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Pit dwellings of the Nalychevo Culture in Southern Kamchatka and the Northern Kuril Islands

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Abstract: The purpose of this study is to reveal the regional characteristics of pit dwellings of the Nalychevo Culture that are distributed in Southern Kamchatka and the Northern Kuril Islands between the 15th and the 19th centuries. Materials examined in this study are semi-subterranean residences excavated at the Nalychevo 9 and the Listvennichnaya II sites in Southern Kamchatka as well as instances from the Northern Kuril Islands. As a result of analysis, we found that there are differences in building technique, a method for making a hearth (or a furnace), and the post arrangement between Southern Kamchatka and the Northern Kurils, while other elements are common in these regions. This indicates that archaeological sites in Southern Kamchatka were not necessarily remained by a seasonal occupation of hunter-fishers from the Northern Kurils, but two different human groups settled in Southern Kamchatka and the Northern Kurils respectively. Finally, we compare characteristics of pit dwellings in the regions to those in Sakhalin. Although the origin of these pit dwellings could not be clarified, we highlight that Sakhalin is still one of the strong candidates for the homeland of pit dwellings in Southern Kamchatka and the Northern Kurils.

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1. Introduction

Recent archaeological research has revealed that the Kuril, an ancestral group of the Kuril Ainu, was appeared in the Northern Kurils and Southern Kamchatka between the mid-15th and the mid-17th centuries (Takase 2013). Obviously, they originated from the south, not from Kamchatka or the north, and came to these regions through the Southern and Central Kuril Islands since they used Naiji pottery that is a simulant of the iron pan produced in Medieval and Early Modern Japan, while other prehistoric and historic indigenous peoples in Southern Kamchatka did not use pottery. In addition, artifacts such as harpoon heads and iron knives from the Northern Kurils and Southern Kamchatka are similar to those from Southern Kurils, Hokkaido and Sakhalin, and Japanese coin was also carried as far north as Central Kamchatka. An archaeological culture consisting of these artifacts is regarded as the Nalychevo Culture (Dikov 1979)(Fig. 1), and it originates from the Medieval Ainu Culture distributed throughout Southern Kurils, Hokkaido, and Sakhalin.

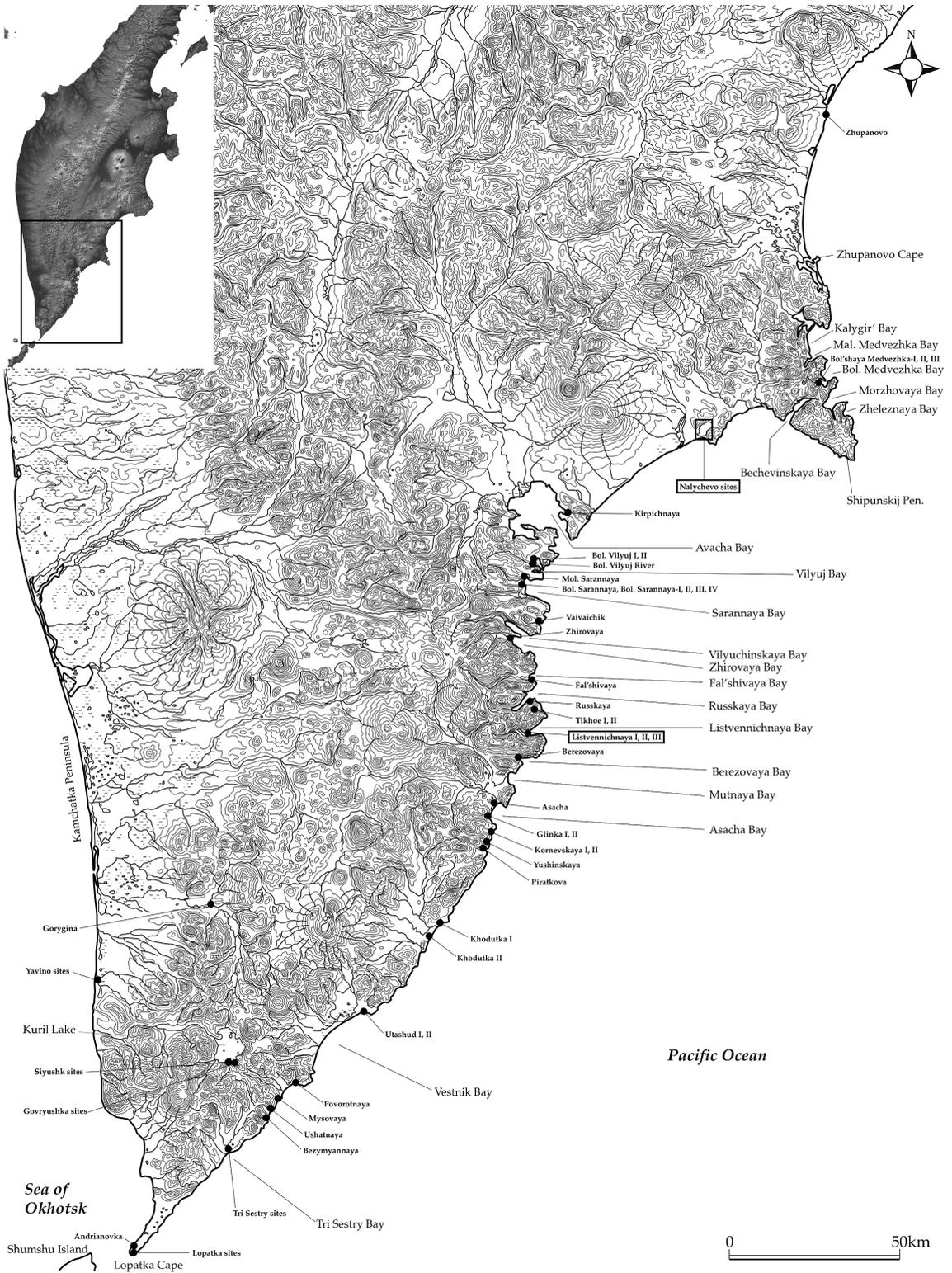


Figure 1 Map showing the location of sites regarding this study and the distribution of the Nalychevo Culture

Although the Kuril's homeland has not yet been specified, pit dwellings are expected to provide significant clues because its existence and building technique show relatively distinct reagonality in the circum Okhotsk Sea region. Given that the detailed information on building technique and the morphological features of pit dwellings of the Nalychevo Culture can be clarified, this may lead us to consider the Kuril's origin on the basis of better evidence. This study examines the detailed information on residences and compares it with the results from other regions to obtain clues on the origin of the Kuril.

2. Characteristics of pit dwellings

(1) Nalychevo 9 site

On the terraces around the Nalychevo Lake, eighteen archaeological sites have been recognized so far (Figs. 1 and 2). Among these sites, we investigated two pit dwellings at the Nalychevo 9 site where nine pit dwellings had been confirmed by a general survey (Ponomarenko 2000) (Fig. 3). An erosion of the lake had destroyed approximately half the portion of pit dwelling No. 4 before our investigations. However, it is possible to estimate that the plan of this house is square or rectangular, and an entrance is attached to a side (Fig. 4). This house was built on a place that falls slightly toward the lake, and the entrance was located on an upper side. A large hearth surrounded by stones is set on the floor, while there was no clear trace of post. It is notable that a shallow pit that has a diameter of at least of 2 m can be seen near the residence, although it was not excavated. This pit dwelling is surrounded by moved soil, and it forms an embankment around a house.

Fig. 5 shows the result of archaeological excavations of pit dwelling No. 2 at the Nalychevo 9 site. The plan view of this house is similar to pit dwelling No. 4, although it is much larger than the dwelling No.

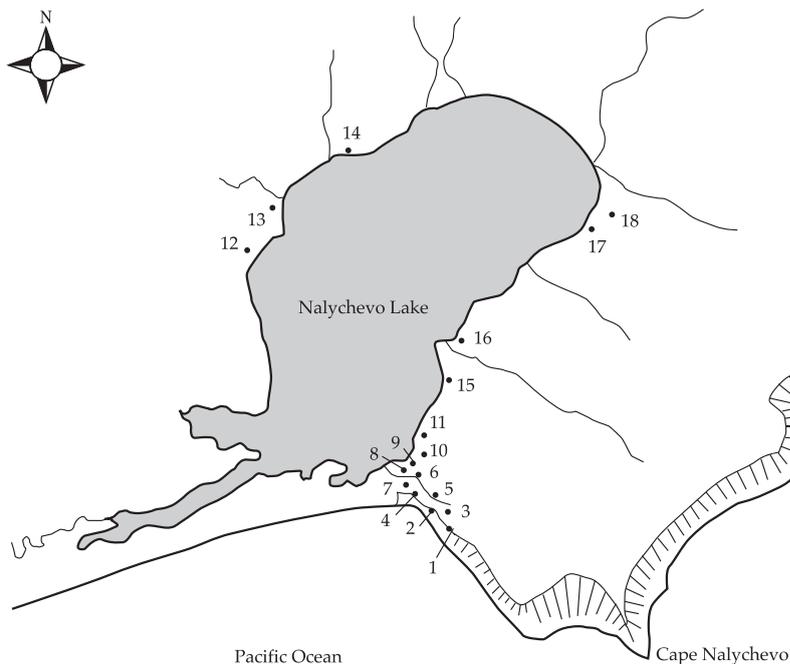


Figure 2 The Nalychevo site cluster (after Ponomarenko 2000)

