpretations of this remarkable material in the context of the site and the archaeology of the wider region. Of course, these interpretations, limited by the available data, should be understood as provisional, but, constructed upwards from the results of primary analysis, represent a key step in the study of early pottery assemblages in Eurasia. We seek to emphasise the value of this bottom-up approach over existing modes in a field which remains dominated by *a priori* assumptions about the character of societies and social transformations, which are built, without context, on the presence of pottery alone.

Geographical context

The site-complex of *Ust'-Karenga* (italicised here and henceforth to distinguish the site from the eponymous culture) is located in the Upper Vitim Basin in the Western Transbaikal region of Eastern Siberia. It consists of a series of sites and findspots within the alluvial terraces around their confluence of the Karenga and Vitim Rivers, 2km downstream from near the village from which the site takes its name. Its position at the northeastern edge of the Vitim Plateau places it within a wide landscape of domed or serrate ridges and terraced intermontane valleys bordered by the higher hills and mountains of the Yablonovij Range (to the south and east), the Ikat Range (to the West), and the Muya, Kalar, and Olekma Ranges (to the north and north-east) (Bridges 1990; Flint 1947; Thiel 1957; Kuzmin and Vetrov 2007). These mountains form the watershed for the upper course of the Vitim River, whose swift rain-fed currents cut a course through the heart of the plateau before snaking northwards to its confluence with the Lena River at the modern town of Vitim (Figure 1).

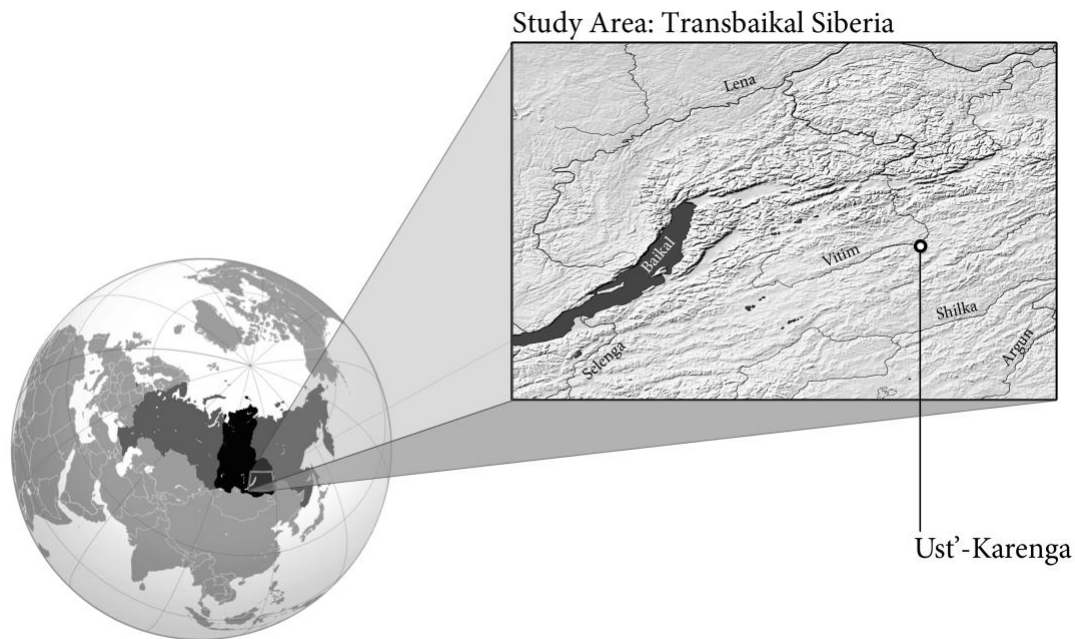


Figure 1—The site-complex of Ust'-Karenga in global and regional context

The climate of the region is best described as harsh and ultra-continental. It is characterized by long, cold winters and short warm summers, with average annual temperatures in the region falling well below zero (-5 to -12°C) (Alekseeva and Erbajeva 2000; Belyanina *et al.* 1999). Today its larch-pine taiga (boreal forest) and waterlogged meadowland provides a surprisingly rich environment for plant, animal, and insect life—both aquatic and terrestrial.

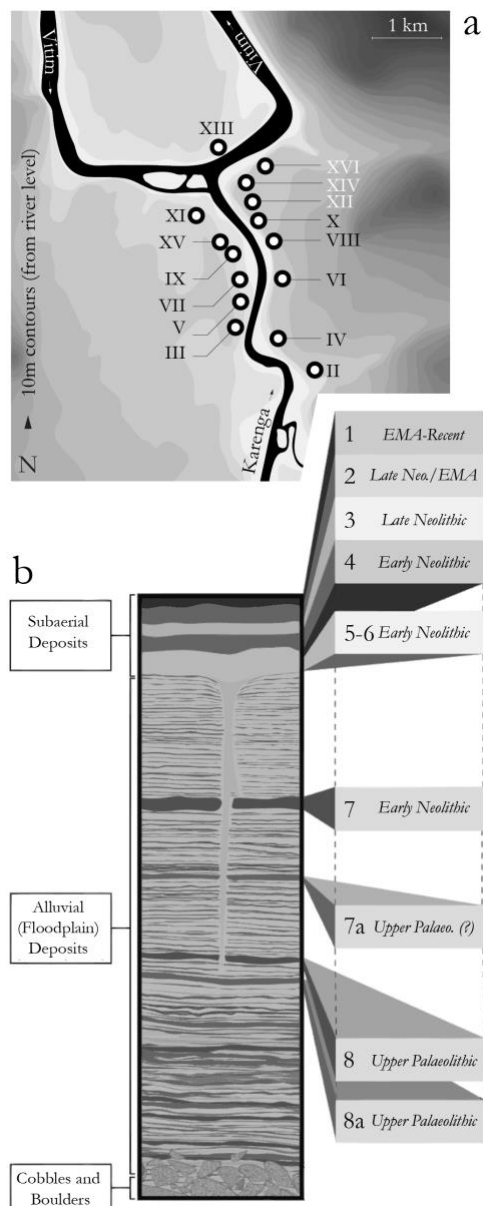
From a geological perspective, the Vitim Plateau, which lies within the Mongolian-Transbaikalian fold belt at the eastern periphery of the active Baikal Rift, is also rich and varied (Johnson *et al.* 2005). The geology of the region is overwhelmingly dominated by granites and gneisses with discontinuous outcrops of diorites and gabbro; however, various local metamorphic processes and overlying formations (both volcanic and sedimentary) give many parts of the plateau a distinctive 'micro-regional' character (Atlas Zabaikal'ya 1967; Golushkov *et al.* 1971; Kalininoj and Malykh 1958; Malyshev 1964; Pobedash and Pavlova 1972; Smelovskim *et al.* 1962).

