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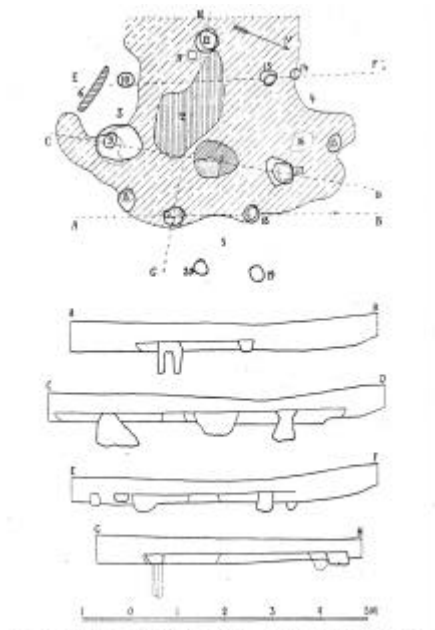
Stone Age Houses in Finland on the bases of Excavations and experiments

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THE FIRST RECONSTRUCTIONS

Julius Ailio was the first who reported about observation of the remains of possible stone age houses in his dissertation which was published in the year 1909. He identified loose stone circle from the Pihitipudas Rönni to be possibly connected with a conical hut. After that this kind of stone settings have not been interpreted as part of stone age buildings.

Huts of Räsälä – type



The setting and the profiles of the supposed post holes after Päläsi 1918.



The reconstructed hut of Räsälä after Päläsi 1916 and 1918.

Ailio did not propose specific reconstruction of a stone age house. That did Sakari Päläsi. The first reconstructed building of Finland was based on the excavations in Räsälä Pitkäjärvi In the Carelian isthmus, now part of Russia in the year 1915. Päläsi discovered a set of discoloured soil features in a circle, which he interpreted as the post-holes of a conical hut. The coloured spots of soil outside the circle was regarded as the remains of an entrance.

According to Päläsi, the conical hut of Räsälä was not of the common, ethnographically universal type. The common type consists only of slanting poles forming the bearing structure, the roof and the walls at the same time. Excavated profiles revealed to Päläsi that the post-holes were in a vertical position, not slanting. This implied a basic bearing structure of upright posts, supporting horizontal poles arranged in a circle. The slanting poles which simultaneously forming the roof and

