

# On the problem of stone structures in the Karelian part of the White Sea area: data from archaeological trial surveys 2000–2006

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## Abstract

*The aim of the paper is to generalize the available data on the diverse stone structures on the White Sea coast and islands. The focus is on the classification of the structures, their quantitative characteristics, comparative analysis, and principal challenges in the study and interpretation. The article includes the materials from the latest trial surveys carried out within two international projects funded by the Nordic Council of Ministers in 2003 and 2004–2006.*

## Keywords:

survey, White Sea (Karelian and Pomor coasts; Kuzova and Solovki archipelagos), prehistory, Middle Ages, post-medieval period, stone constructions, labyrinths, *seidas*, menhirs, burials.

## Introduction

The White Sea is the only inland sea in Russia: nearly enclosed and connected to the ocean by a narrow and relatively shallow strait. Its maximum length is 580 km (Fig. 1). Over 250 islands composed of ancient crystalline rocks, often dome-shaped with steep slopes, are scattered along the western coast. Traces of tectonic activity can be seen here and there. The largest islands of the Kuzova archipelago rise over 100 m above

the sea. Lowland landscapes, however, prevail along the Karelian and Pomor coasts. According to geological data, the terrain of the White Sea area took its modern shape approximately 2500 years BP (Košečkin et al. 1977: 5–16).

For a long time, the White Sea has been an object of intense interest to scientists. Large-scale scientific activities for the study and regeneration of its bioresources have been conducted since the 1970s. From the archaeological viewpoint, the Karelian Coast of the White Sea and adjacent areas have until recently remained a nearly white spot on the map of Karelia. In the 1960s, however, I. Mullo, an expert in Karelian regional studies, detected and partially published information about mysterious stone structures on the “roof” of the southern White Sea area, the Kuzova archipelago (Mullo 1984: 52–81). The structures closely resembled the monuments of the nearby Solovetski archipelago.

In 1991–1992 an archaeological team led by I. Manjuhin (Karelian Research Centre RAS) conducted an inventory of the Kuzova archipelago monuments, but regrettably the work was not completed. Only a part of the monuments were examined, because the survey was rather short, and the territory within the archipelago could not even be totally covered.

In 2000–2002 the Onega Bay of the White Sea was surveyed by a multidisciplinary international team from Karelia, Norway, and Sweden. The project was named “The cultural heritage of the White Sea Karelian Shore” and was funded by the Nordic Council of Ministers. The team studied the natural, historical, and cultural heritage of the area. They examined 14 islands, discovering at least 60 stone structures of different kinds. Among them are presumably medieval Sámi house pits. This category of sites was previously unknown in Karelia (Manjuhin & Lobanova 2002: 19–31). Unfortunately they were not excavated.

In 2003–2004, studies in the Karelian White Sea area became more focused and in-depth. Archaeological reconnaissance surveys were carried out in a previously completely unstudied area, the Karelian Coast (north of the Kem river mouth). The work was funded by the above-mentioned source and again it was conducted by the Institute of Language, Literature and History of the Karelian Research Centre of the Russian Academy of Sciences in cooperation with participants from the University of Uppsala, the University of Helsinki, and Juminkeko (Kajaani). This project was titled *The multidisciplinary humanitarian study of the White Sea basin*. Judging by the outcomes, the territory holds a significant potential from the scientific point of view, and further research is needed (Lobanova 2003: 24; 2005: 43–59).

Currently altogether 1190 structures are known at 27 sites in the western White Sea area (Tab.1). They are situated both at rocky elevated sites and in low areas close to the shore. The number of stone structures may reach 500 in some sanctuaries (Kuzova) or dozens in others. Many of the structures have analogues not only in Solovki, but also in a far wider area: the Kola

Peninsula, Finnmark, and Finnish and Swedish Lapland. Unfortunately there is an almost total lack of methodological principles for studying such monuments, e.g. building techniques. According to principal visual traits, the following types of stone structures have been distinguished in the White Sea area:

1. labyrinths
2. *seite* stones
3. cairns
4. pits
5. ovals
6. “fencings”
7. “cases”
8. “shelters”
9. “manholes”.