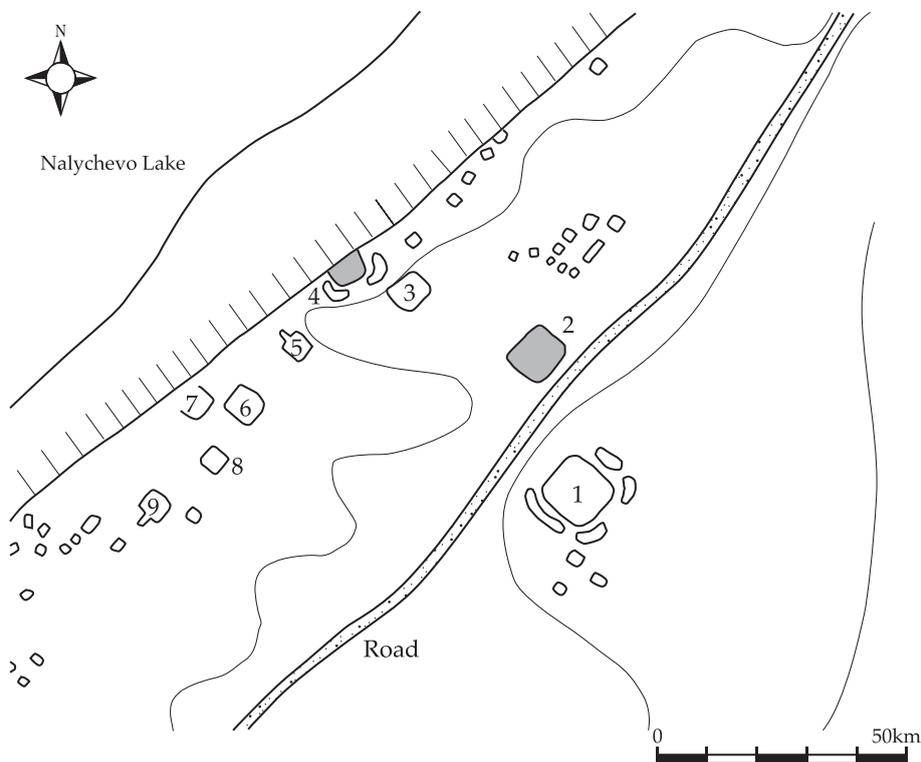


Figure 3 The Nalychevo 9 site (after Ponomarenko 2000)

4 and other residences along the eroded slope. The length of a square side is approximately 6.4 to 6.7 m. An entranceway is attached to an upper side, and its length is approximately 3.7 m. A cross section suggests that the base of the entrance is lower than the head of it. A large hearth without stones is set on the floor; it is located near a junction between the dwelling and the entrance, not in the center of the floor. Although we tried to collect ecofacts from the hearth using the water-flotation technique, no plant seed could be seen. The center of the floor was lower than the peripheral area of the floor. Several small pits can be seen on the floor, and two deep pits are distributed on the far side from the entranceway. However, the fill on these deep pits is very soft; thus they might be traces of wood roots and there is no clear evidence for post pits in this house. A shallow pit with a diameter of 2.2 m is situated aside of the entranceway, although we did not excavate it.

The surrounding embankment is also distributed around this house. As pit dwelling No. 4, there is no discontinuity in a surrounding embankment even near the end of the entranceway. In the cross section of this embankment, a thin stratum containing a large amount of charred material can be seen (layer 1b in Fig. 5.3). Such a stratum usually exists in surrounding embankments of pit houses of the Nalychevo Culture. We believe that this layer was the surface ground during the time this house was used. It is still unclear if there are pits on this embankment since we did not necessarily excavate all area of it.

The number of artifacts from both residences was small. Almost all artifacts were stone chips and flakes, while a small number of stone tools such as arrowheads, points, and axes were found. Radiocarbon dating indicates that these residences at the Nalychevo 9 site date from the mid-15th to the mid

Table 1 Strata at the Nalychevo 9 site

Nalychevo 9, Natural sediment	
Layer I	Brownish black (10YR3/2) with large amount of plant root, moderately sticky, slightly firm, surface ground.
Layer II	Brownish black (10YR2/3) fine sand, moderately sticky, slightly firm.
Layer III	Grayish white (2.5YR8/1) fine sand, tephra layer which is estimated to be KS1, sticky, firm.
Layer IV	Brownish black (10YR2/3) fine sand, moderately sticky, slightly firm.
Layer V	Brownish black (10YR3/1) gravel, scoria layer, no stickness, slightly firm.
Layer VI	Grayish white (7.5YR8/1) gravel, scoria layer no stickness, slightly firm.
Layer VII	Grayish brown (10YR4/1) coarse sand which contains partially brownish black lamina layers, no stickness, moderately firm.
Layer VIII	Brown (7.5YR4/3) gravel, scoria layer, no stickness, slightly firm.
Layer XI	Grayish brown (7.5YR5/1) coarse sand, no stickness, slightly firm, brownish black lamina layers are included in the upper part.
Layer X	Black (10YR2/1) gravel, scoria layer, no stickness, no firmness.
Layer XI	Brown (10YR4/4) gravel, scoria layer, no stickness, no firmness.
Layer XII	Brownish black (7.5YR2/1) coarse sand containing a grayish white sand layer which is estimated to be volcanic ash, moderately sticky, moderately firm.
Nalychevo 9, Pit dwelling No. 2	
Layer 1	Moved soil when a pit dwelling was built.
Layer 1a	Dark brown (7.5YR3/3) fine sand or sandy silt, slightly firm, moderately sticky with small amount of yellowish brown.
Layer 1b	Brownish black (10YR3/1) fine or sandy silt with a large amount of charcoal, slightly firm, slightly sticky.
Layer 1c	Dark brown (7.5YR3/3) fine sand or sandy silt with yellowish brown sandy silt, slightly firm, sticky.
Layer 1d	Dark brown (10YR3/4) fine sand or sandy silt, moderately firm, no stickiness.
Layer 2	Dark brown (10YR3/4) sandy silt with small amount of charred material which has a diameter from 2 mm to 5 mm, moderately sticky, moderately firm.
Layer 3	Dark brown (7.5YR3/3) sandy silt with small amount of charred material which has a diameter from 2 mm to 5 mm and relatively large amount of artifact, moderately sticky, firm.
Layer 4	Brownish black (10YR2/3) sandy silt with relatively large amount of charred material which has a diameter from 2 mm to 5 mm, slightly sticky, firm.
Layer 5	Dull yellowish brown (10YR4/3) sandy silt with small amount of charred material which has a diameter from 2 mm to 5 mm, no stickness, firm.
Layer 6	Brown (10YR4/4) sandy silt with small amount of charred material which has a diameter from 2 mm to 5 mm, slightly sticky, slightly firm.
Layer 7	Black (10YR2/1) sandy silt with relatively large amount of charred material which has a diameter from 2 mm to 5 mm, slightly sticky, moderately firm.
Layer 8	Brownish black (10YR3/1) sandy silt with relatively large amount of charred material which has a diameter from 2 mm to 5 mm, moderately sticky, very firm.
Layer 9	Grayish yellow brown (10YR5/2) sandy silt ash layer with relatively large amount of charred material and bone fragment which has a diameter from 5 mm to 3 cm, sticky, firm.
Layer 10	Black (10YR 1.7/1) sandy silt with large amount of charred material which has a diameter from 2 mm to 5 mm, slightly sticky, slightly firm.
Layer 11	Dull yellowish brown (10YR5/4) sandy silt with relatively large amount of charred material which has a diameter from 2 mm to 5 mm, sticky, firm.

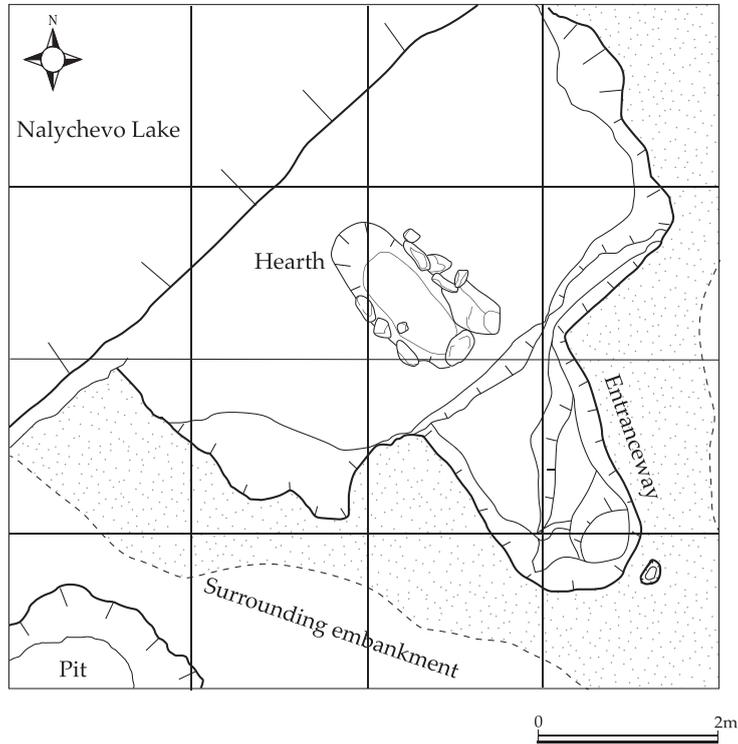


Figure 4 Pit dwelling No. 4 at the Nalychevo 9 site (Ptashinski and Takase 2008)

17th centuries (Ptashinski and Takase 2008), although no pottery fragment was discovered from these residences.

(2) Listvennichnaya Bay

Around the Listvennichnaya Bay, four sites have been recognized (Fig. 6). The archaeological culture of the Listvennichnaya IV site with several pit dwellings is still unknown because the radiocarbon date falls into a period between the Tarya Culture and the Nalychevo Culture [1140 ± 20 BP (IAAA-150980)] and we could find no artifacts. However, Naiji pottery fragments from the Listvennichnaya I-III sites indicate that they are clearly assigned to the Nalychevo Culture, and this age estimation can be supported by radiocarbon dates. At the Listvennichnaya I site (Fig. 7), we found a large number of Naiji pottery fragments on the eroded surface near the pit dwelling No. 13; however, we could not collect detailed information on the pit dwelling due to the time constraints. Therefore, we closely examine pit dwellings at the Listvennichnaya II and III sites.

Fig. 8.1 shows the topographic features of the Listvennichnaya II and III sites. The latter site is located on the left bank of a stream connected to the Listvennichnaya Lake and Listvennichnaya Bay. At this site, we excavated an area without pit dwelling and discovered a hearth. Around this fireplace, some pottery fragments classified as Ia or Ib type dating from the mid-15th to the 17th centuries were collected. A cross section of the hearth is shown in Fig. 8.4. The thickness of the burned soil is thinner than that of the pit dwellings. Although some pebbles were set around and in the hearth, the number of pebbles is small and they are coarsely arranged. This is likely a roughly made outdoor hearth.

