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PLEISTOCENE GEOARCHAEOLOGY OF THE RUSSIAN FAR EAST: UPDATED RESULTS

ABSTRACT: *The updated review of geoarchaeology of both the Upper Palaeolithic and Initial Neolithic cultures from the Russian Far East is presented. The Upper Palaeolithic sites existed during ca 33,000–8000 BP, with permanent occupation of the middle part of the Amur River basin and Sakhalin Island at the time of the Last Glacial Maximum, ca 20,000–18,000 BP. The earliest Neolithic sites with evidence of pottery manufacture appeared in the lower part of the Amur River basin ca 13,000 BP. The chronological boundary between the Palaeolithic and Neolithic in the continental Russian Far East may be placed at ca 13,000–8000 BP.*

KEY WORDS: *Geoarchaeology – Palaeolithic – Initial Neolithic – Russian Far East*

INTRODUCTION

Geoarchaeological studies of the Pleistocene age cultures in the Russian Far East began in the late 1950s (Petrin 1956, Ganeshin, Okladnikov 1956). A significant progress in Palaeolithic and Initial Neolithic geoarchaeology was achieved in the 1980s–1990s (Derevianko 1983, 1990, 1996, Derevianko, Zenin 1995, Okladnikov, Medvedev 1983, Golubev, Lavrov 1984, Vasilievsky, Gladyshev 1989, Kuznetsov 1992, 1994, Kuzmin 1994a, 1994b, 1996, Kuzmin *et al.* 1997). Using the data obtained, we can establish the existence of both the Late Palaeolithic (32,500–8000 radiocarbon years BP) and Initial Neolithic (13,000–10,400 BP) sites in the Russian Far East. They are located in both the middle and lower parts of the Amur River basin, in the Primorye (or Maritime Province), and on the Sakhalin Island (*Figure 1*). In the southern Kuril Islands, no reliable Palaeolithic and Initial Neolithic sites have been found *in situ* (e. g. Krushanov 1989, Kuzmin 1996).

The aim of this paper is to present an updated review of Palaeolithic and Initial Neolithic chronology and

palaeoenvironment in the Russian Far East. In prehistoric times this area was closely connected with other territories in East Asia, including the Songhua, Liao, Yellow, Yangtze, and Pearl River basins, the Korean Peninsula, and Japanese Islands, and cultural impulses affected strongly the development of human culture and adaptation.

MATERIAL AND METHODS

To reconstruct the human palaeoenvironment, several methods such as geomorphic, stratigraphic, palynological, and radiocarbon (^{14}C), have been used. Since 1986, particular focus was given to the study of pollen spectra and radiocarbon chronology at several key sites (Kuzmin 1992a, 1992b, 1994a, 1994b, 1996, Kuzmin, Chernuk 1990, Kuzmin *et al.* 1994, 1997, Verkhovskaya 1994). As an environmental background for Pleistocene geoarchaeology, summaries of the Late Quaternary stratigraphy and palaeogeography of the Russian Far East have widely been used (Alekseev 1978, Korotky *et al.* 1980, Aleksandrova 1982, Grichuk 1984, Khotinsky 1984,