All objects are situated in similar topographic settings, but at different altitudes above sea level.

Table 1. Surveyed sites according to geographical location (1–27) and category of monuments (1–9).

	1	2	3	4	5	6	7	8	9	TOTAL
I KUZOVA ARCHIPELAGO										
1. Russkij Kuzov	-	486(?)	4	10	-	-	5	1	-	<b>506</b>
2. Nemeckij Kuzov	-	320(?)	30	4	-	-	1	1	1	<b>357</b>
3. Lodejnyj	-	30	4	-	31	1	-	-	-	<b>66</b>
4. Olešin	2	-	7	-	-	4	-	-	-	<b>13</b>
5. Bol'shie Vorony	-	2	2	-	-	-	-	-	-	<b>4</b>
6. Žiloj	-	10	-	-	11	-	-	-	-	<b>21</b>
7. Sredny		21	1		9					<b>31</b>
8. Taparuha	-	-	-	-	3	1	-	-	-	<b>4</b>
II POMOR COAST										
9. Mjagostrov	-	-	-	-	-	-	-	-	1	<b>1</b>
10. Berežnoj	-	-	3	-	-	-	-	-	-	<b>3</b>
11. Golomjanny	-	-	-	-	-	-	-	-	1	<b>1</b>
12. Perhludy	-	-	-	-	10	-	-	-	-	<b>10</b>
13. Kondostrov	-	3	-	-	-	-	-	-	-	<b>3</b>
14. Bol'šoj Kuz'min	-	-	2	-	-	-	1	-	-	<b>3</b>
15. Černaja Luda	-	-	-	7	-	-	-	-	-	<b>7</b>

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16. Kotkano	-	8	2	-	-	-	-	-	1	11
17. Bol'shoj Žužmuj	-	14	16	28	34	-	-	-	-	92
18. Malyj Žužmuj (Pečak)	-	-	-	-	-	-	-	-	1	1
III KARELIAN COAST										
19. Syrovatka	-	-	-	5	-	-	-	-	1	6
20. Bol'shoj Robjak	-	-	-	3	2	-	-	-	-	5
21. Berežnye Lehludy	-	-	3	-	-	-	-	8	1	12
22. Louško	-	-	-	1	-	-	-	-	-	1
23. Jatko-Luda (Mogil'ny)	-	-	16	2	-	-	-	-		18
24. Kirbej	-	-	1	-	-	-	-	-	1	2
25. Purnavolok	-	-	1	-	8	-	-	-	1	10
26. Šolombrodsky	-	-	-	-	-	-	-	-	1	1
27. Krasny	1	-	-	-	-	-	-	-	-	1
<b>TOTAL</b>	<b>3</b>	<b>894</b>	<b>92</b>	<b>60</b>	<b>108</b>	<b>6</b>	<b>7</b>	<b>10</b>	<b>10</b>	<b>1190</b>