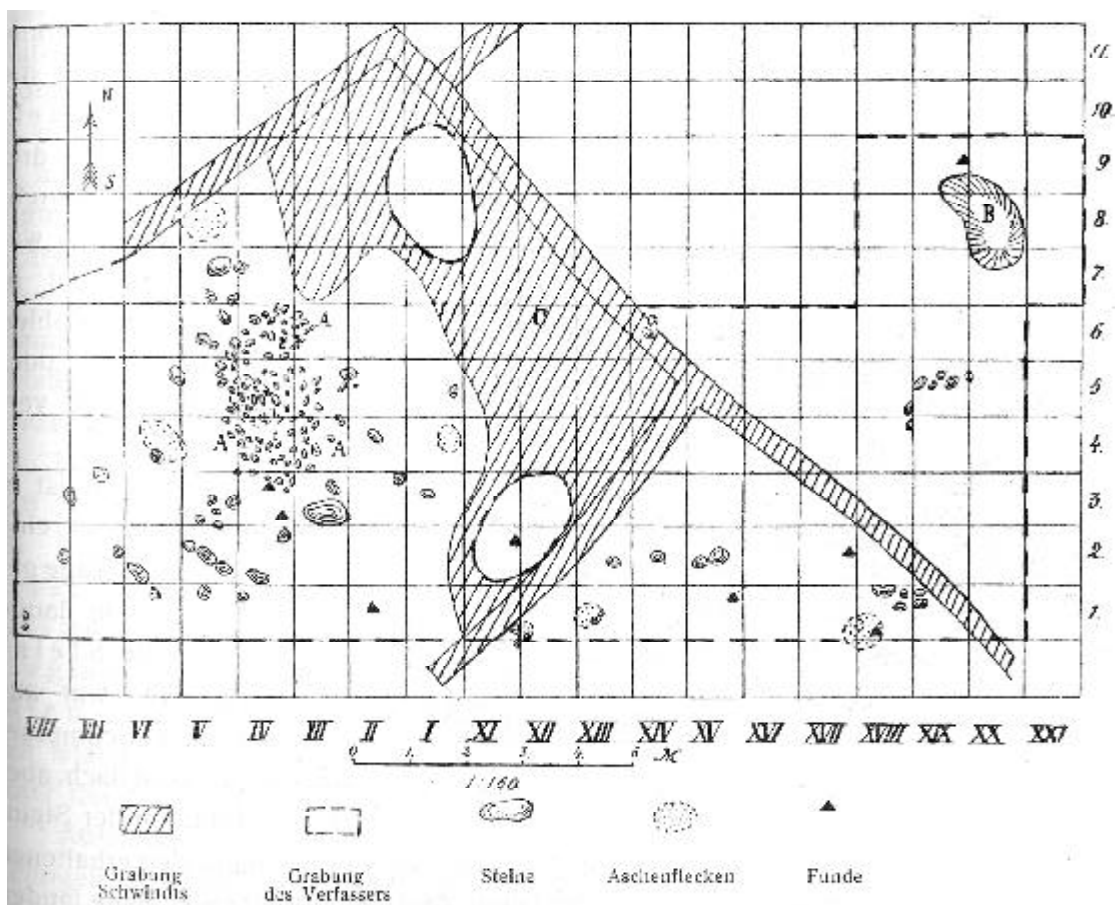
walls leaned on the horizontal, circular frame at the ends of the poles. Päläsi found out that in Eastern Siberia the Gilyaks used this kind of construction in their buildings. There were no remains of the roofing material in the soil. Päläsi did not have any suggestion of what it could have been in his scholarly publication of the Räsälä Pitkäjärvi site. (Päläsi 1918). In a popular work on the Stone Age he wrote that the hut could have been covered by hides, birch bark, or spruce sprigs. (Päläsi 1916, 61 – 65). In later publications, Päläsi

claimed to have found at some other sites clusters of holes similar to those at Pitkäjärvi, but they are quite doubtful. In 1952 Ville Luho excavated a set of post holes at the Mesolithic site of Lauhala Myllyluoma in Honkajoki, quite similar to that at Räisälä. (Luho 1967, tab. XXV). . After this publication no archaeologists have found any post-hole settings of this kind.

The single wall lean-to shelter

About the same time as Pälsi was also Aarne Äyrää digging remains which he thought to be of a building, namely a single wall lean-to shelter. It has been assumed to be a very old construction on linguistic grounds. It has also been used over a wide area in northern Eurasia as a shelter for hunters. The empirical evidence Äyrää found is very weak, however.

It was based on a distribution of finds at the Ojalankangas site in Alavus, which he considered to be the remains of a single wall lean-to shelter. He argued for this on the basis of the distribution of the finds, which was limited to one side of the fireplace in a rather straightforward manner. (Äyrää 1916). The problem of the empirical side is that nearly half of the site had been destroyed before excavation. We cannot know if the other side would have been corroborated the theory. In terms of source side, the problem is that ethnographically lean-to shelters have been used only temporarily for



The excavation map of Alavus, Ojalankangas

staying overnight. As such they do not leave any traces which can be archaeologically found after thousands of years.

After Äyräpää had published his find in 1916, no archaeologist has ever insisted on having found the remains of a single wall lean-to shelter. This does not mean that these structures were not in use in the Stone Age, but as with traps, we have very limited possibilities ever to prove it.