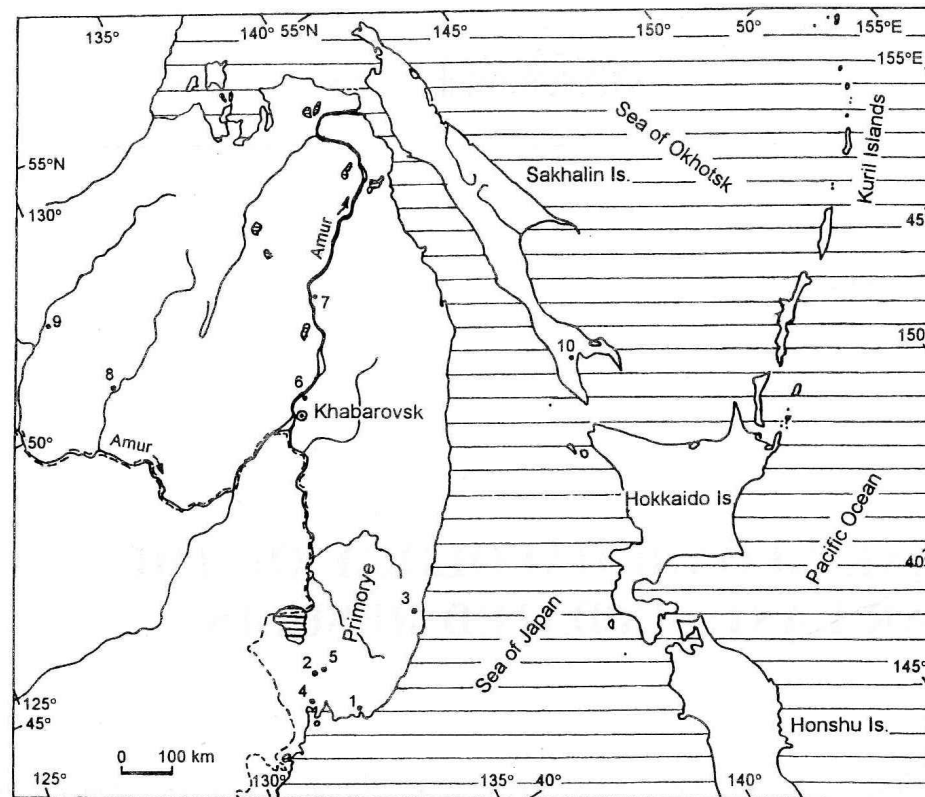


FIGURE 1. The distribution of geoarchaeologically studied Palaeolithic and Initial Neolithic sites in the Russian Far East. 1 – Geographic Society Cave; 2 – Osinovka; 3 – Ustinovka 1, 3, 6, Suvorovo 3, 4; 4 – Timofeevka 1; 5 – Gorbata 3, Ilistaya 1; 6 – Gasya; 7 – Khummi; 8 – Malyie Kuruktachi; 9 – Ust-Ulma 1; 10 – Ogonki 5

etc.). Palaeogeographic synthesis, including the reconstruction of palaeolandscapes and age estimation, has been made by the author.

RESULTS

The results of geoarchaeological research of the Palaeolithic cultures in the Russian Far East prior to 1990 have been summarised by the present author earlier (Kuzmin 1996). Since that time, several new sites were discovered and excavated in the middle and lower parts of the Amur River basin, in Primorye, and on the Sakhalin Island. Also, the extensive ^{14}C dating of the terminal Palaeolithic and earliest Neolithic cultures allows to establish the chronological boundary between the Palaeolithic and Neolithic in the mainland part of the Russian Far East.

Upper Palaeolithic sites

In 1993–1996, excavations and geoarchaeological studies of the Malyie Kuruktachi site in the Bureya River basin were conducted (Jull *et al.* 1997). Geomorphic, pollen, and radiocarbon data were obtained from the excavation pits. According to pollen data, at the time of human occupation the vegetation of forest tundra was gradually replaced by birch and larch forests. It shows that that site existed already during the transition from cold to milder climate. Radiocarbon dating allows to estimate the age of the Malyie Kuruktachi site between ca 14,200 BP and 10,500 BP (Kuzmin *et al.*, in print). Thus, this site existed

during one of the climatic ameliorations in the Late Glacial time, most probably at the beginning of the Kokorevo warming of Central Siberia ca 13,000–12,200 BP (Kind 1974).

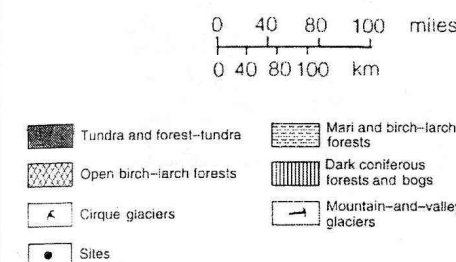
During 1996 fieldworks, geoarchaeological research was conducted on the first Palaeolithic site in Sakhalin Island found *in situ*, Ogonki 5 (Jull *et al.*, in print). The first radiocarbon date ever made for the Sakhalin Palaeolithic yielded the value of $19,320 \pm 145$ BP (AA-20864). Samples for pollen analysis are still in progress, but it may be expected that those data will support the fact of Sakhalin occupation during the Last Glacial Maximum, ca 20,000–18,000 BP.

The previous results of Palaeolithic geoarchaeology research in the Primorye have been summarized earlier (Kuzmin 1994a, 1994b). Since 1990, a few new sites have been studied. Pollen data from the Final Palaeolithic site Ustinovka 3 allow to estimate the age of cultural layer ca 9000–8000 BP, and to reconstruct a quite warm environment (Verkhovskaya 1994). Radiocarbon dating of one of the Upper Palaeolithic sites in the Zerkalnaya River basin, Ustinovka 6, gave the age of $11,750 \pm 620$ BP (SOAN-3538) (Kuzmin *et al.*, in print).