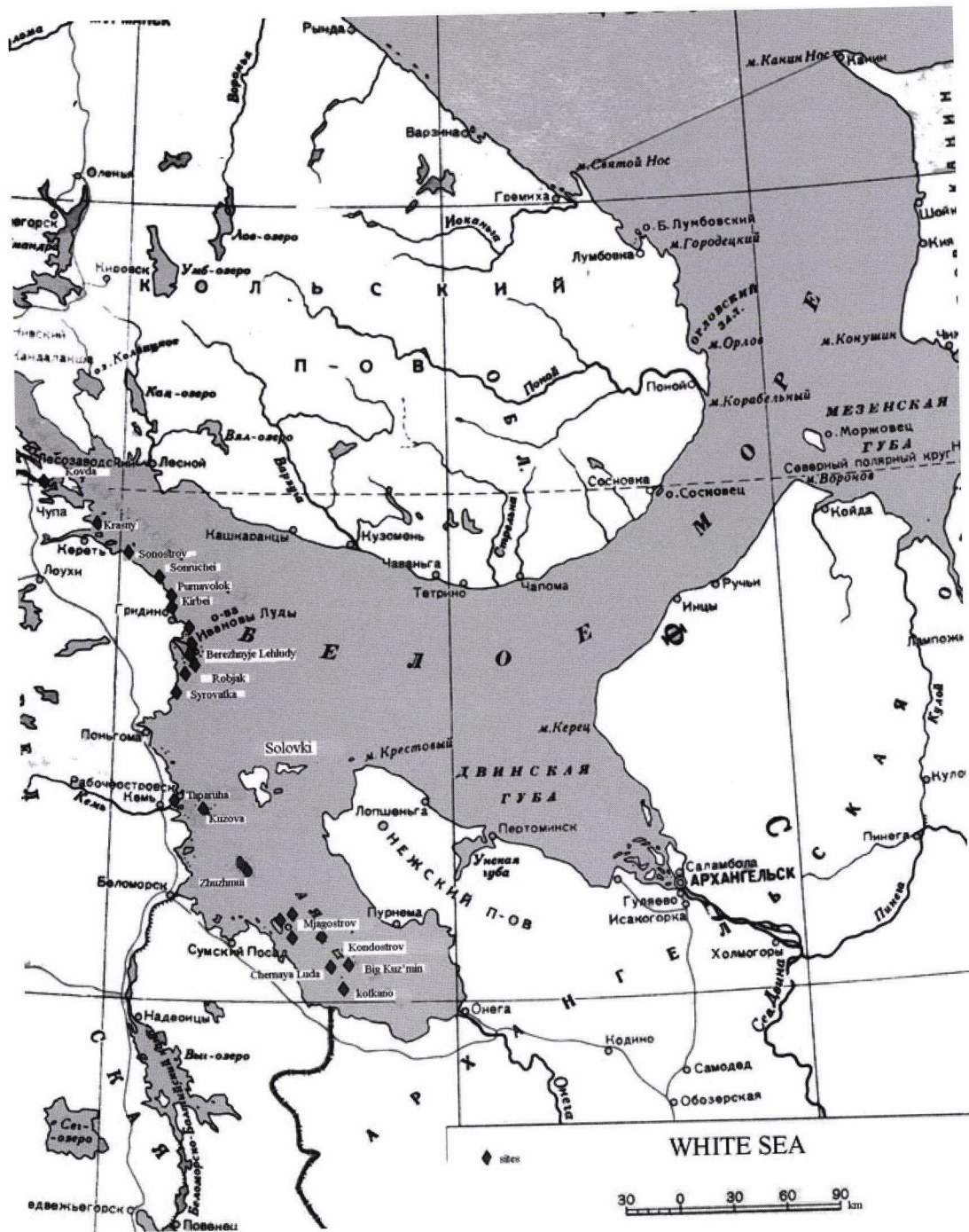


Fig. 1. The survey area in the White Sea area.

## Monuments of different categories

*Labyrinths (1)*

Only three labyrinths have been discovered in Karelia (Fig. 3). Two of them are situated on Olešin Island located in the Kuzova archipelago closest to Solovki. I. Mullo also mentioned a virtually demolished similar monument he had discovered in the Pon'goma river mouth (Mullo 1966: 185–193).

Labyrinth 1 is situated in the southern part of Olešin Island, some 25 m a.s.l. It is very well preserved, horseshoe-shaped, oval, 9.4 m x 11.6 m in size, and made up of small boulders, on average 0.15 m x 0.25 m in size. The entrance/

exit is on the eastern side. A vertical stone stands near the entrance.

Labyrinth 2 is located 6 m SW of the previous one and is partially destroyed. It is a structure made up of the same kind of boulders as the one described above, laid out in 5 concentric circles. The outer circle is elongated, 5.4 m x 6 m in diameter. The inner circle is 1.65 m in diameter.