As a result of its resources, both ecological and geological, the Vitim Plateau has long been a focus of human habitation. Today, however, the permanent human presence is minimal. Outside a few larger settlements, such as the town of Romanovka, the majority of its inhabitants live in small isolated villages or hamlets, subsisting on the results of hunting, small-scale agro-pastoralism, and the gathering of wild foods. The primary economic activity is winter fur hunting, in which the whole community is involved, with squirrel and sable being the main quarry (Brandisauskas 2006). Reindeer herding, which was once an essential part of the lives of the indigenous Orochen-Evenki population, is now becoming increasingly rare (Anderson 2006).

In addition to its permanent residents, the region has long provided a seasonal or temporary home to scores of geologists, miners, and mineral prospectors, who operate out of bases across the plateau. Many of the early archaeological discoveries in this region, including the site-complex of *Ust'-Karenga* itself—identified by the geologist V. Kh. Shamsutdinov in the late 1960s—were made as a direct result of this geo-economic prospection (Aksenov *et al.* 2000, 9).

Archaeological Research History

Since the mid 1970s, small teams of researchers from the Irkutsk State University and the Irkutsk State Pedagogical University have studied the pattern of prehistoric development in the region extensively. However, the basic subdivision of its cultural history, defined in the early surveys, has retained its essential validity and is still in use today (Aksenov *et al.* 1975; Vetrov 2000). This developmental model identifies two distinct and successive cultural assemblages in the archaeological material, which together span the period from the Upper Palaeolithic to the



beginning of the Early Metal Age (Vetrov 1992; 2000). These long-lasting ‘archaeological cultures’—united on the basis of particular groupings of categories and types of archaeological materials (Vetrov 2000, 28)—have since been identified, separately or in sequence, at more than sixty sites across the Plateau. The cultures take their names, respectively, from the most extensively studied of these sites: *Ust'-Karenga* and *Ust'-Yumurchen* (Vetrov 1992; Vetrov and Kuzmin 2005).

Both of these cultures are often described as ‘Neolithic’, both here and more widely in the literature. However, this is simply because they include ceramic vessels in their material repertoire. Traditionally, in Russian archaeology, it is pottery rather than agriculture or animal husbandry that serves as the defining characteristic of the Neolithic Age. There have been various discussions about the appropriateness of this classification over the years (e.g. Vetrov 2000), but we will not develop these further here. The important point is that all of the materials we discuss in this paper were made and used within hunter-gatherer societies.

To date, the earliest finds in the region have come from the site-complex of *Ust'-Karenga*, specifically from a small group of more or less contiguous sub-sites on the 20-25m terrace on the right-hand side of the Karenga river, where it joins the Vitim (*Ust'-Karenga* XII, XIV and XVI) (Figure 2a). The least disturbed, most deeply stratified, and most extensively excavated sub-site in this group is *Ust'-*

Figure 2—a) Map showing the location of *Ust'-Karenga* XII (Ineshin 1979; Vetrov 1992; Kuzmin and Vetrov 2007). Its stratigraphy and geomorphology is complex; b) Generalised stratigraphic section considered representative and has been used as a basis derived from *Ust'-Karenga* XII (after Vetrov 2005) for comparison with the stratigraphic situation both at other sites within the complex and in the wider Vitim region (Vetrov 1992) (Figure 2b).

Below the organic litter of the forest floor, ten distinct cultural horizons have been identified (Kuzmin and Vetrov 2007; Vetrov 1981; 1992). The lowest cultural horizons (8a, 8, 7a and 7) are set within well-sorted, thinly-stratified, rhythmically-deposited sands characteristic of floodplain alluvium across the basin. The cultural layers are typically thicker and darker in colour, containing significant amounts of charcoal and cultural material more or less *in situ* (Ineshin 1979). The rhythmically deposited alluvial sediments, which separate these layers, appear to be archaeologically sterile. The upper cultural layers (6–1) and correspond to Holocene diluvial and subaerial deposits and soils.

Layers 8a–4 are associated with the Ust'-Karenga Culture, while the subsequent layers are attributed to the Ust'-Yumurchen Culture. Material from both of these phases is found within layer 4, though this is usually attributed to root activity or other forms of disturbance. We will discuss these two phases separately and in detail below.

The Ust'-Karenga Culture; Distribution, Material Culture and Site Structure

Cultural Distribution

First described at the eponymous type-site in the late 1970s, the Ust'-Karenga culture represents the earliest identified evidence of human occupation of the Upper Vitim Basin. Since its 'discovery', diagnostic traces of the Ust'-Karenga culture have been found at 16 other site clusters across the Vitim Plateau, though excavation at these locations has, thus far, been quite limited (Vetrov 1992, 9).

Although rightly renowned for its precocious ceramic tradition, the first manifestations of the Ust'-Karenga cultural assemblage are aceramic (*Ust'-Karenga* XII Layer 8a-7a) and the culture is essentially defined by its lithic assemblage. Pottery fragments associated with the Ust'-Karenga culture have been recovered from just four sites on the plateau: *Ust'-Karenga*, *Ust'-Yumurchen*, *Chernyaka II*, and *Ust'-Oktorokon* (Vetrov 1992). Because the last two sites in this list produced only single sherds (from layers of uncertain date) and because the fragments of Ust'-Karenga vessels from *Ust'-Yumurchen* are attributed to later sub-phase, the argument for Late Pleistocene pottery in the Upper Vitim Basin has been built almost exclusively on the basis of material from the type-site itself.