Initial Neolithic sites

Since 1988, intensive geoarchaeological study of the Initial Neolithic sites in the lower Amur River basin has been conducted. Small charcoal samples from two principal sites of the Osipovka culture, Gasya and Khummi, have been dated by the radiocarbon AMS method (Kuzmin *et al.* 1997, Kuzmin *et al.*, in print). The dates obtained fall within

FIGURE 2. Palaeolandscapes and ancient sites in the Sea of Japan area and adjacent territories at the Last Glacial Maximum, 18,000–20,000 BP (after Tsukada 1985 and Kuzmin 1996, with revisions).



the interval of ca 13,300–10,400 BP. This shows clearly that in the Russian Far East there is a coexistence of terminal Upper Paleolithic and the earliest Neolithic sites during the interval of ca 13,000–8000 BP. The Palaeolithic/Neolithic boundary on the Russian Far East may be traced within the time interval ca 13,300–7800 BP; in the lower Amur River basin ca 13,300–10,400 BP, and in Primorye ca 8400–7800 BP (Kuzmin *et al.*, in print).

DISCUSSION

Radiocarbon dating of the first *in situ* Palaeolithic site on Sakhalin Island, the Ogonki 5, has given an opportunity to reconstruct in more details the human palaeoenvironment of this part of Northeastern Asia during the Last Glacial Maximum (Figure 2). Most of the Sakhalin territory was covered with tundra and forest tundra, and only in the southern part of the island vegetation represented open birch-larch forests (Kuzmin 1996). The eastern part of the Hokkaido Island had a similar vegetation cover (Tsukada 1985: 378), and the western part of the Hokkaido was covered by dark coniferous forests (in the original paper by M. Tsukada: by boreal conifer forests). During the time 20,000–18,000 BP, several Upper Palaeolithic sites, such as the Kamishihoro-Shimagi and the Shukubai-

Sankakuyama, existed on the Hokkaido (Aikens, Higuchi 1982: 59–63).

The palaeoenvironmental situation in coastal Northeastern Asia at the Last Glacial Maximum was quite favourable for human migrations because of the sea level regression to about 120 m below the present situation (Figure 3). Sakhalin Island was connected with the mainland. The La Perouse (Soya) Strait did not exist at that time, and the Sakhalin and Hokkaido were connected by a landbridge. The Tsugaru Strait between Hokkaido and Honshu Islands was very narrow, probably only 1 km wide. The only western part of Korea (Tsushima) Strait, about 15–20 km wide, separated the Korean Peninsula from the Kyushu and Honshu Islands. This particular situation allowed ancient people to migrate easily from the Asian mainland toward the island territories and vice versa. Geoarchaeological research of the Ogonki 5 site has provided solid evidence of the Sakhalin occupation in ca 19,000 BP. It allows to understand in more details the movement of the Upper Palaeolithic populations at the end of the Pleistocene from mainland Asia through the Sakhalin and Hokkaido Islands (then connected into a peninsula) toward the Honshu, Kyushu, and Shikoku Islands.

In the introduction to the Palaeolithic excavations in Primorye, R. S. Vasilievsky (1996) associated the Upper Palaeolithic site Osinovka with the Nakhodkinsky warm