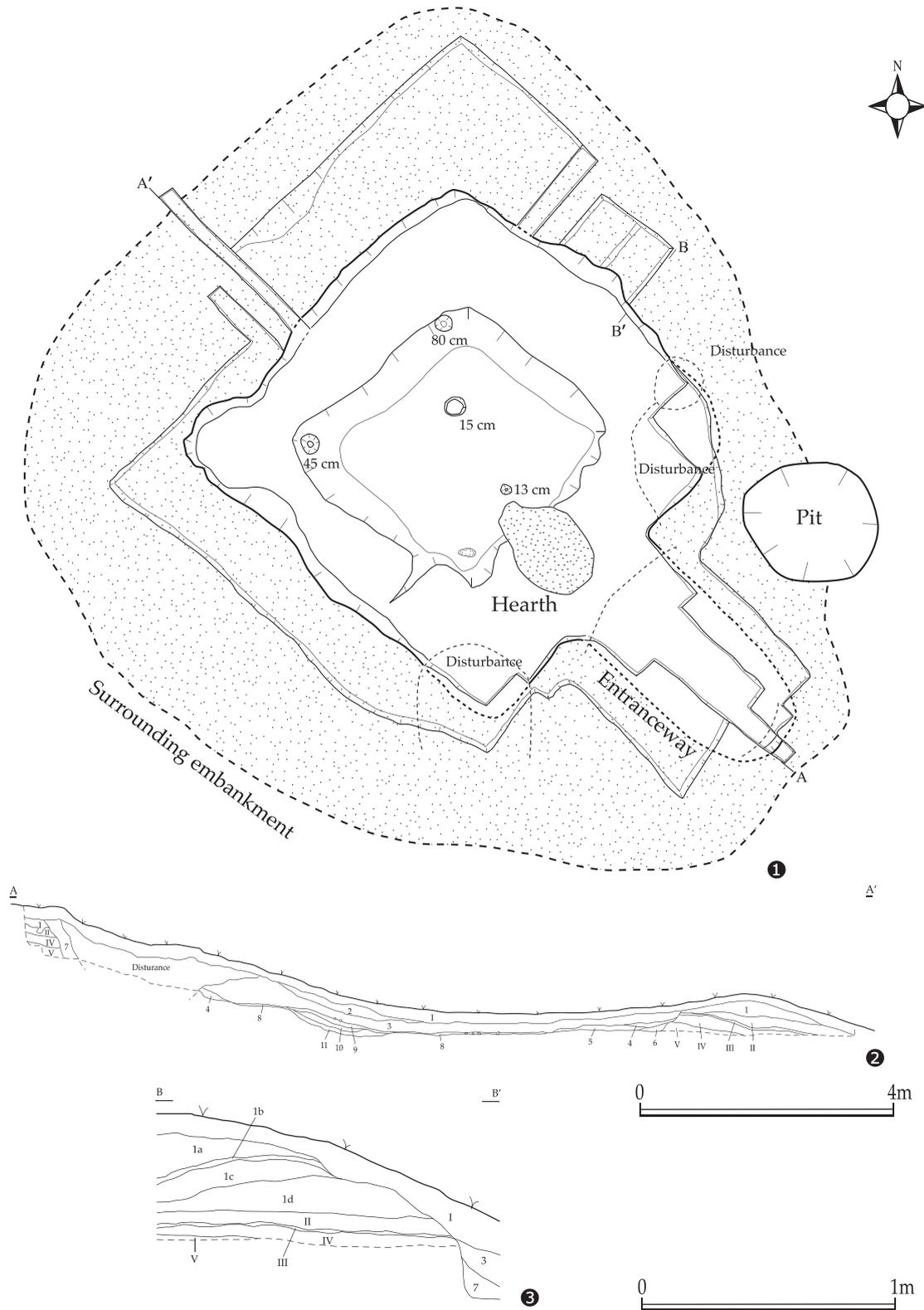


Figure 5 Pit dwelling No. 2 at the Nalychevo 9 site (Ptashinski and Takase 2008)

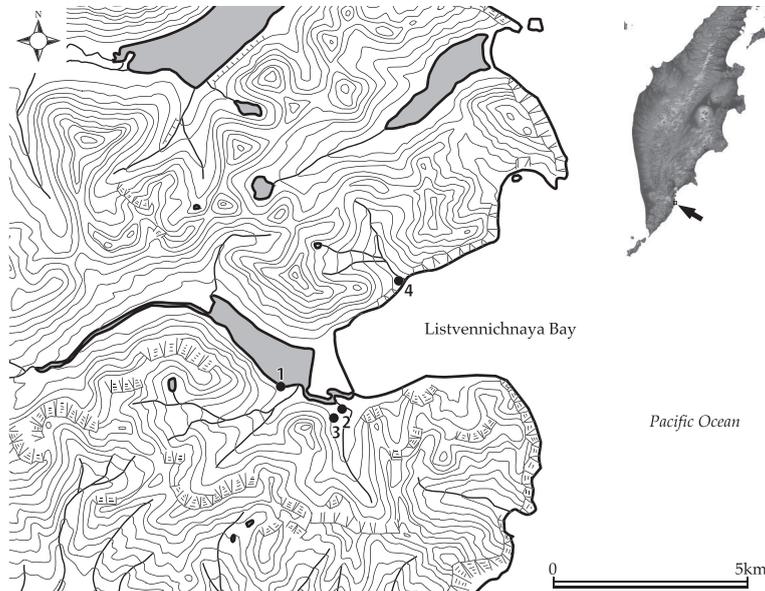


Figure 6 Archaeological sites around the Listvennichnaya Bay (Ponomarenko 1993, 1: Listvennichnaya I, 2: Listvennichnaya II, 3: Listvennichnaya III, 4: Listvennichnaya IV)

At the Listvennichnaya II site, the most fruitful information on pit houses was collected from three pit dwellings. This site is located on the steep upper terrace (Fig. 8). The plan view of the pit dwelling No. 9 is square and an entranceway is attached to a lower side (Fig. 8.2); in contrast, an entranceway was attached to the upper side of the residence at the Nalychevo 9 site (Fig. 5). We found some clay vessel pieces around this residence; they were regarded as type Ia or Ib Naiji pottery.

From a test pit near the pit dwelling No. 17, artifacts of the Tar'ya Culture (ca. the 8th century BCE to the 3rd century CE) were solely found; the radiocarbon dates of charcoal collected from this test pit are 2150 ± 30 BP (IAAA-150976), 2250 ± 20 BP (IAAA-150975), and 2280 ± 30 BP (IAAA-150977). These results indicate that the pit dwelling No. 17 also belongs to the Tar'ya Culture. Its plan view is round-edged square, an entrance way is not attached to the residence. It is notable that embankments were formed on both sides of the pit house; this is not an uncommon feature among pit houses of the Nalychevo Culture (Fig. 8.3). Morphological features of pit dwellings of the Tar'ya Culture have not yet been clarified in Southern Kamchatka; this can be an instance for it.

Fig. 9 shows pit dwellings in the southeastern part of the Listvennichnaya II site. Although it is difficult to compare with the Ponomareko's map of the site, two new pit dwellings were discovered in this area (Fig. 8.1). They are situated on a very steep terrace. Natural deposits of this place were mainly consisted of volcanic products as shown in Figs. 9.5 and 10.4. Pit dwellings were built digging these scoria layers. The plan view of pit dwellings recognized here is round-edged square. An embankment surrounds each residence, and there are wide and deep grooves along the outer side of an embankment. This means that margin of the residence was additionally dug to make the embankment higher after the main pit of the residence had been dug. These grooves cannot be seen on the upper side of the residences; therefore, they intended to make a higher embankment on the lower side.

Fig. 9.2 illustrates the bottom surface of a groove along the pit dwelling No. N1. A lot of small pits

Table 2 Strata at the Listvennichnaya II site (1)