A series of radiocarbon measurements from layer 7, made on both charcoal and organics from within the pottery itself, was published around the turn of the 21st century, confirming original estimates, which placed the date of the layer in the Late Pleistocene. Unsurprisingly, these remarkably early dates have been contested hotly. Recently, opposition has crystalized around a proposed offset or 'anomaly' in radiocarbon results from this period across the Transbaikal (e.g. Konstantinov 2009); however, this notion can now be rejected. A series of dates obtained by single aliquot Optically Stimulated Luminescence (OSL) has produced a sequence of broad dates, two of

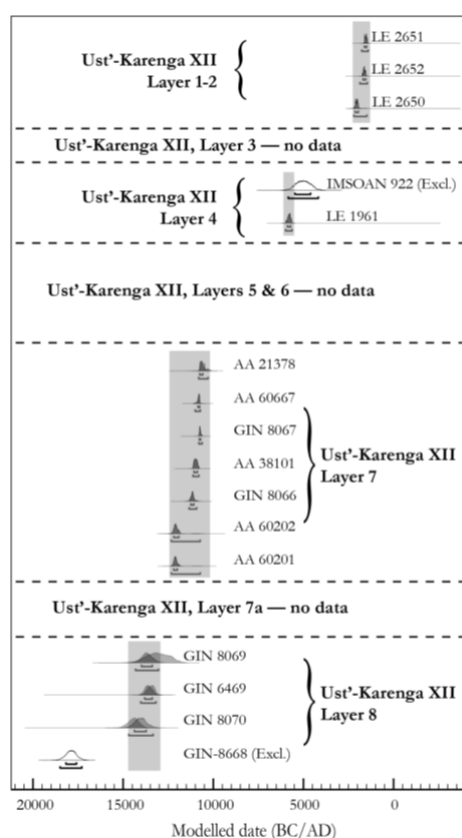


Figure 3—Summary of the modelled radiocarbon dates for the dated cultural layers at Ust'-Karenga XII.

which, taken from the earliest ceramic layer, overlap in the region of the existing radiocarbon results (Hommel et al. in press b). A further re-evaluation of the accumulated dating evidence from the site, using archaeologically-informed Bayesian modelling, allows us to confidently maintain this early date and place the early evidence of pottery use at the site firmly in the Late Pleistocene, between 12,200 and 10,500 calBC (Figure 3). Though the lower chronological boundary of the culture could not be further constrained by the stratigraphy, we can estimate that chronological span of the whole Ust'-Karenga cultural phase (Layers 8a-4) lies between c. 14,200 and 5,500 calBC.

Lithics

The lithic industry of the Ust'-Karenga culture centred on the production of microblades from wedge-shaped, prismatic, and sub-prismatic cores and appears to form part of a much broader technological group (Vetrov 1992; 1995; 2000; Vetrov and Kuzmin 2005; 2007). Characteristic core production techniques and the presence of diagnostic transversal burins of the 'Verkholsensk' or 'Araya' type are typical of Upper Palaeolithic assemblages across a wide swathe of northeastern Asia and beyond (Chard 1960; 1974; Ineshin 2006; Kuzmin et al. 2007; Moroz 2008; Seong 1998; Slobodin 2001; Vetrov 2000, 29; Vetrov and Kuzmin 2005; Vetrov et al. 2006). In addition to these microblade cores and tools, were found equally characteristic flake and blade tools, arrowheads, scrapers and knives, as well as various forms of multipurpose biface, some of which were used as preforms for the production of microblade cores (Ineshin and Teten'kin 2010; Vetrov 1992; 2000; Vetrov and Kuzmin 2005).

Lithic trace-wear studies on similar materials from contemporary sites in the Transbaikial have suggested that the majority of these tools were probably connected with the processing of skins and the butchering of carcasses. However, various specialized functions, including wood, antler, and bone working, were also identified (Ineshin and Teten'kin 2010; Moroz 2008). Although this level of scientific analysis has not yet been applied to the Ust'-Karenga material directly, the same general conclusions were reached other means (e.g. Vetrov 1995b).

The lithic industry of the Ust'-Karenga culture should be seen as the product of well-defined, stable tradition, displaying remarkable continuity in tool forms and production techniques across thousands of years. Changes can be observed in the composition of the assemblage over time, and in later phases we see the introduction of new artefact forms: so-called 'net-weights', bifacially-worked leaf-shaped blades, hatchets, sub-rhombic arrowheads, and other types of projectile point, as well as more subtle shifts in the relative frequency of core types and microblade forms (Vetrov 1992; 1995b; 2000). For the most part, however, this variation is a matter of degree rather than kind. The first significant shift in stone tool technology, however, occurs alongside other changes in material culture which define the 'emergence' of the Ust'-Yumurchen culture in the Middle Holocene.

Pottery

The Ust'-Karenga pottery tradition which appears, without discernable preamble, in cultural layer 7, is certainly the most remarkable feature of this cultural group. It has been described several times in recent years, both in English and Russian language publications. These descriptions are typically short, basic, and surprisingly variable in content, whether as a result of cumulative abbreviation, translation by non-specialists, or both. The most complete descriptions have been presented only in earlier Russian language publications and in unpublished dissertational works (Ineshin 1979; Vetrov 1992). These texts are not widely available even within Russia. The

following description summarizes the information given in these earlier sources in the light of more recent research.

The total ceramic assemblage from across the Vitim Basin that can be associated with the Ust'-Karenga culture has tended to be underestimated in previous descriptions (e.g. Kuzmin and Vetrov 2007). However, this is probably because many compositionally distinctive vessels were represented by just a few scattered sherds. From a total assemblage of around 1,750 fragments (<0.5cm²), 61 vessels were identified with confidence on the basis of macroscopic fabric description and an analysis of decorative style. A more conservative minimum number would place this figure closer to 50 vessels. The vast majority of this material was recovered at the site-complex of *Ust'-Karenga*, more than half (32-35 vessels) came from the Late Pleistocene 'Layer 7' itself.

Although heavily fragmented, eight of these early vessels were reconstructed sufficiently to allow a general formal type to be established. All the vessels within the assemblage appear to conform to this type and can be concisely described as simple, closed parabolic or truncated-ovaloid forms, with a pointed (acuminate) bases and slightly rounded, incurving rims (Vetrov 1985a). In other papers they have also been more subjectively described as 'mitre-shaped' and 'mammiformed' (e.g. MacKenzie 2009; Kuzmin and Vetrov 2007).