SEMI SUBTERRANEAN BUILDINGS

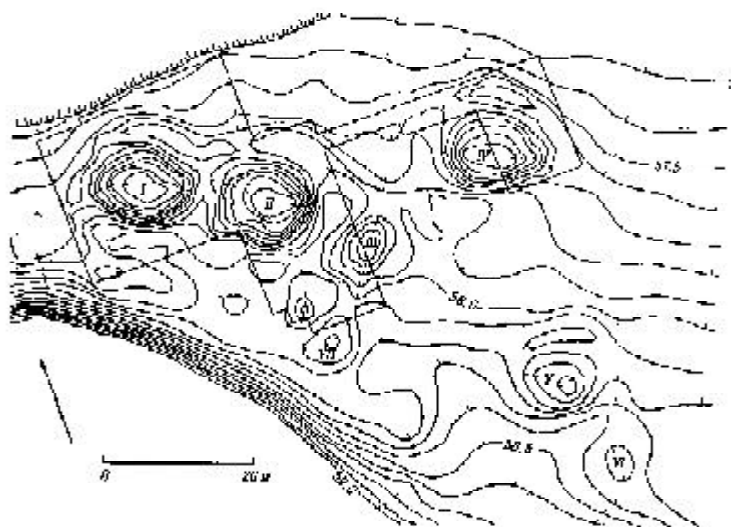
MADENEVA TYPE OF CONICAL HUT

After the discoveries of Pälsi and Äyräpää it was a quiet time as regards to the Stone Age buildings. The following observations concerning the remains of stone age dwellings are from the year 1950. Ville Luho and C. F. Meinander were digging on the site of Pihtipudas, Madeneva, where they found a pit, about 8 meters wide – on the later publication only 6 meters and 40 cm deep. Meinander publish his observations in a local history of Pihtipudas in the year 1964. Scholarly version came out in the year 1976, where he is describing six pits. Petro Pesonen went through the material of houe depressions five years ago. According to him, there are 3500 such depressions in Finland in 650 sites or settlements. 117 of these have been excavated in 54 sites, part of the partially.

Meinander thought that there has been a conical hut over the depression. He gave the name of Madeneva type hut depression to the type It was peculiar for the pits that there were no fireplace, or signs of any kind of the post structure.

Meinander did not propose any reconstruction for the huts. The missing post holes were no problem for him. Meinander was sceptical about the possibilities for pole marks to preserve in finish soil (1976). According to him, the marks I the soils are remains of the main root of the pine trees.

EVIJÄRVI ISOKANGAS



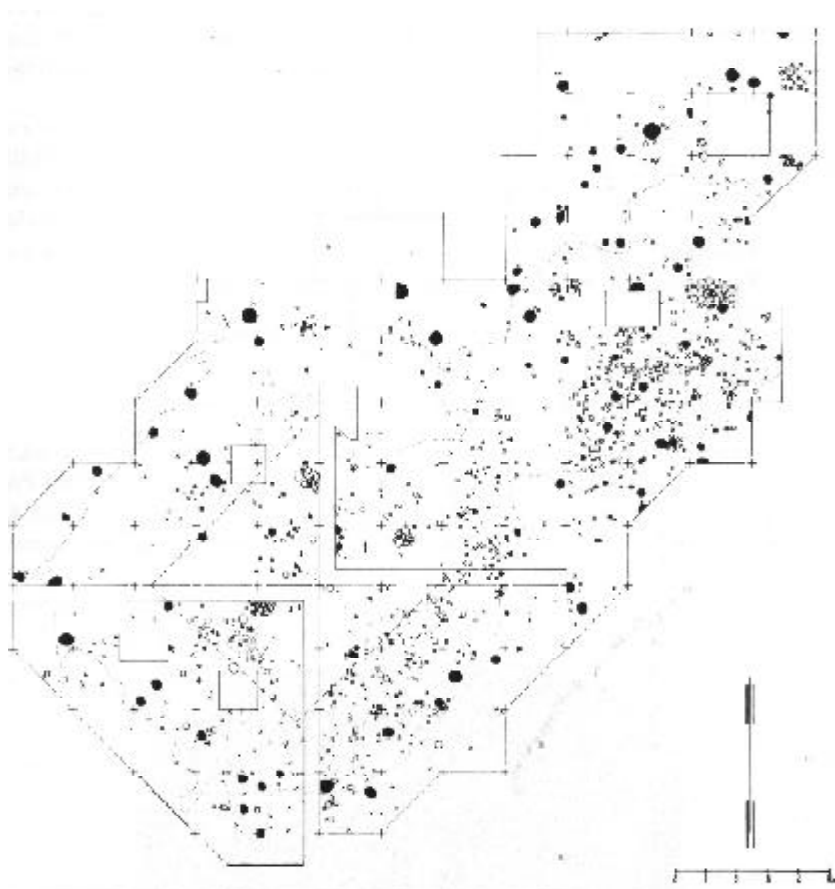
House pits of Evijärvi, Iso-kangas after Hiekkänen 1981.