Listvennichnaya II, Test pit 1	
Layer 1	Brownish black (10YR2/2) sandy silt, moderately firm, slightly sticky, surface ground.
Layer 2	Brownish black (10YR2/3) sandy silt, with a small amount of charcoal 3 mm-3 cm in diameter, slightly firm, slightly sticky, cultural layer (Nalychevo Culture).
Layer 3	Dark brown (10YR3.4) silt, slightly firm, no stickiness, tephra layer?
Layer 4	Brownish black (7.5YR2/2) sandy silt with a large amount of charcoal 3 mm-2 cm in diameter and small amount of fine sand originated from tephra layers, moderately firm, moderately sticky, cultural layer (Nalychevo Culture).
Layer 5	Brown (7.5YR4/4) fine sand, moderately firm, slightly sticky, tephra layer (KS1?).
Layer 6	Brownish black (7.5YR3/2) silt with a small amount of charcoal 3 mm-1 cm in diameter, firm, sticky.
Layer 7	Dark brown (7.5YR3/3) silt, firm, sticky.
Layer 8a	Very dark brown (7.5YR2/3) sandy silt with a very large amount of charcoal 3-5 mm in diameter, firm, slightly sticky, cultural layer (Tar'ja Culture).
Layer 8b	Dark reddish brown (5YR3/6) sandy silt with a very large amount of pumice ca. 1 cm in diameter and small amount of charcoal ca. 5 mm in diameter, firm, slightly sticky, cultural layer (Tar'ja Culture).
Layer 9	Dark reddish brown (2.5YR3/6) sandy silt with a very large amount of pumice 5 mm-1 cm in diameter, very firm, moderately sticky, tephra layer?
Layer 10	Dark reddish brown (5YR3/4) sandy silt, very firm, sticky.
Layer 11	Brown (10YR4/4) sandy silt, moderately firm, slightly sticky, tephra layer.
Layer 12	Dull yellowish brown (10YR4/3) sandy silt, very firm, sticky.
Layer 13	Reddish brown (2.5YR4/6) sandy silt, very firm, moderately sticky.
Layer 14	Brown (7.5YR4/4) sandy silt, very firm, moderately sticky.
Listvennichnaya II, Test pit 2	
Layer 1	Brownish black (10YR2/3) sandy silt, slightly firm, slightly sticky, surface ground.
Layer 2	Dark brown (10YR3/3) sandy silt, slightly firm, moderately sticky, cultural layer (Nalychevo Culture).
Layer 3	Dark brown (10YR3/4) fine sand, moderately firm, moderately sticky, tephra layer?
Layer 4	Brownish brown (7.5YR2/2) sandy silt, slightly firm, moderately sticky, KS1?
Layer 5	Dark brown (7.5YR3/3) sand, no firmness, slightly sticky, KS1?
Layer 6	Brownish black (10YR2/2) sandy silt, slightly firm, moderately sticky, KS1?
Layer 7	Dull brown (7.5YR5/4) fine sand, slightly firm, slightly sticky, KS1?
Layer 8	Brownish black (7.5YR3/2) sandy silt with a very large amount of charcoal 3 mm-5 cm in diameter, firm, sticky, cultural layer (Tar'ja Culture).
Layer 9a	Dark brown (7.5YR3/3) fine sand, moderately firm, moderately sticky.
Layer 9b	Dark brown (10YR3/4) fine sand, moderately firm, sticky.
Layer 9c	Dark reddish brown (5YR2/4) fine sand, moderately firm, sticky.
Layer 10	Dark reddish brown (5YR3/6) sandy silt with a very large amount of pumice 5 mm-1 cm in diameter, firm, moderately sticky.
Layer 11	Dark brown (7.5YR3/4) sandy silt, very firm, sticky.
Layer 12	Brown (7.5YR4/4) sand, moderately firm, moderately sticky, tephra layer?
Layer 13	Dark reddish brown (5YR3/4) sandy silt, firm, sticky.
Layer 14	Dark brown (7.5YR3/3) silt, very firm, very sticky.
M1	Dark brown (7.5YR3/3) sandy silt with a small amount of charcoal 3 mm-3 cm in diameter, moderately firm, moderately sticky.
M2	Black (7.5YR1.7/1) sandy silt with a large amount of charcoal 3 mm-5 mm in diameter, moderately firm, moderately sticky.
M3	Brownish black (7.5YR3/2) sandy silt with a small amount of charcoal 3 mm-1 cm in diameter, moderately firm, moderately sticky.
Groove 1	Brownish brown (7.5YR3/2) sandy silt with a small amount of charcoal 3 mm-1 cm in diameter, moderately firm, moderately sticky.
Groove 2	Brownish brown (10YR2/2) sandy silt, slightly firm, sticky.
Groove 3	Dark brown (10YR3/3) sandy silt with a small amount of charcoal 3mm-5mm in diameter, moderately firm, sticky.

Table 2 Strata at the Listvennichnaya II site (2)

Listvennichnaya II, Test pit 3	
Layer 1	Brownish black (10YR2/3) sandy silt, moderately firm, moderately sticky, surface ground.
Layer 2	Dark brown (10YR3/3) sandy silt with a small amount of charcoal 3 mm-2 cm in diameter, slightly firm, slightly sticky.
Layer 3a	Brownish black (7.5YR3/2) sandy silt, with a small amount of charcoal and mixed KS1 tephra 1-2 cm in diameter moderately firm, moderately sticky.
Layer 3b	Dull yellowish brown (10YR4/3) sandy silt with a very small amount of charcoal 1cm in diameter, slightly firm, sticky.
Layer 4a	Brownish black (10YR2/2) sandy silt, firm, sticky.
Layer 4b	Brown (10YR4/6) fine sand, slightly firm, slightly sticky, KS1?
Layer 5	Dark brown (7.5YR3/3) fine sand, firm, sticky.
Layer 6	Dark reddish brown (5YR3/6) fine sand with a large amount of pumice 3 mm-1 cm in diameter, very firm, sticky.
SX-01	Dark brown (7.5YR3/3) sandy silt with a large amount of brown silt and KS1 tephra 5mm-2cm in diameter, slightly firm, moderately sticky.
Layer 1	Very dark brown (7.5YR2/3) sandy silt with a very large amount of charcoal 5 mm-3 cm in diameter, slightly firm, slightly sticky.
Layer 2	
Listvennichnaya II, Test pit 4 (natural sediment)	
Layer 1	Brownish black (10YR2/3) sandy silt, moderately firm, slightly sticky, surface ground.
Layer 2	Brownish black (7.5YR3/2) sandy silt with a very small amount of charcoal 5 mm-1 cm in diameter, firm, moderately sticky.
Layer 3	Dark brown (10YR3/4) sandy silt, slightly firm, slightly sticky, tephra layer?
Layer 4	Brownish black (7.5YR2/2) sandy silt, slightly firm, moderately sticky.
Layer 5	Brown (7.5YR4/6) fine sand, moderately firm, slightly sticky, KS1?
Layer 6a	Dark brown (10YR3/3) sandy silt, moderately firm, moderately sticky.
Layer 6b	Dark brown (10YR3/4) sandy silt, firm, moderately sticky.
Layer 6c	Brownish black (7.5YR3/2) sandy silt, firm, sticky.
Layer 7	Dark reddish brown (5YR3/6) fine sand with a very large amount of pumice 5mm-1cm in diameter, very firm, moderately sticky, tephra latery.
Layer 8	Dark brown (7.5YR3/4) sandy silt, firm, very sticky.
Layer 9	Brown (7.5YR4/4) sandy silt, very firm, sticky.
Layer 10	Dark brown (7.5YR3/4) sandy silt, very firm, moderately sticky.
Layer 11	Dull yellowish brown (10YR4/3) sandy silt, firm, moderately sticky.
Listvennichnaya II, Pit dwelling No. 9	
Layer 1	Brownish black (10YR2/3) sandy silt with a small amount of charcoal, slightly firm, sticky, surface ground.
Layer 2	Dark reddish brown (2.5YR3/2) sandy silt with small amount of charcoal 3 mm-5 cm in diameter, moderately firm, sticky, cultural layer (Nalychevo Culture).
Layer 3	Brownish black (7.5YR3/2) fine sand with a small amount of mixed tephra lump and a large amount of charcoal 3 mm-3 cm in diameter, moderately firm, no stickness, cultural layer (Nalychevo Culture).
Layer 4	Dark reddish brown (10YR3/2) sandy silt with a large amount of charcoal 3 mm-5 cm in diameter, firm, slightly sticky.
Layer 5	Dark reddish brown (2.5YR3/3) sandy silt with a very small amount of charcoal ca. 3mm in diameter, firm, moderately stick, cultural layer (entrance of the residence?)
Layer 6	Dark brown (7.5YR3/3) silt, very firm, moderately sticky.

Table 2 Strata at the Listvennichnaya II site (3) and the Listvennichnaya III site

Listvennichnaya II, Pit dwelling No. 17	
Layer 1	Brownish black (10YR2/3) sandy silt, moderately firm, slightly sticky.
Layer 2	Dark brown (10YR3/4) sandy silt with a very large amount of fine sand originated from KS1 tephra layer, slightly firm, slightly sticky, cultural layer (Nalychevo Culture).
Layer 3	Black (10YR2/1) sandy silt with a very small amount of charcoal 3mm-1cm in diameter, slightly firm, slightly sticky.
Layer 4	Grayish brown (10YR4/1) sand, no firmness, no stickiness, KS1 tephra.
Layer 5	Dark brown (10YR3/3) sandy silt with a very large amount of charcoal 3mm-3cm in diameter, firm, sticky, cultural layer (Tar'ya Culture).
Layer 6	Black (10YR 1.7/1) sandy silt with very large amount of charcoal 3mm-1cm in diameter, slightly firm, slightly sticky, cultural layer (Tar'ya Culture).
Layer 7	Dark reddish brown (10YR3/2) sandy silt with a very large amount of charcoal 5 mm-1 cm in diameter, very firm, moderately sticky, cultural layer (Tar'ya Culture).
Layer 8	Black (10YR 1.7/1) sandy silt with a very large amount of charcoal 3 mm-5 mm in diameter, slightly firm, slightly sticky, cultural layer (Tar'ya Culture).
Layer 9	Dark reddish brown (2.5YR3/2) sandy silt with a large amount of charcoal 3 mm-2 cm in diameter and a very large amount of pumice 5 mm-1 cm in diameter, firm, moderately sticky, cultural layer (Tar'ya Culture).
Layer 10	Black (10YR2/1) sandy silt with a small amount of charcoal 3 mm-5 mm in diameter, moderately firm, sticky, cultural layer (Tar'ya Culture).
Layer 11	Reddish dark brown (2.5YR3/3) sandy silt with a small amount of charcoal 3mm-5mm in diameter, moderately firm, sticky, cultural layer (Tar'ya Culture).
Layer 12	Brown (7.5YR4/4) fine sand, firm, sticky.
Listvennichnaya III, Hearth	
Layer 1	Brownish black (10YR2/3) fine sand with a large amount of charcoal 3 mm-1 cm in diameter and very large amount of burned gravel, moderately firm, slightly sticky.
Layer 2	Brownish black (10YR2.2) sandy silt with a very large amount of charcoal 3 mm-2 cm in diameter, firm, very sticky.
Layer 3	Dark brown (7.5YR3/3) fine sand with a small amount of charcoal ca. 5 mm in diameter, moderately firm, sticky.

form the uneven bottom surface of a groove; these are likely traces of digging tools such as hoes and axes. There is the possibility that iron edges were used for these tools as well as stone edges because some pits have a cross-section formed by the sharp edge. Figs. 9.3 and 9.5 show that this pit dwelling was built destroying tephra layers possibly including the KS1 that fell approximately 1800 years ago. Additionally, these profiles demonstrate high-pitched (ca. 30°-40°) surface ground on which this pit house was built. A relatively large amount of artifacts including pottery were found around this residence. Since this was built destroying a cultural layer of the Tar'ya Culture (lower cultural layer) as well, we also found a considerable number of artifacts of this period. All Naiji pottery fragments could be classified as type Ia or Ib.

The pit dwelling No. N2 is also built on a steep surface (Figs. 9.1, 10.3). A relatively small shallow pit with a diameter of 0.7 m was detected in the test pit 3 as some instances of pit dwellings at the Nalychevo 9 site (Fig. 10.2). No pottery fragment was detected around this pit house, while we found some stone tools.