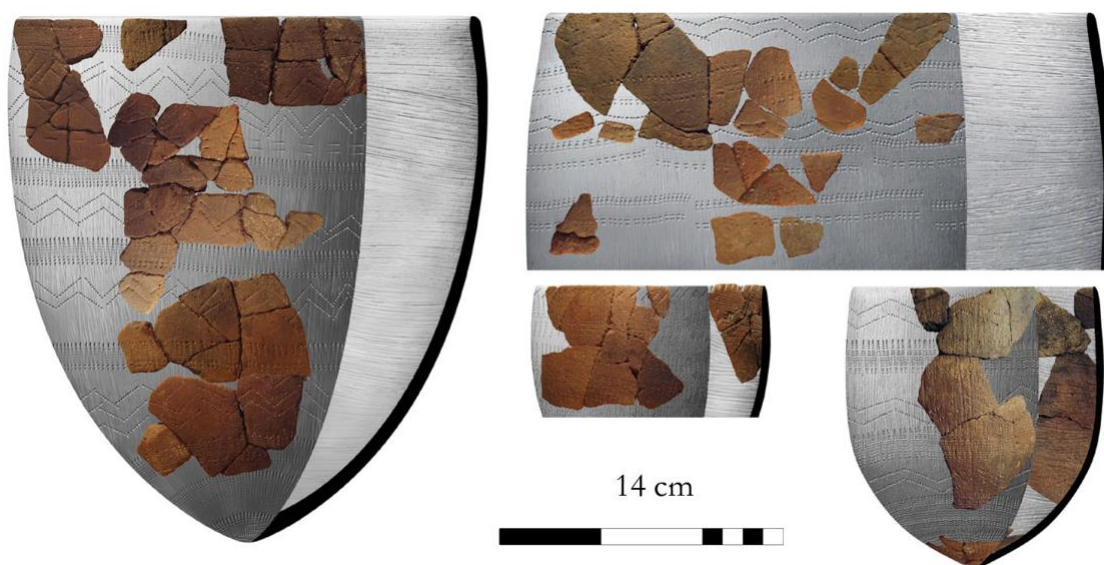


Figure 4—Selection of Early Ust'-Karenga culture vessels from Layer 7, *Ust'-Karenga* XII-XVI

Though of a single form (Figure 4), the vessels can be subdivided into:

Small vessels—Rim diameter between 12-16 cm (13.5 cm average) and an estimated height of 16-18cm.

Large vessels— rim diameter between 20-30cm (29.5cm average) and an estimated height of 30-35cm.

Vessels of both sizes are thin-walled, typically around 4–5mm, and this consistency in form allowed rough estimates of vessel volume and weight to be attempted for the most complete vessels. The usable volume of the small vessels was estimated to be around 1 litre (cf. Ineshin 1979:12), and the approximate weight of the fired vessel would have been less than 0.5 kg. The

average volume of the larger vessels was estimated at around 12 litres, and the vessel weight at about 2.5kg.

The techniques of primary forming can be described as a combination of coil and strip/band-building and '*vykolachivaniya*' (lit. squeezing), which Anglophone writers usually translate as 'paddle-drawing' (see MacKenzie 2009, 200). However, it more precisely describes the process of 'technical' decoration, discussed below, which played a very important role not only in the consolidation and thinning of the vessel walls, but also in the refinement of the final form. Some of the coil-joints identified are n-form: 'the lower bands convex and the upper bands concave' (Vetrov 1985a, 122), others show construction as flattened bands with wide diagonal z-joints. The latter may explain an apparently two-layered structure identified in the wall of some sherds (see Vetrov 1985, cf. Shevkomud and Yanshina 2012). Some of the smaller vessels appear to have been produced primarily by simple pinching, and the rim area and lip of several larger vessels appeared to be constructed from a series of thin coils, much narrower than those of the lower body. Unfortunately, the small size of the assemblage (and its apparently wide chronological span) does not allow us to make much interpretation of this interesting variation. It is perhaps for this reason that the majority of the 'technological' discussion in the literature has focused on surface treatment and 'ornament'.

Although the form of the well-preserved Ust'-Karenga vessels is certainly distinctive, because of the fragmentary nature of the assemblage, the decorative style is the clearest and most useful marker of this cultural type. The process of decoration is simple, and can be split into two separate stages, 'technical' and 'artistic' decoration.

The 'technical' decoration, referred to widely in the literature, is the result of general surface modification associated with a strong tradition of secondary forming. The practice presents as roughly parallel striations running horizontally around the interior surfaces of the vessels and vertically across the exterior. This technical décor is absolutely characteristic of the Ust'-Karenga material and is seen on all but a handful of sherds from the earliest layer (albeit with varying degrees of clarity). In most cases, the striations were produced by wiping/scraping the vessel surfaces with a tight bundle of grass (Ineshin 1979; Vetrov 1985a). However, in several cases the regular spacing of the lines suggests the use of a toothed implement, and in one other case similar marks appear to have been made by using a cord-wrapped stick. These latter examples require further study.

A thin layer of fine clay on the surface of several of the analysed vessels, which often appeared 'slip-like' in macroscopic analysis (partly as a result of different oxidation states at the surface), was also attributed to the practice of 'technical decoration.' However, it was ultimately identified as a self-slip, produced during wet-wiping/scraping of the vessel surface, rather than an intentionally added surface layer (*contra* Hommel *et al.* 2008).

The 'artistic' decoration seen on Ust'-Karenga pottery was produced entirely by comb-impression. With the exception of a few 'undecorated' vessels, comb-impressed geometric designs—composed of straight lines and zigzags produced by single impression or stepping-comb/rocker-stamping techniques (Figure 5a), were particularly characteristic of the ceramic tradition. This 'artistic' decoration is usually arranged in parallel registers around the body of the vessels, though some diagonally oriented motifs have also been noted (Vetrov 1992). Decoration typically covers at least the upper third of the body, but often extends across the whole exterior surface, from lip to base. The interior surfaces very rarely show comb-impressed designs, though comb impressions across the lip are commonplace across the assemblage.

The number and fineness of the teeth of the combs used to make these marks varied considerably between vessels, but no significant pattern within this variation was identified (Vetrov 1985a). Where it was possible to study both the single and stepping-comb elements on a single vessel, it was clear that they were all made with the same comb.