Labyrinth 3 was found 180 km to the north, on Krasny Island, slightly north of the Čupa Bay entrance, at an elevation of approximately 2.5 m. It is much like labyrinth 1, but more rounded and a little bit smaller (10.4 m x 9.4 m). It is in good condition, but heavily overgrown by tundra vegetation.

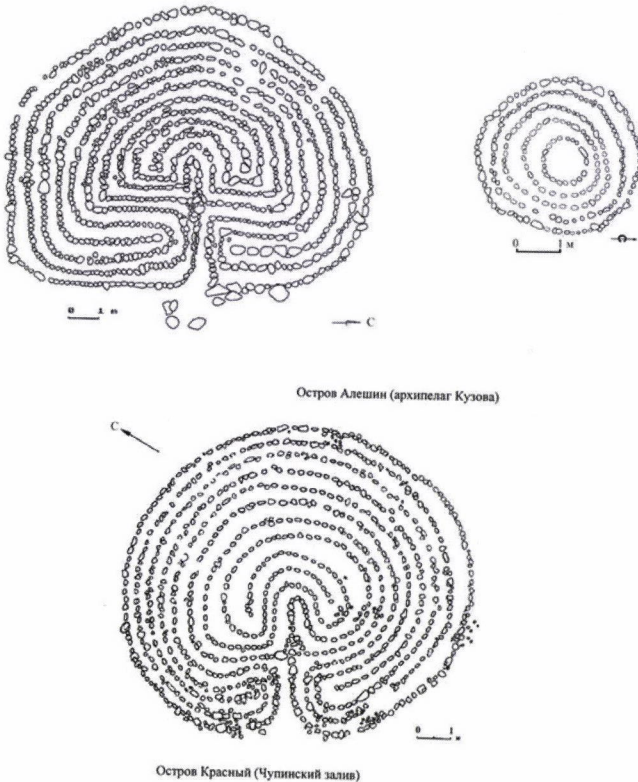


Рис. 2

Fig. 2. Labyrinths 1–3 on the Karelian coast of the White Sea.



The layout of labyrinths 1 and 3 appears as two spirals unwinding into the outer and inner horseshoes. They have no exit, since the circular and radial walls intersect. No similar structures have been found among known monuments of the Solovetski archipelago or Terskij Coast of the White Sea. A peculiar feature of these Olešin Island labyrinths is their location high above sea level, in contrast to most structures of this kind elsewhere.

### *Seiti stones (2)*

For Karelian researchers, this category would include large stationary boulders with one, two, three, or a pile of small stones (“heads”) or, occasionally, flat stone slabs on their upper surface (Mullo 1966: 185–193; Titov 1976: 8; Manjuhina 1996: 343–361). They are sometimes placed one on top of the other, forming a pyramid. There are particularly many of these in the Kuzova archipelago, where they generally lay on the tops and gentle slopes of the islands. I. Mullo (1966: 62–63) pointed out their resemblance to anthropomorphic and zoomorphic figures. Similar structures can be seen also on other Onega Bay islands (Bol’šoj Žužmuj, Kotkano, Kondostrov). Bol’šoj Zajackij Island proved to hold 38 specimens (Martynov 2002: 132–134). *Seiti* stones are also known from outside the White Sea range – from the Kola Peninsula (Čarnoluski 1972). Finnish researchers also have information about “headed” boulders that resemble humans in size and appearance, but such ritual Sámi structures are not very typical of Northern Scandinavia (Kastren 1860: 40–41, 73–74). One should note that many of the structures in Kuzova are recent creations — evidence for this is provided by the lichens on the upper part of the boulders or the side of smaller stones facing to the inside of the structure. In addition, boulders with small stones aggregated by the base or beneath the boul-

ders (“legs”) are also classified as *seiti* stones. Huge “leg”-supported boulders are fairly common throughout Fennoscandia. They are always situated on slopes or by precipices, representing traces of glacial activity transformed by later natural impacts. It would therefore be just our guess that ancient Sámi had used these “flying stones”, such as those on the famous Mount Vuottovaara, for ritual purposes (Šahnovič 1994: 25–36). At least no data on such objects are available from abroad.