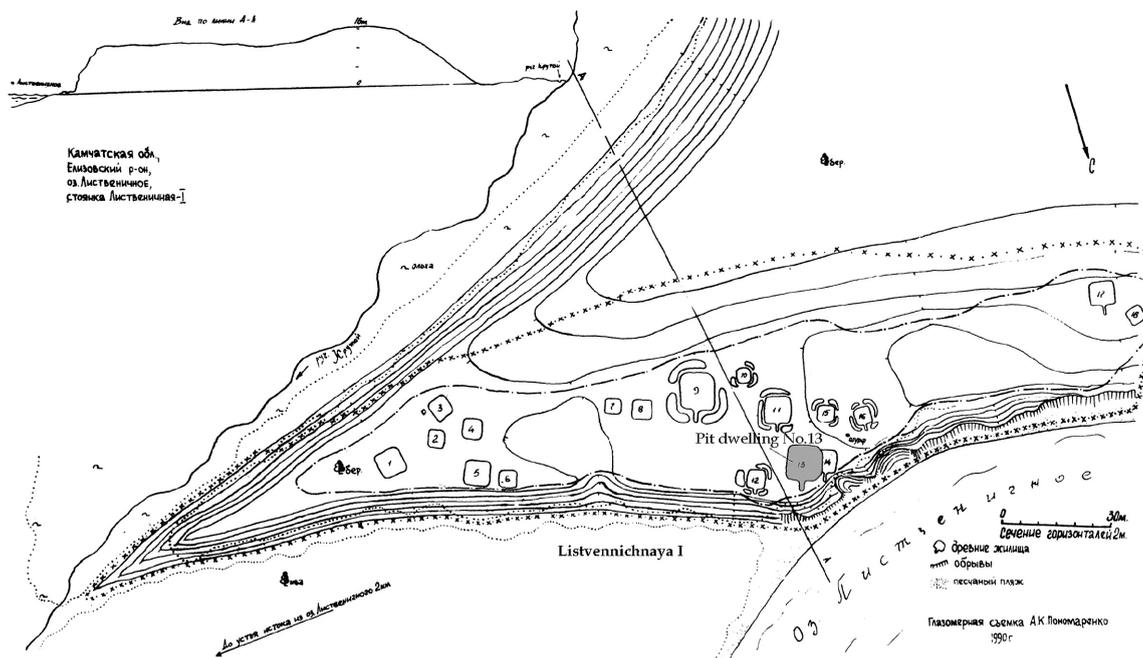


Figure 7 Listvennichnaya I site (Ponomarenko 1993)

3. Discussion

(1) Chronological place of pit dwellings

We have already revealed the temporal change in pit dwellings of the Northern Kurils on the basis of the reexamination of Osamu Baba's excavations conducted in the 1930s (Takase and Suzuki 2013). According to this study, the pit dwellings of the Nalychevo Culture should be classified into four categories: types I, II, III, and IV (Fig. 11). Type I residences are characterized by a circular form in plan view without an entranceway. In contrast, type II dwellings have an entranceway on a side of the square- or rectangular-shaped main pit. Type III houses are also characterized by an entranceway that has a T-shaped end or small rooms as storage space. Type IV residences have both of these in a long entranceway. Until the end of the 19th century, type IV residences were replaced by typical pit dwellings of the Kuril Ainu with multi rooms as Torii (1919) and Baba (1939) reported; small storage rooms of types III and IV dwellings should be regarded as the origin of these additional rooms.

From the typological viewpoint, we believe that type I pit dwelling is the oldest. It is obvious that types III and IV should be assigned to late stages among these types. Such a relative chronology of pit dwellings is supported by pottery. Types Ia and Ib pottery dating to a period from the 15th to the 17th centuries was found from the type II residences (e.g., Shiomigawa No. 1 and Oyobigawa No. 8 residences). In contrast, type II pottery dating to the 18th century was excavated from types II and III residences (e.g., Oyobigawa No. 1 and Bettobu Nos. 1 and 2 residences) (Takase and Suzuki 2013). Thus, type II dwellings should be dated to a period from the 15th to the 18th centuries, and type III houses were built in the 18th century and later. Ethnographic records indicate that pit residences with multi rooms became

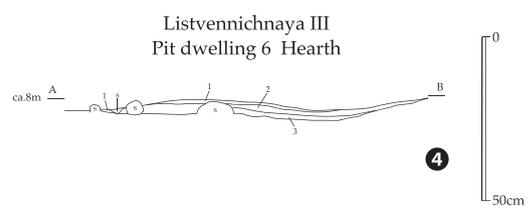
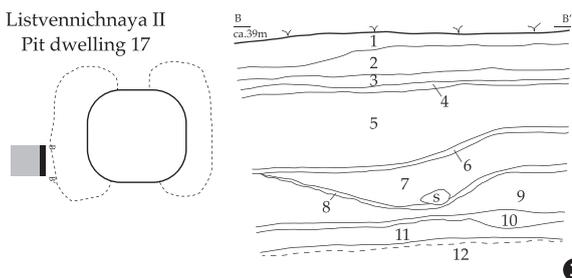
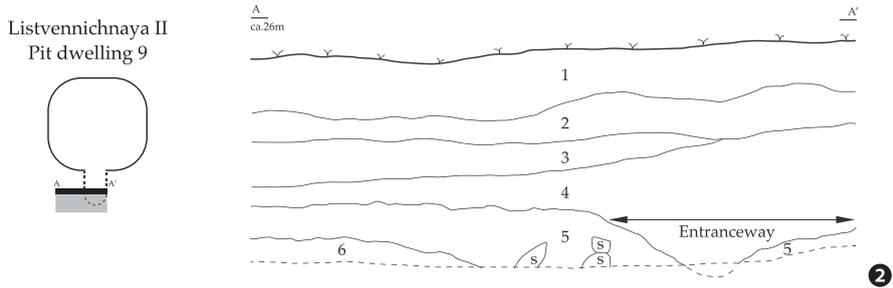
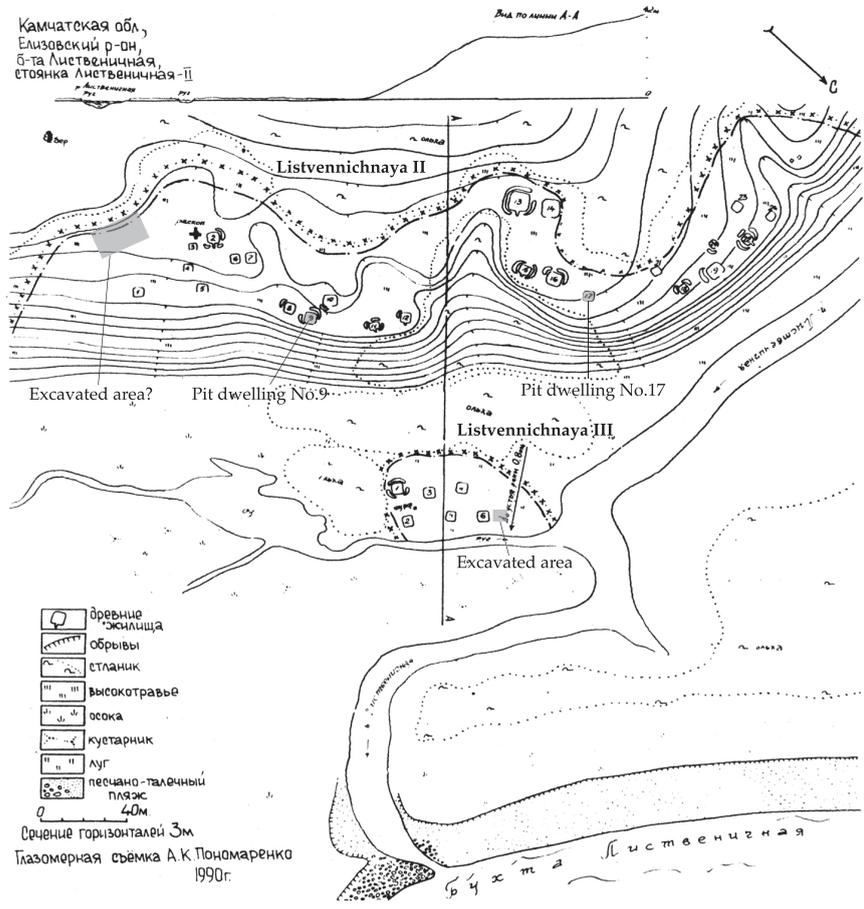
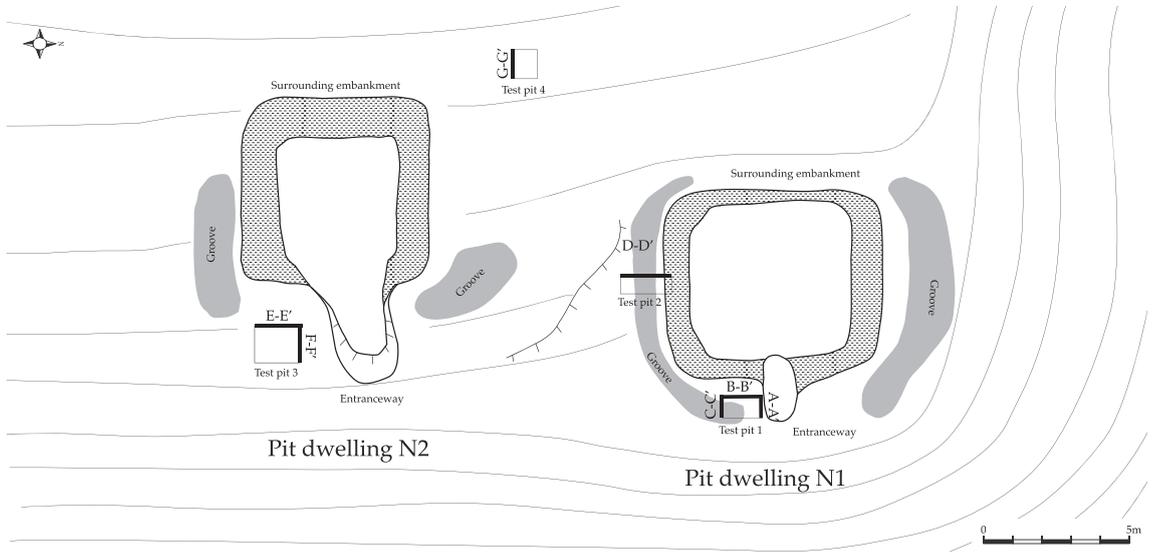
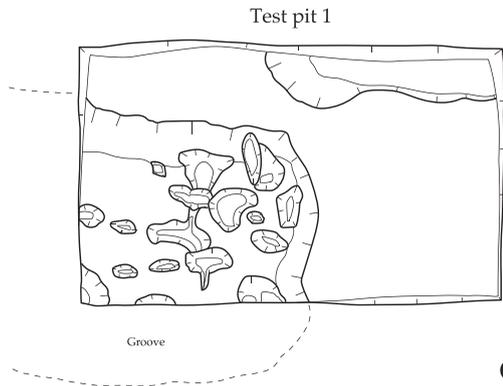