Markus Hiekkänen excavated house-pits of the Madeneva type in Evijärvi, Isokangas in late 1970's. (Hiekkänen 1981. He found were seven pits. When typical Madeneva pits are 8 meters by diameter at largest, the largest pit in Isokangas was 20 m. There were no marks of post holes or walls in the ground or fireplaces, either.

PIEKSAMÄKI NAARAJÄRVI

In the double house floor pit of Pieksamäki, Naarajärvi there were no short of post holes. The Site was excavated by Heikki Matiskainen and Timo Jussila in the year 1982 and 1983. On the site there were on double pit which was 25 meters long. On the south west end it was 13 m broad, in the middle 9 meters. North-East corner was not fully excavated. The area was 300 m² altogether.

As a matter of fact there were tens of post holes seen as round colourings in the soil, but they had no order, they were just like shot by a shotgun. Matiskainen and Jussila (1984) argued that these feature are real postholes, not residues of burnt main roots of pines. They said that the main root of a pine does not burn in a forest fire. This is true if the pine is living, but if it is a snag, dry standing pine, it can well be charred. The other possibility is that there were many structures that were rebuilt again and again. The result is the same: the post holes cannot be used indicators of the structure of the building.

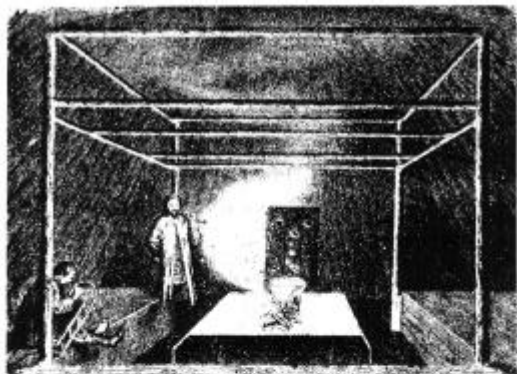


kuva 5. Löytöjen leikki tutkimusalueella. ● kiviä tai kiviä, ▲ puuta tai puuta

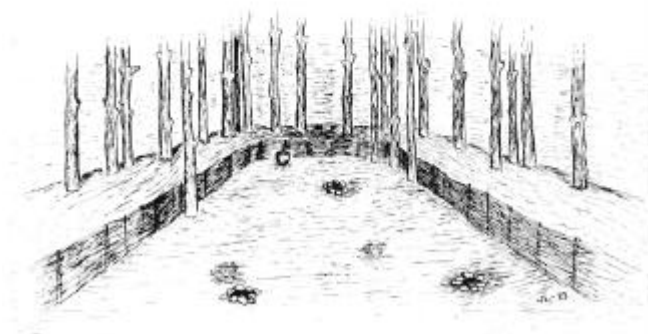
The house pit of Pieksamäki Naarajärvi after Matiskainen and Jussila 1984.

Matiskainen and Jussila presented a reconstruction of the inside of the building. There is a forest of poles in this picture, but it did not tell about the structure of it. They also compared it with the dwellings of the Gilyaks, as Pälsi had done.

THE RECONSTRUCTION picture OF BOTHNIAN TYPE OF BUILDING.



Kuva 7. Giljakkien asumuksen sisättilä Schrenkin mukaan (SIRELIUS 1907).



Kuva 8. Fikttiivinen näkymys Naarajärven asumuksen lounaishuoneesta. (Kuvannut Juhana Laurén).

The house of the Guiljaks above.
The reconstruction of the inside of
Naarajärvi building below. After
Matiskainen and Jussila 1984.