### *Cairns (3)*

The groups distinguished are oval, subcircular, subrectangular, or elongated, wall-like aggregations of stones. Cairns are very common throughout the White Sea coast and nearby islands, being the second most common monument category after *seiti* stones, and raising particular interest in connection with the latest finds on the Karelian Coast.

Such structures can be found both at the highest elevations and on lower terraces of moraine ridges, not far from the shore (Bol’šoj Žužmuj). They also vary widely in size. Two large cairns (up to 1.5 m high, 16 m x 6 m and 9 m x 6 m in size) were recorded on Russkij Kuzov Island. The smallest ones are about 1.5 m in diameter and less than 1 m high. Wall-like structures may sometimes be over 20 m long, and some of them have a complex shape. Regrettably many of the cairns have lost their initial appearance; a few have been reshaped. They often served as the base for Pomor crosses and for triangulation posts installed by land surveyors in the 1920s–30s. On some islands (Russkij Kuzov, Olein), long stone walls accompany the cairns. Sometimes the walls are even incorporated in the cairns (Jatko-Luda).

Recent surveys have shown that the cairns found on Berežnye Lehludy Island, on Kirbej,

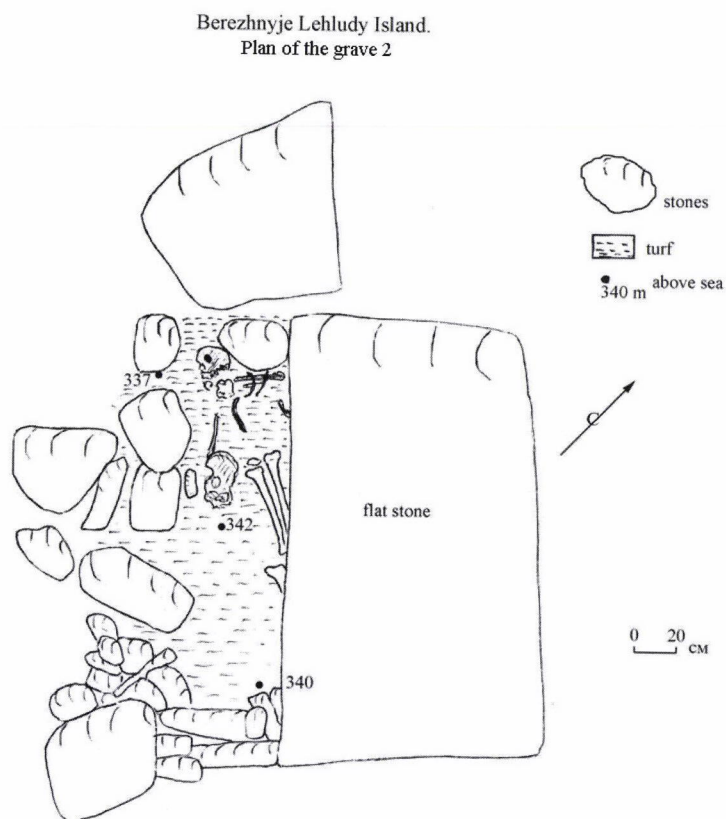


Fig. 3.  
Grave on the island of  
Berežnye Lehludy.

Purnavolok headlands and by Sonručej are structures built over burials that presumably belonged to medieval Sámi.

The burial ground on Berežnye Lehludy Island (10 km from the Pomor village of Kalgalakša) occupies a rocky site 3.5–4 m a.s.l., near the shore (Fig. 3). It comprises 4 structures made up of large stone slabs and piles of rocks on top of and around them (3.6 m x 2.8 m, 4.8 m x 3.6 m, 4 m x 2.8 m in size, 0.5–0.6 m high). Similar stone structures were discovered by Sonručej. They are situated on a rocky terrace near the shore, 5 m a.s.l., comprising only 2 fea-

tures located 4 m from each other. One structure is very big, 9 m x 3.5 m; the other one is 4 m x 2 m. Judging by the size, the former one may cover several burials. Human bones can be seen in one place. Both structures were later used by Russian Pomors as bases for memorial crosses, which are quite common on the White Sea coast, and thus they were partially destroyed.