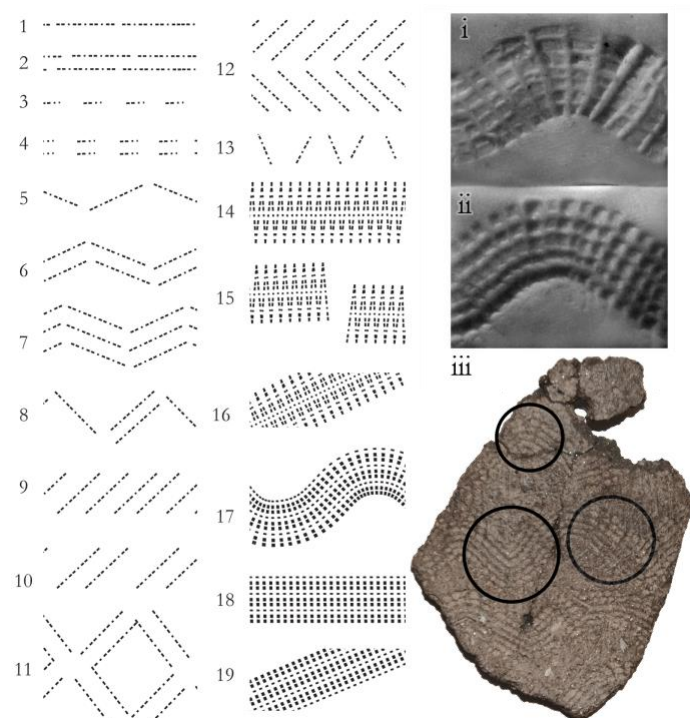


Figure 5—a) Motifs encountered on Ust'-Karenga culture ceramics

1-Single continuous line; 2-Double continuous line; 3-Single interrupted line; 4-Double interrupted line; 5- Single impressed zig-zag; 6-Double impressed zig-zag; 7-Triple impressed zig-zag; 8-Asymmetric (double-single) zig-zag; 9-Even diagonal impressions; 10-Paired diagonal impressions; 11-Double impressed diamond; 12-Chevron; 13-Open single zig-zag (rim dec.); 14-Horiz. stepping-comb; 15-Interrupted/Cheque stepping-comb; 16- Diagonal stepping-comb; 17-Repeated-single stamp (Waveform); 18-Repeated-single stamp (Horiz. Linear); 19-Repeated-single stamp (Diag. Linear)

b) Showing the experimental reconstruction of: i) roller-stamp, ii) close-spaced single impressions, and iii) the original sherd from Ust'-Karenga XIV with areas showing clear similarities to (ii).

regard to the distinctive practice of 'technical decoration' (Razgildeeva *et al.* 2013; Shevkomud and Yanshina 2012). These close similarities are increasingly difficult to dismiss and, despite protestations to the contrary, it is very likely that these adjacent traditions are more or less directly related (Kuzmin 2014, 3). Further similarities in lithic technology and some vessel forms, might suggest that the transmission of pottery occurred within an existing sociotechnological substrate, which perhaps served as a 'conveyor belt' (*sensu* Gronenborn 2011, 74) between the communities of the Amur and adjacent areas (see also Kajiwarra and Kononenko 1999). The apparent break in the transmission of the technology into communities further to the north and west is a matter that urgently requires more attention (Hommel 2015).

Another technique, roller-stamping (using a cogged wheel or a toothed drum) was initially considered as a possible explanation for some long straight lines and wavy designs. However, subsequent analysis and experimental research has demonstrated that, in the latter case at least, the relevant impressions were created by close-spaced individual comb impressions, as a variant of the standard tradition of comb-stamping seen across the rest of the assemblage (Fig. 5b). The uniqueness of the particular motifs however, remains extremely interesting.

Though earlier publications described the ceramic styles at Ust'-Karenga as autochthonous developments, with more distant connections dismissed as 'convergent evolution', the rapidly growing body of research into early East Asian pottery provides several reasons to revisit this conclusion. It is now clear that a number of approximately contemporary pottery assemblages in the Russian Far East (e.g. *Goncharika* and *Gromatukha*) and the southern Transbaikal (e.g. *Studenoye* and *Ust'-Kyakhta*) show similar forms and/or production styles—particularly with

Initial compositional studies, based on stereoscopic examination, described the ceramic body as a combination of clay, inorganic mineral inclusions, and burnt-out organic material—‘finely chopped grasses, hair, and granitic grus’ (Ineshin 1979, 12). The latter component has also been referred to as ‘crushed’ (Vetrov 1985a, 124) and interpreted as an intentional addition to the clay because it reflects ‘a conglomeration of grain compositions that is not encountered in nature’ (Ineshin 1979, 12). Nevertheless, almost all recent publications, particularly those in English, refer to the pottery as ‘primarily plant fibre tempered’ (McKenzie 2009, 177) and clearly consider this to be a cultural practice and a ‘distinctive feature of the Ust’-Karenga [assemblage]’ as a whole (Kuzmin and Vetrov 2007, 12). It is significant that organic inclusions were not discussed in such terms in any of the original publications of this material.

Further studies of the ceramic composition, based on the petrographic analysis of a near total sample of the Ust’-Karenga vessels from the site and clay samples taken from the surrounding region, lead us to question several of these assumptions. Firstly, the character of the organic inclusions within the ceramics is entirely inconsistent with the interpretation of ‘tempering’. The quantity and range of organic material—typically an assortment of fine roots, wood/charcoal fragments, grass stems, insect wingcases and other, as yet unidentified, materials—was almost precisely similar to that seen in modern subsurface clay deposits (Hommel *et al.* in press a). Similarly, though the description of ‘granitic grus’ is broadly accurate, very little evidence was found to support the idea this rock/mineral material was culturally modified (crushed) or intentionally added. Again, the composition of the ceramics paste was entirely consistent with the use of, largely unmodified, natural clay from primary or (locally re-deposited) colluvial sources.

The mineralogical study also allowed us to add significant new information to our understanding of the Ust’-Karenga material. Although, across the assemblage, the granulometry of the samples was very homogenous, the mineralogical variation seen between individual vessels was very significant. Unsurprisingly, given the geological context, clay material formed from the weathering of various felsic granitoids was the most widely used resource, but the range of granitic lithologies represented was far greater than the immediate geological vicinity of the site could provide. This sense of variety was reinforced by the fact that a significant proportion of the assemblage was also made up of material derived from the weathering of more immediately distinctive rock types: igneous (mafic plutonic and volcanic), metamorphic, and sedimentary in origin. In several cases, the nearest known outcrops of these materials were more than 30km from the site.

Although some of the vessels were potentially consistent with local production, many clearly were not. This conclusion has very significant implications for our interpretation of this material. We could go further, if we consider that the rock formations around *Ust’-Karenga*, which are the basis of its geological character, are also widespread across the plateau and the fact that the inhabitants of the site apparently ignored the alluvial clay deposits, which predominate in the immediate vicinity of the site. We should not be too quick to assume that *any* of the ceramic material found at the site was necessarily made there.

Studies of firing temperature have confirmed expectations that the Ust’-Karenga pottery was open ‘bonfire’ fired: typical firing temperatures (estimated by various methods) were around 650-700°C. Post-firing alterations were common, particularly bored, conical perforations. These have been plausibly interpreted as evidence of vessel repair (Vetrov 1985a). The absence of adhesive (e.g. birch-bark tar) around the break, which is seen in on later prehistoric vessel repairs, was interesting, but as no definite conclusions have been reached about its significance, it will not be

considered further here. The predominance of rims and upper body fragments, compared with lower-body/bases could have its explanation in similarly conservative behaviours, such as the removal of damaged vessel rims (along a coil join) to allow the utility of the lower body to be preserved. Such practices are been noted in many ethnographic studies of traditional pottery-use in mobile societies (Lindahl pers. comm).