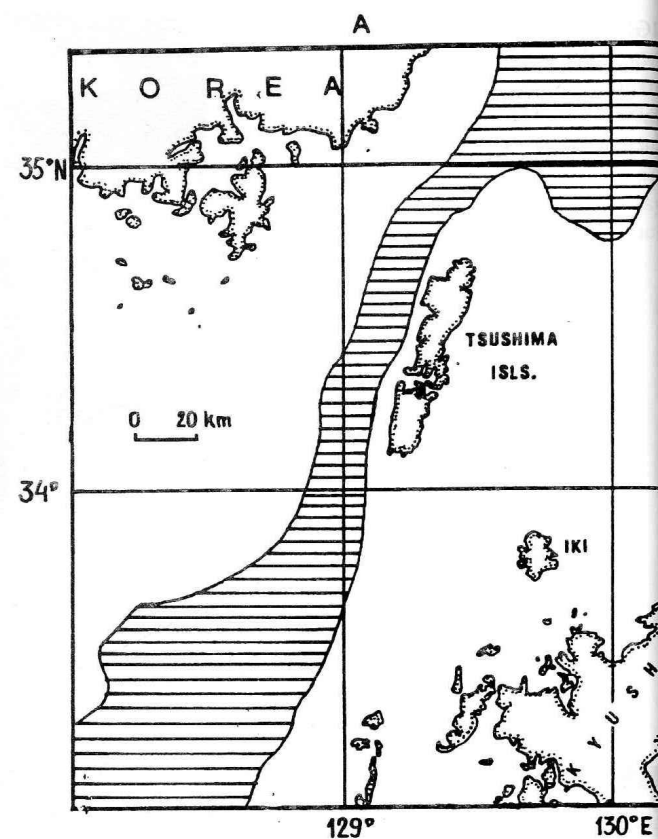
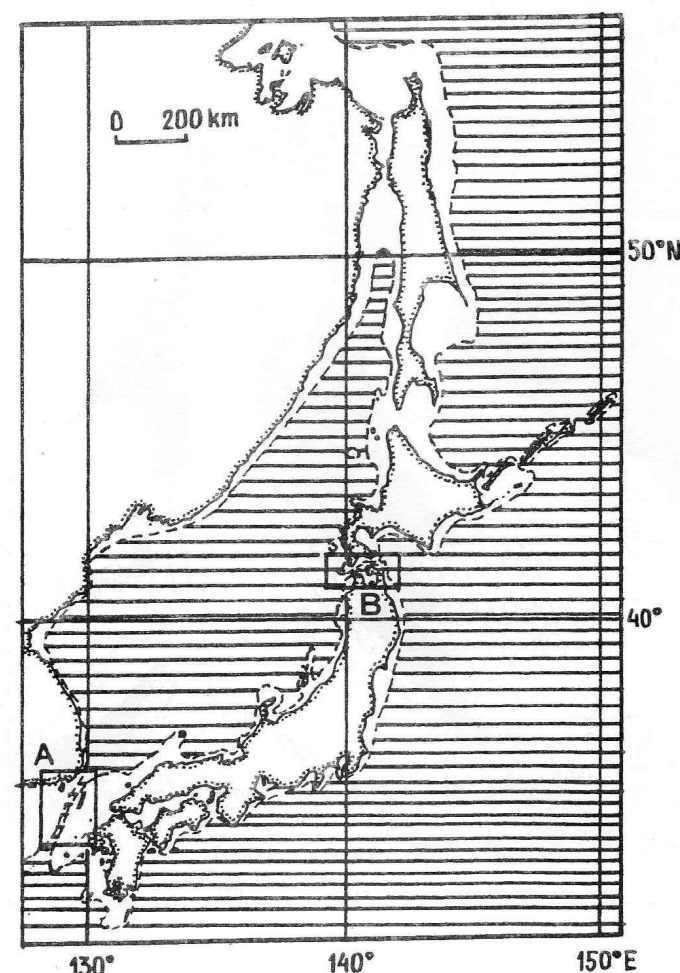
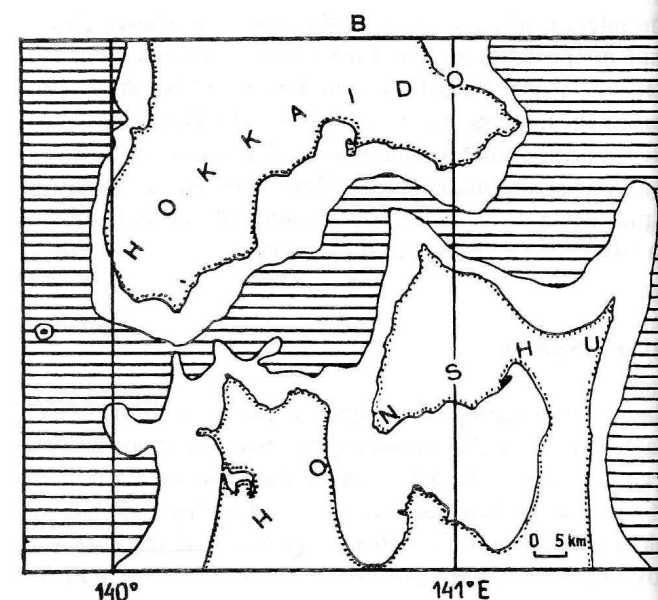


