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The Sakhalin-Hokkaido-Kuriles' continent to ocean contact zone and the problem of time of Human exploration of the islands between Amur-Hokkaido and Kamchatka (Based on the Radiocarbon Chronology of Sites on the Sakhalin, Hokkaido and Kuril Islands)

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Introduction

The time and routes of modern Human formation and his dispersals in Asia in the way to the New World in 21 century still remains the subject of many current publications in Russia and abroad [Derevyanko et al.,2014; Y.Kaifu et al.,2015]. Recently, oldest sites of Homo sapiens in Sakhalin Island and Hokkaido have been discovered and studied dating to within the range of 31 – 23 ka, and dating to 8000 calendar years BP on the Kuril Islands. Several summaries of chronological estimations for the Stone Age in general of Sakhalin and the Kuriles were published in the end of 20 century by V.Golubev, Y.Lavrov, R.Vasil'evski, O.Shubina, V.Shubin, A. Vasilevski, Grishchenko and others. Over the previous two decades, complete lists of radiocarbon dates for key sites in Sakhalin, Hokkaido and the Kuriles, attributable to the Stone Age have been compiled, and general periodization and chronology of the Stone Age has been elaborated (Vasilevski, 2003, 2008; Grishchenko, 2011; Kuzmin et al., 2012; 2014).

Sakhalin–Hokkaido–Southern Kuriles' Peninsula

The Pleistocene-Holocene boundary, the Paleolithic-Neolithic transition. Natural links between Sakhalin and Hokkaido were broken approximately abour 10 ka BC (cal.) with the formation of the La Perouse Strait.. The Strait gained its modern width of 42 km approximately 8-7 ka BC. On Sakhalin, sharp fluctuations in climate and people hunting during the Late Pleistocene and Holocene caused impoverishment of fauna (Tsuji, 2002; Vasilevski, 2008). Hence, the beginning of the Sakhalin Holocene fell within 12—11.5 ka BP. Considerable changes in the environment took place 12—10.7 ka BP (beginning of the Postglacial period), 9—7.8 ka BP (Boreal—Atlantic), 5.2— 4.3 ka BP (Atlantic—Sub-Boreal), and 2.2—1.8 ka BP (Sub-Boreal—Sub-Atlantic). Around 10 ka BC Hokkaido separatedfrom the Southern and Lesser Kuriles.

The borderline between the distribution areas of the Lower Amur Osipovka culture with foliate bifaces and the insular culture of the stemmed points of the Tachikawa type (Fig. 2) ran through the juncture of the northern and southern geographic zones of Sakhalin. These two cultures formed neighboring provinces: the Amur-Sakhalin and the Sakhalin-Hokkaido. The contact zone in the middle of Sakhalin separated the continental and insular worlds of the Paleolithic-Neolithic transitional period. The first was traditionally associated with the exploitation of the resources of the Amur and other large rivers of Sakhalin. The region was populated by people who had migrated down the Amur into northern Sakhalin which offered similar environmental conditions. Despite the fact that the straits separated the three territories, the tradition of the stemmed points survived in southern Sakhalin. Geographically, the transitional and the proper insular zones can be distinguished and this differentiation has left its mark on economic and historical-cultural processes. The lower boundary of the transitional period in the region in question is determined by dates obtained for early ceramics in the regions neighboring Sakhalin (northern Honshu, southern Hokkaido, and the Lower Amur) in the range of 12-9 ka BC. According to the available data, the borderline between the terminal Paleolithic and the transitional period or the initial Neolithic can be conditionally determined by this interval. This assessment correlates most effectively with contemporary knowledge concerning the age of the stemmed points of the Tachikawa type from Hokkaido and Sakhalin and Osipovka foliate pointed bifaces from the Lower Amur and northern Sakhalin about 13-9 ka BC.

This chronological boundary is close to the dates of cave and mountain sites in eastern Sakhalin between 16-12 ka BC. The Paleolithic settlement of Ogonki-5 (horizon 1) and partially the Sokol site are the best-studied localities of the transitional period on Sakhalin. The sites of the transitional period are associated with mountain (Ostantsevaya), valleys (Ogonki-5-7), piedmont (Sokol), and littoral (Odoptu-2, Imchin-1, and Starodubskoye-3) landscapes. Long-distance migrations were undergone in search of food sources from mountains and upper reaches of rivers difficult to access, to the sea coast and lagoon lakes. This way of life was determined by the transitional character of the subsistence system in conditions of global environmental change. The final Pleistocene to Early Holocene transition was marked by the extinction of mammoth fauna and its rapid replacement by modern fauna on the islands. These changes caused the emergence of a new diversified economy. Settlement patterns, tool kits, types of dwellings, migration routes, diet, and rhythms of seasonal activities also changed. It is probable that nomadic and semi-nomadic groups from the north and south moved into Sakhalin and Hokkaido during the transition period.