As was indicated for the lithic industry, there appears to have been considerable continuity and homogeneity in the ceramic traditions of the Ust'-Karenga culture. This is all the more remarkable given the potential flexibility of clay as a medium for creativity. Again, the first clearly identifiable cultural shift occurs between cultural Layers 4 and 3 at *Ust'-Karenga XII*, with the 'arrival' of the Ust'-Yumurchen culture (Vetrov 2000; 2013).

Clustered Remains

Whereas the upper layers of sites in this region are often disturbed, the early layers at *Ust'-Karenga*, buried deep beneath the surface, appear remarkably well preserved. On the basis of the stratigraphic position of the site and the nature of the associated sediments, the site was formed within the contemporary floodplain of the river(s) (Ineshin 1979). Evidence of soil formation and the fact that the majority of the materials appear to have remained more or less *in situ* seems to suggest that destructive flooding events were relatively rare.

Within these early layers, the vast majority of the archaeological remains were found within well-defined sub-circular scatters between three and five metres in diameter (Ineshin 1979; Vetrov 1985a). These accumulations are usually focussed around a number of discrete charcoal rich zones, presumably hearths, and appear to be composed of a variety of domestic debris dominated by lithic debitage, microblades, cores, and other tools, with occasional fragments of heavily or completely degraded bones and teeth. From Layer 7 upwards, the pottery that enters the material record is also found within the same kind of accumulations (Ineshin 1979; Vetrov 1985a; 1992; 2000). These accumulations occur across the site, either singly or in small clusters, the area between them being largely sterile. They are interpreted as evidence of temporary settlement and are presumed to have been associated with light, surface dwellings (Vetrov 1985a). Examining similar material scatters elsewhere in Siberia, other researchers have drawn the same conclusion, suggesting that these dwellings were likely to have been conical structures like the *chum*, *laavu*, or *tipi* familiar from ethnographic description and popular culture (e.g. Kovaleva 1993). Across northern Eurasia, such dwelling structures are traditionally constructed from a number of long, angled poles covered in stitched bark or hide with an insulated floor of conifer branches covered with skins (Ineshin 2006; Konstantinov 2002; Mochanov 1969). In some cases, as at the site of *Bol'shoy Yakor' I* (located at a confluence on the lower course of the Vitim) similar scatters, also focused around 'groups' of hearths have been studied intensively (Ineshin and Teten'kin 2010). The conclusion of this work has been to demonstrate clearly that, at *Bol'shoy Yakor' I*, these remains were formed as a result of repeated, seasonal visitation of a particular location by a single community. The almost precise superimposition of the hearths and scatters seen there and at *Ust'-Karenga*, might suggest that tent-poles were left *in situ* to be re-covered in subsequent occupations, a practice known from many ethnographic studies of hunter-herders in northern Eurasia (Grøn and Kuznetsov 2003).

The Ust'-Yumurchen Culture; Site Structure and Material Culture

Cultural Distribution

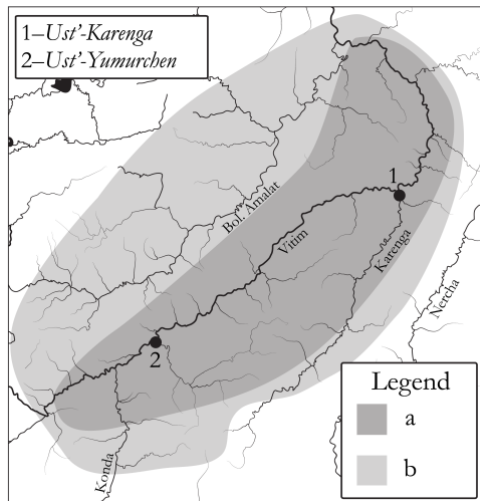


Figure 6— The approximate cultural distribution of a) the Ust'-Karenga and b) the Ust'-Yumurchen Cultures. At a regional scale, cultural material attributed to the Late Neolithic Ust'-Yumurchen culture has been far more widely recovered than that of the Early Neolithic Ust'-Karenga culture (Figure 6) and has been identified at most if not all of the archaeological sites on the Vitim Plateau (Vetrov 1992). This may be partly an outcome of the proximity of its cultural deposits to the surface and its consequently greater representation in surface survey. However, in the absence of more widespread excavation, this proposition remains speculative. In general terms, the character of the cultural assemblage is described as similar to other Late Neolithic assemblages from sites across eastern Russia and closely related to contemporary archaeological cultures of adjacent regions, especially to the south and west (Vetrov 1992, 152). Yet, in spite of its wide distribution and interesting position within what is apparently a multi-regional cultural phenomena, there have been relatively few large-scale excavations of Ust'-Yumurchen cultural deposits in the Upper Vitim Basin and what results are available have been far less comprehensively described in the literature.

Site Structure

For various reasons, it is extremely difficult to discuss the horizontal distribution of artefacts in layers attributed to the Ust'-Yumurchen culture in any detail and unwise to draw any firm conclusions from the limited data available. Even at the most extensively excavated sites, which are, once again, the multi-layered site-complexes of *Ust'-Karenga* and *Ust'-Yumurchen*, it is only possible to make a few general comments before moving on. Relatively few radiocarbon dates are available for the Ust'-Yumurchen culture, but those we have, based on the best-dated section at *Ust'-Karenga*, suggest that we should place the boundaries of the cultural phase between c. 4,300 and 1,400 calBC.

At the level of the site-complex, it is sometimes possible by looking at the overall distribution of material, to see shifts in the patterns of occupation within the local landscape. At *Ust'-Karenga*, for example, there seems to have been a partial shift in the focus of occupation from the right bank to the left. Certainly the majority of the ceramic material attributed to the Ust'-Yumurchen culture at *Ust'-Karenga* derives from the sites and findspots on the left bank. Yet, while such patterns are potentially informative, there are significant problems with the confidence of our interpretations even at this scale. To begin with, the shift in the distribution is far from complete and various post-depositional transformations and recovery biases leave open the possibility that the observed patterns are merely artefacts of geomorphological processes and our modern investigative foci and research agendas. Such problems are hardly unique to this site, but do need to be borne in mind as we go forward with this discussion and our analysis.