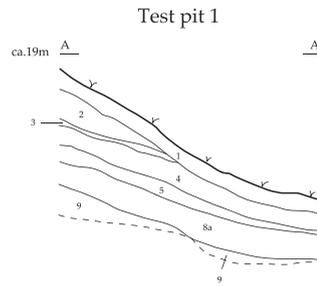
Figure 8 Pit dwellings at the Listvennichnaya II and III sites (Ponomarenko 1993)



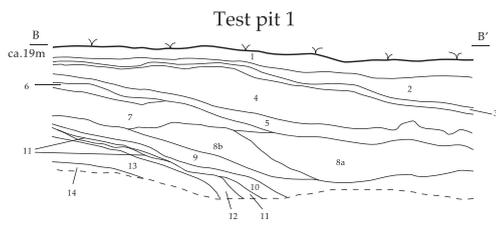
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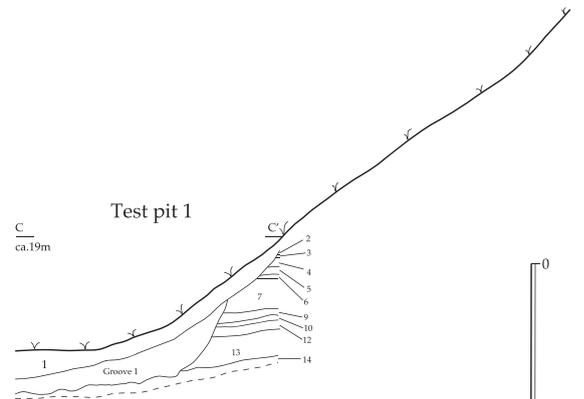
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Figure 9 New pit dwellings at the Listvennichnaya II site (1)

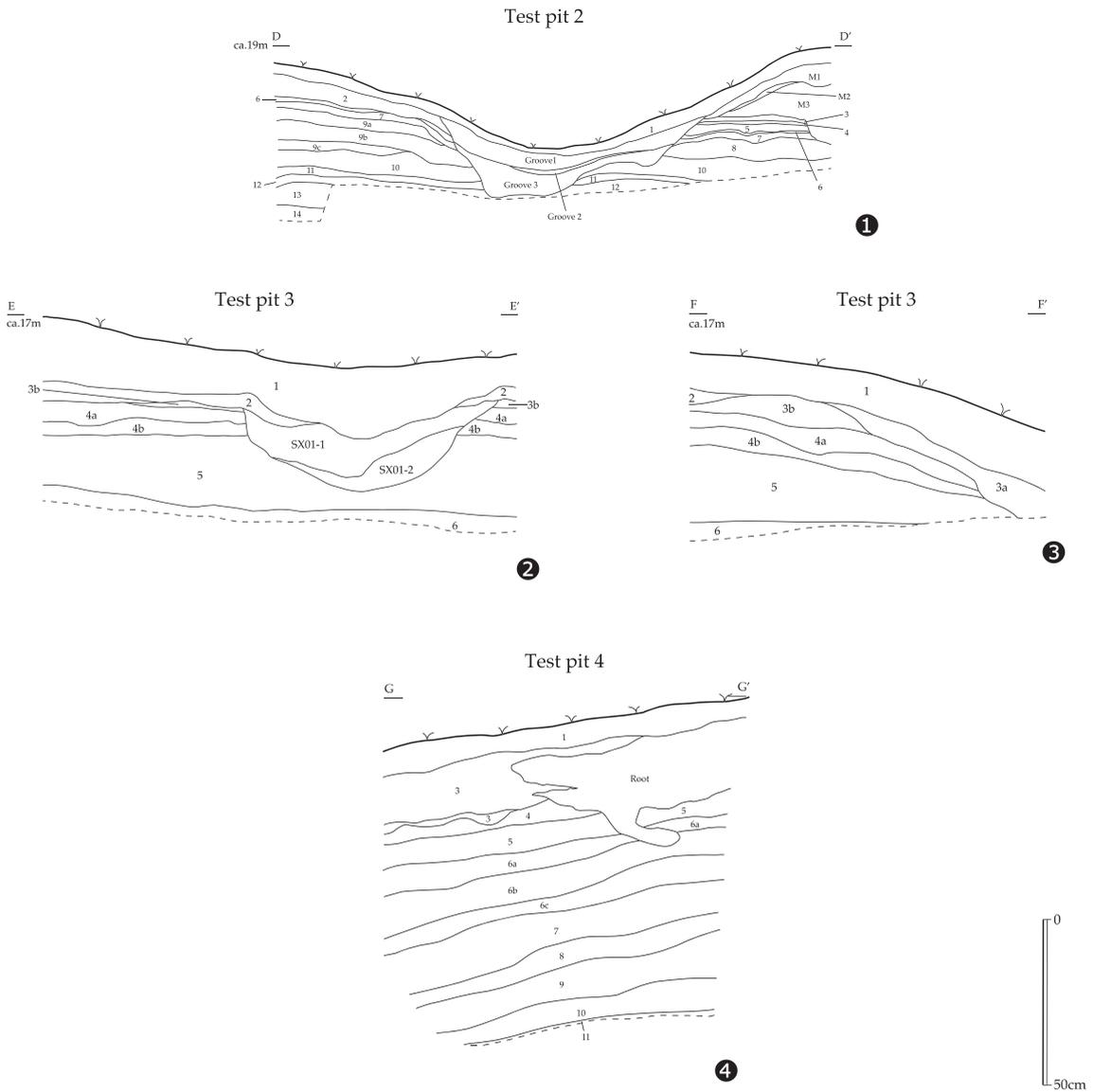


Figure 10 New pit dwellings at the Listvennichnaya II site (2)

common at some point in the 19th century. Possibly, type I residence was used in the 15th century and 16th century with type II residence, and type IV residence can be dated to a period from the newer stage of type III residence to the emergence of ethnographic pit dwellings with multi rooms.

Pit dwellings investigated in the Nalychevo 9 and the Listvennichnaya II sites are regarded as type II. We found types Ia and Ib pottery from these residences, indicating that they should be dated between the mid-15th and the 17th centuries. According to results of the general survey (Ponomarenko 1993), a type II residence is the most common house not only in the Northern Kurils, but also in Kamchatka. Additionally, this type of residence is distributed in a wide area in Kamchatka from the Lopatka Cape to the Kronotskij Bay. On the other hand, residences with multi rooms so far have been found solely in the

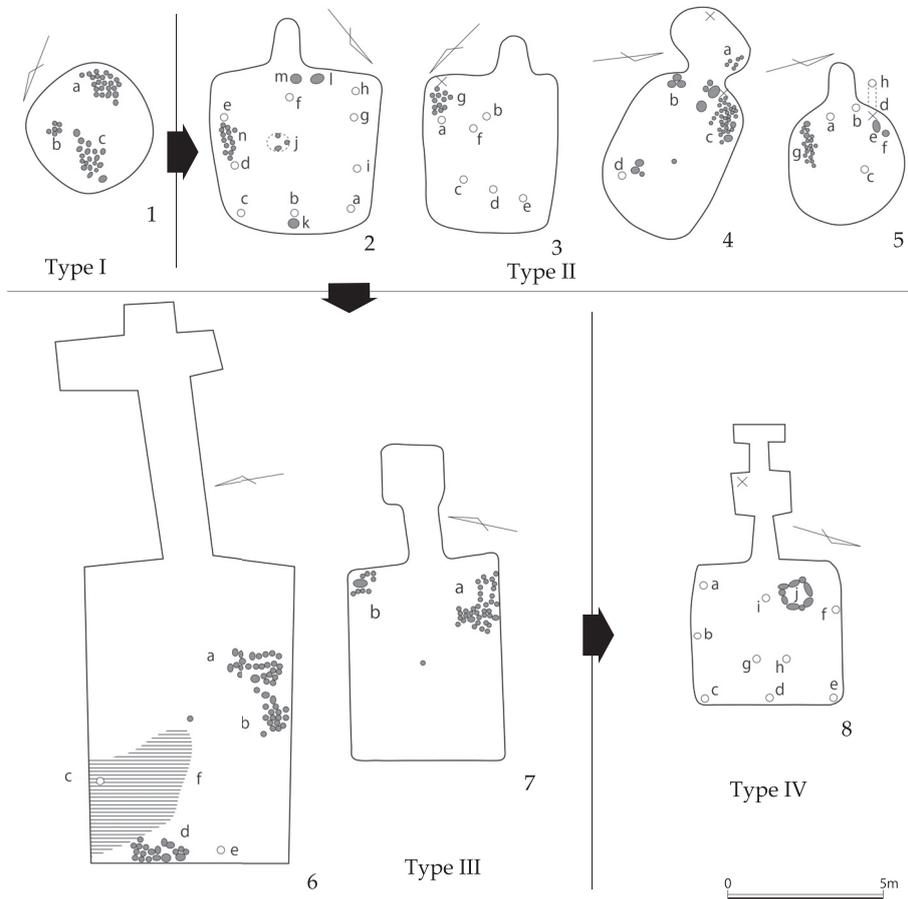


Figure 11 Temporal change in pit dwellings in the Northern Kurils (Takase and Suzuki 2013)

Vestnik Bay (the Utashd sites) in Southern Kamchatka (Ponomarenko 1993, Fig. 1). Certainly, we should note that the results of the general survey are not necessarily perfect; however, it is also true that pit houses with multi rooms are distributed only in the southern tip of the peninsula in Kamchatka. In addition, there are no types III and IV dwellings from the Listvennichnaya Bay to the Kronotskij Bay. Apparently, distribution area of the Nalychevo Culture residence became smaller after the beginning of the 18th century. This result is consistent with the distributional trend of the Kuril and the Kuril Ainu estimated on the basis of Naiji pottery (Takase 2015, Takase and Lebedintsev 2016), indicating their retreat from Kamchatka was caused in the beginning of the 18th century.