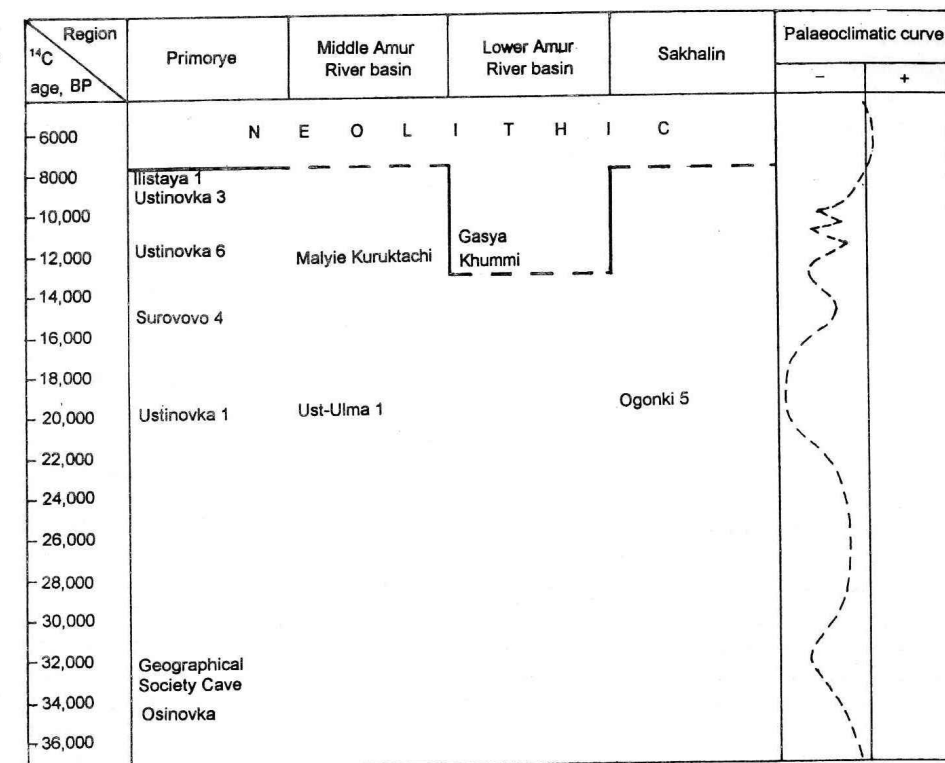
FIGURE 3. Sea of Japan shoreline at the Last Glacial Maximum, 18,000–20,000 BP, and the size of the Korea Strait (A) and Tsugaru Strait (B).



time period. This period correlates with the last interglacial time in the Late Pleistocene (Korotky *et al.* 1980), named also the Kazantsevo Interglacial in Siberia (Arkhipov *et al.* 1986), and Sangamonian in North America (Grichuk 1984), generally correlated with the Oxygen Isotope Stage 5. The age of the Kazantsevo Interglacial has been estimated at ca 130,000–100,000 years BP (Arkhipov *et al.* 1986). At that time only Mousterian, but not Upper Palaeolithic cultures, existed in Siberia and the Russian Far East (e. g. Derevianko 1983, 1990).

The Geographical Society Cave site in Primorye has been associated by R. S. Vasilievsky (1996) with the Lazovsky time period. The time after the Nakhodkinsky Interglacial was characterized by cold climate (Korotky *et al.* 1980). The age of this early Late Pleistocene glaciation in Northern Asia has been estimated at ca 110,000–55,000 BP (Arkhipov *et al.* 1986). This time interval corresponds in Siberia and the Russian Far East to the Mousterian industries (e. g. Derevianko 1983, 1990). Geo-archaeological observation of the Osinovka and Geographic Society Cave sites (Kuzmin 1994a, 1994b) allows to estimate their age at ca 35,000–33,000 BP. It is unlikely to correlate those sites with the earliest part of the Late Pleistocene, ca 130,000–55,000 years ago.

FIGURE 4. Summary of geoarchaeological research of Pleistocene sites in the Russian Far East



CONCLUSION

Figure 4 represents a summary of recent information on Pleistocene sites in the Russian Far East. The first well-studied evidence of human occupation may be dated to ca 33,000 BP, the Geographical Society Cave. Since ca 20,000 BP, there has been permanent occupation of the Sakhalin, the middle part of the Amur River basin, and probably Primorye as well. In the lower part of the Amur River basin, the earliest sites appeared in ca 13,000 BP, along with a pottery-making technology.

The majority of Palaeolithic sites existed during the warm climatic events, such as the Malaya Kheta warming, 33,000–41,000 BP; the warm episodes in the Late Glacial, ca 16,000–15,000 BP and 13,000–12,000 BP; and the Early Holocene, ca 10,000–8000 BP. However, there is a certain amount of sites which existed during the cold events, especially 20,000–18,000 BP (Ust-Ulma 1, Ogonki 5, and most probably Ustinovka 1). This shows the complexity of human-environment interrelations in the Palaeolithic and the high degree of human adaptation to the harsh environment during the Last Glacial Maximum.

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