On a smaller scale, within individual sites/findspots, changes in the distribution of artefacts could also be important. As in the earlier periods, the scatters of lithics and ceramics in the upper levels are associated directly with other in-situ evidence of occupation (charcoal concentrations, etc.). However, they do have a somewhat different character, having a greater overall volume of

material and a more uniform horizontal distribution. Also in association with this material, a number of pit features depressions were identified. Such features have never yet been identified in the horizons associated with the Ust'-Karenga culture. However, the combination of small excavation areas and higher artefact noise makes the identification and confident interpretation of patterns within these distributions more difficult. This problem is amplified by the issues of cross-contamination between these shallow sandy layers, predominantly due to deflation and bioturbation. Unsurprisingly, therefore, though there appear to be some differences in the site structure, the clearest differences between the two archaeological cultures are found in the material culture (by which these groups are defined) and since the Ust'-Yumurchen cultural assemblage is also dominated by lithics, it is here that the discussion begins.

Lithics

In technological terms, microblades and microblade production debris remain as core elements within Ust'-Yumurchen culture lithic assemblages, though the techniques of production and range of tool forms present apparently differ in some important respects from those seen in the Ust'-Karenga culture horizons. Speaking generally, the transition can be characterized by the appearance of longer 'tall forms' of wedge-shaped and prismatic nuclei, a wider range of scrapers and a greater quantity of arrowheads, the most characteristic of which are subtriangular 'Daurian type' with a notched base (Vetrov 1995b; 2000). Other more subtle technological changes are also reported, though these would be almost imperceptible to the uninitiated if their emergence did not coincide with a far more dramatic change in the basic lithology of the stone-tool assemblage.

As a rule, stone tool assemblages in the Upper Vitim Basin tend to be compositionally diverse, the result of using tool-stone gleaned from widespread deposits of fluvio-glacial pebbles and cobbles—a practice well attested by the patches of water-worn 'cortex' on many larger lithic artefacts (Vetrov 1992; 1995b). This kind of lithological variability is characteristic of stone tool assemblages attributed to the Ust'-Karenga culture, but is far less apparent in the lithics of the Ust'-Yumurchen culture, which appear more compositionally uniform and seem to reflect dramatic changes in tool-stone preference, source, and pattern of acquisition.

The most striking difference is seen in shift towards the exploitation of the transparent or slightly milky chalcedony and mottled, translucent, brownish-red carnelian. In some later contexts, these high-quality cryptocrystalline tool-stones account for between 60-100% of lithic fragments recovered, yet they are virtually absent in previous periods (Vetrov 2000). It would be easy to imagine that this shift was an example of deliberate acquisition of this high-quality tool-stone from an 'exotic' source, but it is worth noting that occasional nodules of chalcedony and carnelian can be found on the cobble bars around *Ust'-Karenga* today and may have been more common in the past. Ultimately, without further research, both interpretations are possible.

Other additions to the raw material repertoire have provided more concrete evidence for the existence of long distance interconnections, movement or exchange between the groups of the Lower, Upper and Middle Vitim Basin (Vetrov et al. 2000). These materials, which originate from discrete sources located far downstream include 'practical' tool-stones, such as rock crystal, specific varieties of argillite (previously identified as hyalodacite) as well as the precious green and white nephrite, which is frequently associated with high-status burials across Eastern Siberia, and graphite, which is an exotic material in the region (identified as originating from a source around 450 km to the north-northwest) and considered to have been a highly-prized material in prehistory (Ineshin pers. comm.; Ineshin and Tetenkin, in press; Vetrov et al. 2000).

Although the available evidence suggests that such exotic materials were more characteristic of later Neolithic and Early Bronze Age assemblages within the Upper Vitim Basin, the earliest examples (possibly associated Layer 6 at *Ust'-Karenga*, though some doubt remains about this stratigraphic attribution) suggest that long-distance exchange was already a feature of life during the later stages of the *Ust'-Karenga* culture. However, as layer 4 contained material consistent with both cultural phases, it is difficult to draw any certain conclusions about the precise 'cultural' associations of these exotics.

Pottery

In spite of the fact that ceramic material attributed to this culture is encountered at virtually every site/findspot in the region, the *Ust'-Yumurchen* culture ceramic assemblage is substantially smaller than that of the *Ust'-Karenga* culture and is primarily composed of rim and upper body sherds collected as surface finds. At *Ust'-Karenga* it consists of just twenty-one vessels (confidently identified sherd groups), a further ten were recovered from *Ust'-Yumurchen* itself, and eight from smaller findspots on the terraced banks of the Vitim, at *Nizhnyaya Dzhibilinda/Ust'-Sivakon*, *Ust'-Konda*, and *Ust'-Kholoj*, at *Ust'-Bugarikhta* on the Karenga River, and at *Ust'-Ashigly* and *Mongoj* on the *Bolshoj Amalat* (which runs immediately parallel and to the West of the Vitim's course).

As with the *Ust'-Karenga* assemblage, three other vessels are known and illustrated in the literature (Vetrov 1992), but for various reasons these could not be examined in the recent analytical study.

Potential compositional, or at least textural differences between the earlier pottery tradition and the *Ust'-Yumurchen* phase were noted in the primary reports, which describe both finer and coarser textured fabrics within this group (e.g. Vetrov 1985b). However, these differences were not recorded comprehensively, nor were they considered further at the time. Descriptions of the *Ust'-Yumurchen* ceramic styles have instead been characterized by brevity and a focus on formal, technical, and stylistic differentiation in the ceramic traditions of the *Ust'-Karenga* and *Ust'-Yumurchen* cultures (Vetrov 2011).

Though persistently coil-built and ovoid or parabolic in form, many of these later vessels are given a more 'complex' profile (i.e. shouldered with an out-curving, thickened rim (Figure 7). This thickening of the rim, to create a triangular or rhombic profile, is considered to be one of the most characteristic features of this tradition. It was either achieved with the addition of a coil or band to the surface, or by folding over the rim. It was seen both on vessels with more complex profiles, where it typically added to the exterior, and vessels of a simpler form, where it projects into the interior (Vetrov 1992, 150).

Another key difference is seen in the form of 'technical decoration'. Although the exterior surfaces of most of the material attributed to the *Ust'-Yumurchen* culture have single-spaced, vertical linear markings, not entirely dissimilar to those seen on *Ust'-Karenga* vessels, these marks were produced in a very different way. They are the result of secondary forming using a grooved or, occasionally, cord-wrapped paddle. Surviving lower body fragments often showed smooth negative 'facets' or rounded indentations on the interior surfaces, perhaps produced by a pebble anvil. The thin, compact walls and globular form of the vessels is also consistent with this technique. Traces of scraping or coarse wiping, which were seen on almost all of the *Ust'-Karenga* culture vessels, were very rarely encountered within the *Ust'-Yumurchen* material.