(2) Building technique

Pit dwellings excavated in the Nalychevo 9 and the Listvennichnaya II sites demonstrate that the plan view of the main room is square or rectangular between the 15th and the 17th centuries. An entranceway was attached to a side. On the floor of a residence, a relatively large hearth was set near the junction between the main room and the entranceway, not in the center of the room. Post pits cannot be seen on the floor; pillars, probably, were usually set without making pits on the floor.

There are some differences in building method and technique between the two sites. At the

Nalychevo 9 site, entranceways are attached to the higher side of the main room, while they were attached to the lower side of the main room at the Listvennichnaya II site. The result of a general survey suggests that entranceways are usually attached to the lower side of the residence at the Listvennichnaya II (Figs. 8 and 9), while they are attached to various sides of the main room of residences at the Nalychevo 9 site (Fig. 3). Since there is a large difference in the pitch of the ground surface between the two sites, the direction of the entranceway is likely to have a relationship with it. When a pit dwelling is built in the flat or low-pitched area, an entranceway can be attached to various sides of the residence. This means that enough volume of soil could be supplied from the main room and entranceway to make an embankment to prevent the water entry into the residence. (Fig. 12.1). In the steep area, however, an entrance way is attached solely to the lower side of the residence as examples at the Listvennichnaya II site.

Wide and deep grooves along a pit dwelling are also correlated with topographical features. Their occurrence rate in the Listvennichnaya sites is much higher than that in the Nalychevo 9 sites. This means that grooves were built to make the surrounding embankment higher especially in the lower part of the residence in steep areas. They intended to make the difference in the elevation of an embankment small between the upper side and the lower side of a residence (Fig. 12.4). If the elevation of embankment surface is not conditioned in a steep area, a lot of longer trunks are required to build the symmetrical superstructure because the embankment surface where the lower end of balks should reach comes down. If shorter trunks are used for main pillars and balks at that time, the angle formed by balks (Fig. 12.6 θ) would become large, meaning that structural durability of the roof would decrease and residential space would be small. In order to prevent these disadvantages, they needed to make the embankment higher in the lower side by supplying additional soil on an embankment; therefore, these grooves can be frequently seen in sites on the high-pitched surface ground.

(3) Regionality of pit dwellings

Morphological features of pit dwellings are essentially similar between Southern Kamchatka and the Northern Kurils. However, close observation reveals that there are differences between the two regions, particularly in the method for making the hearth. Hearths surrounded by large pebbles and those without pebbles are frequently used in Kamchatka. In the Northern Kurils, in contrast, there is no hearth surrounded by large stones among dwellings of types I and II; simple fireplace without pebbles solely can be seen in this region. Instead, some concentrations of small pebbles 5 cm to 10 cm in diameter are occasionally used at the corner of pit dwellings in the Northern Kurils. Oka and Baba (1938) speculated that they were traces of furnaces because Baba found a cooking facility with a chimney, stones, and Najji pottery in perfect condition at the corner in the pit dwelling No. 4 at the Oyobigawa site, Shumshu Island (Fig. 11.5).

The Sakhalin Ainu also used furnaces for pit dwellings, and there remains the possibility that they were also used in the Northern Kurils and Kamchatka. However, the furnace is regarded as a relatively new element in Sakhalin since there is still no clear evidence showing the utilization of furnaces before the ethnographic period (mainly the 19th century) (Yamamoto 1970). Additionally, if concentrations of rounded small pebbles were related to a furnace as Oka and Baba (1938) stated, they should be found solely near the wall of houses on the same side as the entranceway. However, they can be frequently seen near the wall without the entranceway, and they are sometimes located away from the wall (Fig. 11.1, 2, 4, 5, 6); even in an instance that Oka and Baba mentioned (Fig. 11.5), relatively large stones, not small pebbles, are

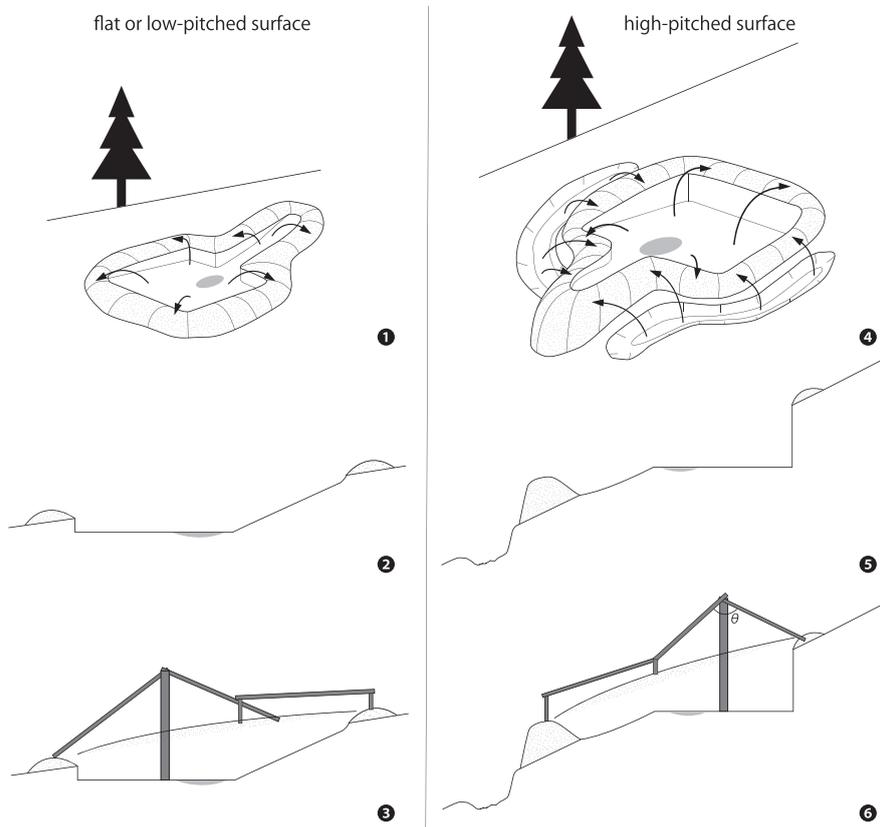


Figure 12 Methods for making an embankment surrounding a pit dwelling

located near a furnace, while a pebble concentration is situated on the other side of the house. Thus, all pebble concentrations were not necessarily furnaces. However, we also believe that they were cooking facilities because thick charcoal layer and burned soil can be seen with them. If so, there were relatively large differences in the method for making hearths of type II residences between Southern Kamchatka and the Northern Kuril Islands.

Post arrangement has also a spatial variety between the two regions. Baba (1939) reported some excellent examples for clarifying it; in some cases, wooden post were still remained when he excavated pit dwellings. Four principal posts arranged in rectangular shape can be seen in the pit dwelling No. 1 at the Oyobigawa site (Fig. 13.1), while a post arranged in the center of the floor as well as nine subsidiary posts along the wall were set in the pit dwelling No. 5 at the Bettobu site (Fig. 13.2). Furthermore, irregular pit arrangement can also be seen (Fig. 13.3); in this case, the number of main post has a variety from 2 to 4. These examples indicate that there were at least three methods for arranging principal posts in the Northern Kurils. It is also notable that the location of the hearth is related to the post arrangement. A hearth can be seen in the center of the floor when four main posts are arranged in rectangular shape. On the other hand, when a principal post is set in the center of the floor, Baba (1939) noted that a concaved burned area is distributed between the pebble concentration near the principal post and the entranceway. This is regarded as a hearth of the pit dwelling, suggesting that the hearth should be moved to the direction of an entranceway when the center post is used. In Kamchatka, there are usually no apparent post pits on the

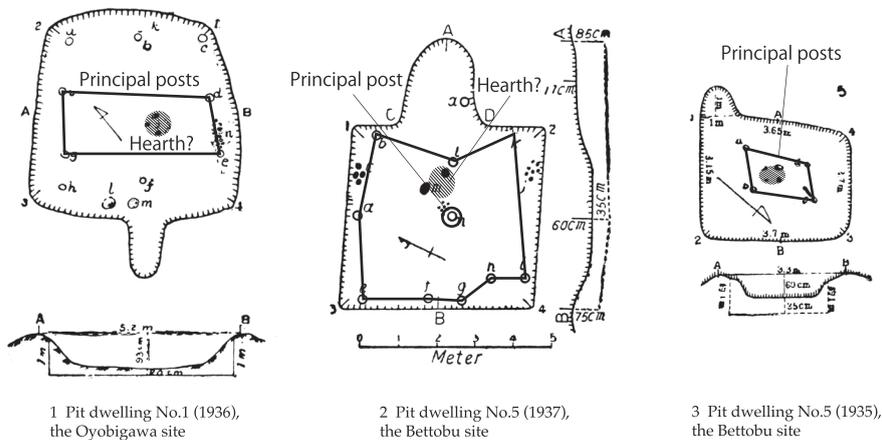


Figure 13 Pit dwellings in the Northern Kurils Islands (Baba 1939)

floor; this is a large difference. Referring to the fact that hearths are occasionally set close to the junction of a main room and an entranceway and the scarcity of hearths set in the center of the floor in Kamchatka (Dikova 1983: Fig. 5), it is reasonable to expect that a center post was used in this region. Thus, variation of post arrangement in the Northern Kurils is wider than that in Kamchatka.