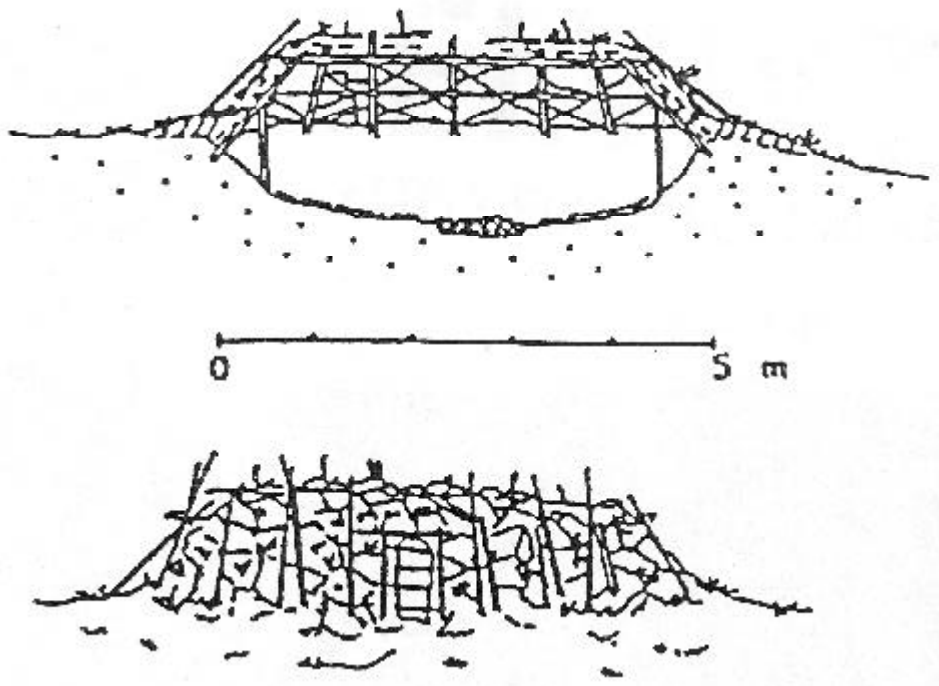
Hannu Kotivuori publish in the year 1983 an paper dealing with the semi subterranean houses in Northern Ostrobothnia. Kotivuori proposes, that there are three types of house pits. Madeneva-type, defined by Meinander as quite small. In middle Ostrobothnia there are big, 18 – 20 m broad type of its own. On Northern Ostrobothnia there is a third type, which is smaller, but he does not specify, how this type differs from the Madeneva- type.

He says that the house ground in in Vuollerim, Jokmökk, Sweden is of the same kind as the Madeneva type. There is not much in common with them, however. Vuollerim has embankments of fire cracked stones, Naarajärvi has not. Vuollerim has clear rows of post holes, In Naarajärvi the holes are on random cluster, if they are post hole at all. The depression in Vuollerim is one rectangular, in Naarajärvi there is a double structure.

But there is at last one house pit which has embankments of fire cracked stones and has clearly rectangular form excavated in late 1990s in Oulu Peurasuo. (Ojalatva & Alakärppä 2002) It is interesting that “there were no datable finds” in Peurasuo. That means no ceramics was found. According to shore displacement chronology the site is 2000 thousand younger than Vuollerim. It seems that the border of the non-ceramic



The ground of the house in Vuollerim. (Photo Eero Muurimäki 1990).



The Bothnian type of building according to Kotivuori (1983)

East Bothnian area which in the typical comb ceramic time was at the river Kalix is at river Oulujoki or still further west.. Perhaps the tradition of Vuollerim type buildings was still continuing.

Kotivuori presents the structure of the hut by a drawing, which is representing the building seen from the other side. He does not propose a ground plan. When reconstructing this model in one to one size in Saarijärvi Stone age village I found out

that the picture allows two possible interpretations. It can be seen as a kind of flattened version of the hut of Riukjärvi or it can be seen as on hut which a ridge beam. The latter version was built in on Saarijärvi Stone age village in the mid 1995 with oval foundation.