The 'artistic' decoration of these later vessels is also quite different and attests to the use of a far wider range of decorative tools and a complete abandonment of the stepping-comb technique, which was so characteristic of the Ust'-Karenga culture. Instead, Ust'-Yumurchen ceramics are dominated by regular horizontal rows of double- or single-spaced impressions of rectangular, oval or toothed stamps. This impressed decoration typically covers the upper part of the body at least as far as the shoulder. Another common feature of many vessels attributed to the Ust'-Yumurchen culture is the presence of a row of regularly spaced 'perforations or deep pits', made before firing, just below the rim (Vetrov 1992, 151). These are usually considered to be part of the decorative scheme, though they may perhaps have had some functional role, related to the attachment of a lid. Decoration of the interior surfaces, if present, is usually restricted to the rim area. In one case, evidence of plastic relief decoration at the rim was also identified.

Analysis confirmed that composition of the Ust'-Yumurchen culture ceramics was indeed different from the earlier tradition. Instead of using coarse primary or colluvial clays, the majority were made from much finer silty and sandy clays, often consistent with a secondary or alluvial origin. A clay resource survey in immediate surroundings of *Ust'-Karenga* and more widely along the banks of the Karenga river revealed a close compositional match between widely available floodplain clays and the archaeological ceramics. These clays were most readily available across the post-glacial floodplain, however it is worth noting that deposits with almost identical composition were in older terrace bodies and should have been readily exploitable at the time of the Ust'-Karenga culture settlement of the site. Today these near surface deposits, identified behind the village (at the edge of the old airfield) are actively exploited by the local community in the construction and repair of household ovens. The almost complete absence of exploitation of this resource in the production of Ust'-Karenga pottery would seem to require some further explanation.

Although the exploitation of fine secondary clay resources was a significant addition to the character of the Ust'-Yumurchen material, a considerable proportion of the Ust'-Yumurchen material, sampled at sites across the basin, was composed of coarser material. Some of this coarser material, when examined petrographically, proved to be consistent with some of the coarser fractions of the same secondary clay sources (which were often intercalated with sandy lenses), others appeared to be more like the primary/colluvial material used widely in the production of Ust'-Karenga pottery. However, in almost all of cases where the findspots had a distinctive local geology, the mineralogy of ceramics clays was consistent with a local origin. It must, however, be noted that for most sites the sample size was too small to bring any confidence to this preliminary conclusion and further on-site survey is urgently required to explore this matter further.

A Confusion of 'Later' Ceramics

Although we have presented a straightforward view of the cultural and ceramic sequence here, there is some further complexity to these assemblages, which has not been much discussed in the literature. In layers 4-1 at *Ust'-Karenga* and in the upper layers of many other sites, we find the admixture of a ceramics which display comparatively wide range of technical production styles, which do not fall into either of these relatively coherent traditions discussed here. These have been almost universally dismissed as later intrusive material and in many cases where distinctive styles, belonging to the Iron Age can be identified this is quite clearly justified. However, it should be assumed *a priori*. Clearly, this is a problem that can only be resolved through further research at sites where the stratigraphy for these later phases is better defined. Interestingly, in spite of its technological variability, a casual sample of this 'later' material was analysed alongside

the other ceramic materials and proved to be virtually identical in compositional range with the ceramics of the Ust'-Yumurchen tradition.

Discussion

Although the primary aim of this paper, is to present the main characteristics of the 'Neolithic' ceramic traditions of the Upper Vitim Basin in a more comprehensive manner, it is important to set the results of this analysis within a wider interpretive context. Previous publications, often focusing on the establishment of chronology, have not explicitly considered the potential of the ceramic material as a window onto wider patterns of group behaviour and mobility. Clearly, some of the characteristics of the pottery traditions encountered in the Upper Vitim Basin are valuable in this context.

Considering first the Ust'-Karenga material, it seems immediately clear that we should question the traditional correlation of ceramic production and sedentary life. There are various ways in which we could explain the compositional variety in the assemblage, but all require us to accept at least seasonal mobility around the valley by small groups who carried their pottery with them. The almost total absence of secondary alluvial clay resources, which are and were widespread and easily accessible across the valley floor, might be seen as a deliberate technical choice, perhaps related to a desire for better performance in use (see Hommel *et al.* 2015). However, a simpler explanation points us towards production in areas where these resources were simply not readily available. Assuming that the production of ceramics was primarily a summertime activity, which seems reasonable given the climate of the region, the 'primary' character of the Ust'-Karenga culture ceramic assemblage might point us towards upland areas, away from the main channel of the Vitim. Notably, a 50km radius drawn around *Ust'-Karenga* itself catches significant geological variation in the uplands which could encompass almost all the variation seen in the ceramic material.

The notion of mobility also fits well with the wider material assemblage and the distribution of finds on site, as discussed above. The tightly clustered remains, the focus on microblades suggests temporary occupation, and is at least plausibly consistent with autumn winter settlement (Ineshin and Teten'kin 2010). The apparent superimposition of both hearths and ceramics of different compositions within single accumulations all seems to suggest that the groups of people who created these assemblages were attached to this place and occupied it repeatedly over a number of seasons as part of their wider strategy of landscape use. Of course, other interpretations, such as intergroup feasting or clay selection from intentionally distant sources are possible, but neither seems to fit so well with the material evidence currently at our disposal.

This is perhaps emphasized further by the significant technical, compositional, and decorative shift in the later cultural phase. In this case, the evidence seems to point towards production and, therefore, summer settlement along the major channels of the Vitim. Although we need to look more closely at the variation in alluvial deposits along the Vitim and its tributaries, with substantially less mineralogical variation in the material, and with more of the variation represented being consistent with the local geology, we might also consider longer duration settlement as a characteristic of this phase. Though our understanding of the pattern of Ust'-Yumurchen culture settlement is far less developed, the more uniform distribution of material across the horizons, the presence of discernable pit structures and a shift towards exotic or homogenous raw material usage, would be broadly consistent with this conclusion. Interestingly, indications of decreasing group mobility, storage and perhaps inter-regional exchange, are the first indication of the characteristics of so-called 'complexity' in hunter-gather society which have so often been packaged with the emergence of ceramics in the wider literature. Here, it seems, these characteristics post-date the addition of pottery to the material repertoire by at least 5,000 years, possibly rather more. Instead, pottery appears to 'emerge' without major changes to the

pattern of life, within a lithic assemblage which remains essentially consistent with other Upper Palaeolithic sites across the Basin, many of which do not follow the same trajectory.

Clearly, many questions remain to be answered about this material, but whatever the result, it is quite clear that the Vitim Basin is ripe for further investigation.

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