The spatial difference in pit dwellings suggests that archaeological sites in Southern Kamchatka were not necessarily formed by a seasonal occupation of hunter-fishers from the Northern Kurils, but two different human groups settled in Southern Kamchatka and the Northern Kurils respectively. Ethnographic documents demonstrate that there were two groups in the Kuril/the Kuril Ainu such as “the distant Kuril and the near Kuril” or “*Ouiwout-Eeke* and *Aounkourou*” (e.g., Krasheninnikov 1964, Steller 1774, Torii 1919). In the future study, we need to verify if the regionality in the Nalychevo Culture represents these two human groups of the Kuril/the Kuril Ainu.

As mentioned above, we have already revealed that the rapid shrinkage in the distribution area of the Nalychevo Culture occurred in the beginning of the 18th century. This “evacuation” was mainly related to a human group who lived in Southern Kamchatka, not in the Northern Kurils. Therefore, we also need to explore if population growth could be seen in the Northern Kurils and southern tip of the Kamchatka Peninsula at the beginning of the 18th century caused by this migration from a wide area of Southern Kamchatka.

(4) Comparison with Sakhalin

In almost all of the Ainu habitation area, pit dwellings were abandoned until the 12th or the 13th centuries. However, various ethnographic documents recorded that the Sakhalin Ainu used pit dwellings as a winter residence until the beginning of the 20th century (Mamiya 1811, 1857, Torii 1903, 1919). The Itel'men also used pit dwellings in the 18th century as documented by Krasheninnikov (1764). However, the structure of entrance was different from that of the Kuril Ainu, and the superstructure and post arrangement were also likely to be different from the Nalychevo Culture. In addition, archaeological evidences for pit dwellings during the second millennium CE are very scarce in Kamchatka except for pit dwellings of the Nalychevo Culture. Therefore, this study focuses on pit dwellings of the Sakhalin Ainu.

They constructed pit dwellings on a dry and hilly area, while flat houses as summer residences were

built near the ocean coast. Thus, the building technique of pit dwellings for steep areas is likely to be similar to prehistoric instances in Southern Kamchatka and the Northern Kurils. Yamamoto (1970) described two types of pit dwelling among the Sakhalin Ainu (Fig. 14). Niittoi type has a square ca. 5.4 m on a side and 0.9-1.5 m depth pit for a main room. A hearth is set in the center of the pit, and the earth floor surrounds it. Posts are arranged in a square shape, and balks are put on the beams. The roof is eventually covered by soil and grass as pit houses of the Kuril Ainu. A furnace with a chimney is frequently set in a side in the 19th century; this was a result of Japanese influence. A ladder is used for entering or leaving, and a window is placed on a roof facing south. On the ground, a small booth is attached to the entrance. In contrast, Shirahama type has a single pole in the center of the main room.

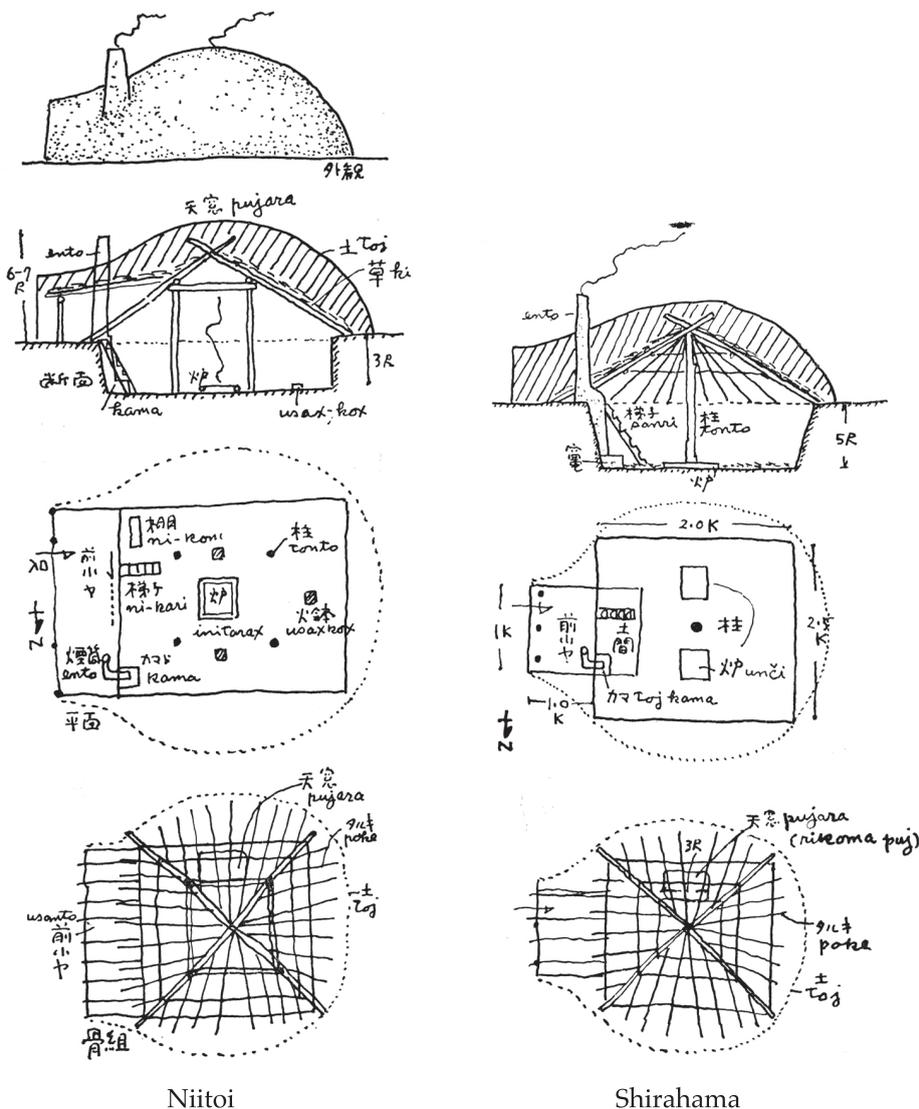


Figure 14 Pit dwellings of the Sakhalin Ainu in Niittoi (Novoe, Central Sakhalin) and Shirahama (the mouth of Kirpichnaya river, Southern Sakhalin) (Yamamoto 1970)

There are two hearths on both sides of the pole. The width of an entrance booth is narrower than a main pit, and there is an earth floor near the entrance. A furnace and a chimney are also used for this type. Although a furnace and a booth attached to an entrance are new elements of pit dwellings, it is notable that several characteristics are similar to prehistoric instances from Southern Kamchatka and the Northern Kurils. In particular, a square plan view of a main room, the post arrangement, and the soil roof show a similarity.

Baba (1968) recorded the detailed building technique for pit dwellings of the Sakhalin Ainu on the basis of interview. It is important to know that the Sakhalin Ainu made the furnace elaborately. They made a framework of a furnace using wood and branches, and put clay mixed with grasses onto the framework, and finally they fired it up. This indicates that we can find a large number of furnace clay fragments when we excavate pit dwellings; nevertheless, there is no such an instance in the Northern Kurils and Kamchatka.

Baba also mentioned the small pits established near pit houses, and he speculated that they were water wells. According to Pilsudski (1910), these small pits were dug to obtain sediment to repair the roof of the pit dwellings. However, Baba (1968) questioned this use since the plan view of these pits is always square or rectangular, and they did not need to be dug in a formulaic way if there were traces of taking soil for repairing the roof. Although there are such small depressions near pit dwellings in Kamchatka and Northern Kurils (e.g., pit dwelling No. 1 at the Shiomigawa site), they are not as deep as those in Sakhalin. In addition, sometimes charcoal and burnt stones are occasionally included in the fill (Oka and Baba 1938). Jochelson (1928: 61) noted that he could find more artifacts in smaller pits than larger pits in Kamchatka, and we could also confirm this tendency in the Kuril Lake (Takase 2013). Thus, we estimate that they are mainly used for food storage or garbage pits in Southern Kamchatka and the Northern Kurils, although they might be originally dug to take soil for roof repairing.

In Sakhalin, information on prehistoric pit dwellings from the final phase of the Okhotsk Culture to early stage of the Ainu Culture is still very scarce. However, fieldworks indicate that pit dwellings of the final phase of the Okhotsk Culture (Minamikaizuka phase) exhibit a pentacle plan view (Shubin 1993). Therefore, at present, there is no clear evidence showing the strong typological continuity in pit dwellings from the Okhotsk Culture to the Ainu Culture. It is safe to say that we do not have to pay attention to pit dwellings of the Okhotsk Culture when we discuss the origin of pit dwellings of the Nalychevo Culture. This prediction is supported by a population gap from the Okhotsk Culture period to the Nalychevo Culture period in the Northern Kurils (e.g., Fitzhugh *et al.* 2016), suggesting that different human groups occupied this area in each period. Similarly, a relationship with Hokkaido does not need to be considered because pit dwellings had been abandoned in this region before the 13th century. On the other hand, ethnographic information on pit dwellings from Sakhalin suggests that they share common characteristics with pit dwellings of the Nalychevo Culture. In particular, plan view, post arrangement, entranceway, hearth, roof, and the location of pit houses of the Nalychevo Culture can not be explained solely by the relationship with Kamchatka, and similarity with Sakhalin should be also taken into consideration. Therefore, Sakhalin is still a strong candidate for the homeland of pit dwellings of the Nalychevo Culture. Additional information on pit dwellings of the Early Ainu Culture in Sakhalin will greatly contribute to revealing the origin of the pit dwellings of the Nalychevo Culture.

Also, we need to pay attention to archaeological information from the Southern Kurils. Since temporal change in archaeological cultures is generally similar to that of Hokkaido, pit dwellings is likely

to have been abandoned till the 13th century in this region. However, radiocarbon dates and information of archaeological sites regarding the second millennium CE are still scarce in this region, and there is the possibility that pit dwellings persisted in the later period on Iturup Island and the southern part of the Central Kurils (e.g., Urup Island). Thus, it is extremely important to collect additional evidences from the Southern Kurils to explore the origin of pit dwellings of the Nalychevo Culture.

Acknowledgement

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