THE HUTS TURNED TO BE HOUSES

The first observations about the rectangularity of the house grounds in Finland were made by Matiskainen and Jussila. But it is difficult to build a house on the bases of the pictures they gave, they give no structural features. Jukka Moisanen (1991) noticed that in a house pit there in Kerimäki Kankaanlaita there were inside the embankment a rectangular stripe with big stones.

The next step was made in Sweden. In 1994 Ove Halén published his dissertation in which he dealt with the Comb Ceramic site of Lillberget near the River Kalix, roughly 50 km from the Finnish border. (Hálen 1994) He found a group of nine rectangular houses, five of them forming a row house. He found coloured soil features which he claimed to be of logs. There were also upright poles supporting the log walls. He also noticed that birch bark was probably used as roofing material. The reconstruction building is more like a log cabin than a hut because the walls are high. He thought them to be high because there were fire places so near the walls that the roof above of more modest log structure would have burnt.

In Finland Taisto Karjalainen found at Sätos in Outokumpu rectangular coloured soil features measuring 5 x 8 metres in a pit. The most interesting thing was that in the corners the colourings crossed each other and ended about 30 cm from the corner. Karjalainen also paid attention to the fact that the oval form of the depressions is a product of the pouring of the sand into the pit. An oval depression does not testify that there has been an oval building in a pit. (Karjalainen 1996 15- 17).

On the next year Oili Räihälä paid attention to the fact that the large dimensions of the house at Isokangas in Evijärvi are the result of measuring the diameter from the rim of the outer embankment, which was outside the house.(Räihälä 1997, 37). The actual size of the house is . smaller.

The buildings of Yli-li Kierikki

Rauno Vaara published in the year 2000 the results of reconstructions of Stone Age Building made in Yli-li Kierikki Stone age village. They were built in the years 1998 and 1999 and based in the excavations made some years earlier in Yli-II Kuuselankangas and Purkajasuo/Korvala. The objective was chosen not the reconstruct given house pit, but make some kind of generalised house reconstructions based on the archaeological material of the area and ethnography.

Vaara presents three possible structures. In the first one there is a rectangular frame of logs on the ground. The other was low frame of log, on which the roof is built. The third

alternative was a log cabin. Number 2 was chosen. The houses in Lillberget would be log cabins in this classification. Halén found a fireplace so near the wall that the vertical walls must have been quite high. Roofing was made of birch bark and turf Vaara justified it on the grounds of ethnographical data.

In Korvala it was found a terraced house, where there were five houses connected to each other by a short corridor. There were organic material on the floor plane, which was interpreted to be remains of the floor. (Vaara 2000, 3-4).

There are two house pits where charred remains of the lowest part of the house has been preserved, Saarijärvi Rusavierto and Puumala Kärmelahti. The first mentioned was excavated in the year 1999 and 2000 by Sirpa Leskinen Kärmelahti 1998 – 1999 by Kaarlo Katiskoski.

PUUMALA KÄRMELAHTI

In Puumala Kärmelahti there was three large house pits, the largest was about 15 x 11 m. The house was probably burnt. There were remains of charred structures of the house. Katiskoski found out that there were indications that a log wall of three logs on the top of another. There were also remains of charred tree, 2,5 – 5 cm by diameter in a transverse position in relation to logs. There were birch bark on the cross poles. On some places there were sand on the birch bark. That is why it was supposed that the eaves extending in the embankments. There was also birch bark which was not charred but partly rotten. The supposed construction implies posts.



The house of Kärmelahti reconstructed in the yard of the National Museum of Finland in Helsinki (Photo Eero Muurimäki)

SAARIJÄRVI SUMMASSAARI RUSAVIERTO

In Rusavierto site about 800 meters from the Stone Age village a rectangular depression found in the beginning of the 1990's by Hans Peter Schulz . It was excavated in 1999 and 2000 by Sirpa Leskinen of the National board of Antiquities. The excavation revealed the charred bottom parts of the lowest logs of a house. This base was preserved because the house had burned and there were charred residues of the logs left. The house is largest of those which can be measured for sure, 8 x 12 metres. (Leskinen 2002)

Leskinen was led the reconstruction work in 2001 while continuing excavation work at the Uimaranta site, about 300 metres from the Stone Age Village. The house was



The house of Rusavierto. (Photo Kari Kotilainen 2004).

reconstructed with a base of three logs laid on top each other. There were no traces of posts, but for reasons of safety they were added to support the ridge beam.