The Kuriles

The archaeology of the Kuriles is distinguished by its diversity of sites and distinctness of artifacts. This can be explained partly due to the rich environment of the archipelago, and partly by the numerous contacts that existed between cultures at various stages of the settlement history. Sakhalin served as a bridge for animals and then for the human population making their way to Hokkaido and to the southern and Lesser Kuriles. According to current knowledge, Homo sapiens came to Southern Kuriles via Sakhalin and Hokkaido in the Upper Paleolithic, i.e. 20 thousand years ago, since Kunashir and Shikotan were parts of the Sakhalin-Hokkaido peninsula. The distinct similarity between the terminal Paleolithic cultures of the Primorye, Sakhalin, Hokkaido, and Kamchatka dating to 13- -10 ka BC indicates that ancient links somehow existed between population of the huge coastal and insular region of North Eastern Asia. However, no Paleolithic sites have yet been discovered on the Kuriles.

Kuril Neolithic sites have direct parallels among synchronous Jomon settlements in the northeastern part of Hokkaido. Active migration of the Neolithic population to the Kuriles coincided with the Holocene Climatic Optimum, the warmest interval of the Post-Glacial period

dated within the range of 7000-5000 BC (cal.). At that period, Hokkaido and the southern Kuriles were vegetated by broad-leaved and mixed coniferous, broad-leaved forests (Razjigaeva et al., 2002; 2006). The main occupations of the Neolithic islanders included fishing, food gathering in forests and on seashores, and hunting birds and sea animals.

The earliest archaeological sites on the Kuriles are attributed to the Early Neolithic (7th-6th millennia BC) and the earliest settlements with dwellings are dated to the Early to Middle Neolithic transition period (5th-4th millennia BC). Among these sites are Yankito, Kitovoye on Iturup, and Belozerka on Kunashir. Hideaki Kimura (1999) attributes them to the Early Jomon. There were some new results of the author in Shikotan and Oksana Yanshina in Iturup (Kuzmin et al., 2014). Chronologically finds corresponds to the Early Jomon on Hokkaido and to the initial Middle Neolithic on Sakhalin. No early Neolithic sites with blade industries or radiocarbon dates earlier than Malokurilskoye on Shikotan dated back to 7270±50 BP–cal. 6143 ± 57 BC (MTC17013) are known on the Kuriles. This may be explained by the fact that no detailed survey has yet been conducted on these islands. But there is also a very good reason was found in a much unexpected issue. A huge volcano names L'vinaya Past' (Leo Throat) (44°36′29″N 146°59′38″E / 44.608°N 146.994°E / 44.608; 146.994) exploded in Iturup in Early Holocene. The caldera formed about 9400 years (7480 BC ± 50) ago during one of the largest Holocene eruptions of the Kuril Islands. Between 70 and 80 cubic kilometers of tephra was erupted, measuring a Volcanic Explosivity Index of 6. The deapth of caldera was 550 meters below the sea level ["Lvinya Past (Eruptive History)"].

During the Sartan period, the contact zone ran along the Tsugaru Strait and southward. In the Early Holocene, this zone shifted to the Ishikari River valley on Hokkaido; about 7-6 ka BC, it shifted to Southern Sakhalin. The similarities between the Late Paleolithic and Early Neolithic cultures of Sakhalin, northern and eastern Hokkaido, and the southern Kuriles cannot be traced subsequent to 7000 radiocarbon years BP implying an abrupt change in the region's cultural history in late 7th and 6th millennia BC.

The most significant event marking the Neolithic was the migration of peoples down the Amur and into Sakhalin. The immigrants settled on lake and lagoon shores as they had done in their former territories. On their way south, they incurred resistance from the Jomon tribes, whose northern group had occupied Hokkaido and the Kuriles since no later than the 7th millennium BC. The northernmost area of the Jomon culture's influence formed within the

geographical borders of Hokkaido and the Kuril Archipelago no later than the 6th millennium BC. By this time, there are no signs that the northern lithic tradition of points on blades, characteristic of the Hokkaido Early Neolithic had been preserved. The La Perouse Strait and deep straits in Kuriles became large natural borders, until Middle Neolithic.

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