EXPERIMENTS IN THE STONE AGE VILLAGE OF SAARIJÄRVI

There are no "scientific" experiments made in Saarijärvi Stone age village, if we mean exact documentation and measurements done when building something but all the time something was done I have tried to evaluate how are things working, what is possible to do and what is not. And all the time I have had some questions in my mind. How good shelter can a coverin material give? is. What has been available in the stone age and in what quantities. How long does the material las?

THE ROOFING MATERIALS

In the original Stone Age Village there were three kinds of roofing used in the hut reconstructions. In the Räsälä hut, the Byske hut and the pit house it was turf. In the Narva hut it was birch bark. The tepee-like framework was covered with elk hides.

Birch bark There were three kinds of coverings on the huts in the first „original” Stone age village: birch bark, turf and hides. It was possible to get experience on their suitability as roofing materials during the years.

Birch bark

The Narva hut was covered with birch bark according to suggestion of N. N. Gurina . Birch bark is a very good alternative if the building is used only in the warm season. It keeps water and moisture out and offers a shelter against wind. If there is a fire inside, it keeps the interior quite warm down to exterior temperatures of 0 C according to our experience.



The hut of Narva. (Photo Eero Muurimäki 1989).

In Denmark at e.g. Åmosen, the floors of Mesolithic hut have been interpreted as having been covered with birch or pine bark (Andersen 1981, 41) . This was surely not the case. Bark is a very brittle material, breaking immediately if stepped upon. It is very probable that the bark covered of the walls of the huts, which have fallen down.

Hide

The hide tent was very problematic. First we had skins with were tanned with modern methods. They lasted about three years. Then we obtained elk skins directly from

hunters. We tried to clean the skins from the flesh side. It took two weeks of normal working days to clean a hide so that there was only some flesh remaining. We had no possibilities to do that for all seventeen hides. We put them on the frame. The smell was so awful that it was not possible to think that somebody could live there, now or in the Stone Age. It is of course possible to tan the hides but the amount of work with old-fashioned methods but it need a lot of work. I am sure that people used hides for the coverings of their huts only if no other material can be used, as in the Arctic.

Turf

Three of the buildings of the original Stone Age Village were covered with turf. There are two meanings of turf which have been used. The “real turf” is in bogs. It is very



The hide hut. (Photo Lauri Pasanen 1980).

unlikely that this kind of turf was used by Stone Age people. Bogs and settlements were normally far away and turf is very heavy to carry. But in all coniferous forests there is on the soil a layer of moss about 5 cm thick, of which the upper part is live and on the lower part is dead. This is called “kuntta” in Finnish, perhaps moor turf in English. . The settlements were on sand near pine forests There was “kuntta” very near and it was easy to obtain.

Some of the huts were covered only with turf. When dry the turf drops in small pieces inside the hut all the time. Perhaps this could be tolerated, but not water coming in. After about one hour of rain water will come inside through the wall of the hut almost like outside. When the rain is over the turf drips water for hours afterwards.

Even without taking ethnographic data into the most probable coverings of the buildings were birch bark for protection against rain, and moor turf when insulation against the cold was needed.

The combination of moor turf and birch bark was experimented with when we made a reconstruction of a hut of the “North Ostrobothnian” type according to Kotivuori (1984) in the so-called “Upper Village”. It worked very well.



The hut of Byske. (Photo Lauri Pasanen 1980).

Durability

The huts do not last many years. How long they will last depends on the covering. The frameworks which are covered only with turf are non-usable within three years. Constructions with birch bark only or with turf coverings can survive 10 years. We can assume that if the huts are kept dry with heating inside, they can remain in good condition for a much longer time.

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