Human bones, mostly small fragments, were found in 6 graves. In 2004, three graves were excavated: two on Berežnye Lehludy and one on Kirbej headland (Lobanova 2006: 419). The dimensions of the burial chambers are as follows:



1.8 m x 0.5 m; 1.9 m x 0.6–0.7 m, 1.6 m x 0.4 m. All of them were built following the same principles. An open site along the shore with a hollow in the rock or a large stone slab facing W–E or NW–SE was selected. Judging by the two preserved body frames, the deceased were placed on bare rock on their right side, head towards the west or north-west, facing south or south-west. The top and surroundings of the grave were densely covered with rocks and stone slabs. The natural material of glacial origin that was there at hand was used to this end. The dead were apparently wrapped in birch bark, but evidence for this was found in one grave only. There were no grave goods.

In the Solovki, similar piles of boulders often constitute parts of labyrinths. So far over 20 such constructions have been excavated and the burial-related nature of some of them has been ascertained. On the other hand, many cairns contained no traces of burials and are regarded as symbolic burials (Martynov 2002: 38).

We can thus state that cairns had various functions. Some were built for covering burials while the purpose of others is indeterminate. They might have been sacrificial, as is known from Lapland.

### *Menhirs*

Generally speaking, menhirs are not common, but the number of known sites of this category has grown substantially in the last two years. The most interesting objects have been recorded on Černaja Luda Island of the Onega Bay (7 sites) and on the Karelian Coast (4 on Syrovatka and 3 on Bol'šoj Robjak Island) (Lobanova 2006: 421). They appear as flat slabs (or occasionally elongated boulders) of natural origin, placed vertically and propped up on two sides with slanting smaller flat slabs. The latter, in turn, are supported by boulders encircling the

whole structure. These structures are sometimes also called “phallic symbols”.

Most tall stones stand at open elevated sites, but some structures were found also at an elevation of 2–3 m (Bol'šoj Žužmuj, Syrovatka). Two of them are on the Černaja Luda Island, rising slightly over 1 m a.s.l. Similar vertically standing slabs were discovered also on the rocky beach by Syrovatka Island, north of the mouth of the river Kem (Lobanova 2004: 103–110). Yet more impressive structures have been found on Bol'šoj Robjak Island, north of the previous aggregation (Fig. 4). Three rectangular granite slabs, from 2 m to 2.75 m tall, were dug into the ground and surrounded by boulders not far from each other. The boulder circles are over 3 m in diameter. Two of the tall stones remain in the vertical position (leaning slightly in different directions) and the third one lies on the ground. Individual structures of this kind have been found also on other islands and on the coast of the western White Sea area.

In addition to the tall stones described above, there is another type (5 examples) on Černaja Luda Island: several flat slabs standing aslant and arranged so as to form piles that are oval in plan view. They might initially have been upright, leaning slightly as time passed (Lobanova 2004: 104).

### *Pits (4)*

Pits are depressions in boulder ridges. Boulder ridges (or placers) formed by the glacier and marine sediments occur on virtually every island and along the shore of the White Sea. The upper level of the boulder ridges (which may locally be 60 m wide and over 100 m long) is normally from 7 m to 15 m, occasionally even 45 m a.s.l. The lower level has an elevation of 2–4 m. A large number of oval or roundish depressions (sometimes with “fencing” around them) have



Fig. 4. Menhirs on the island of Bol'šoj Robjak.

been found nearly throughout the western coast. They are situated at wind-exposed sites.

A first brief description of such pits was made by I. Mullo (1966: 76). The researcher interpreted them as Sámi summer dwellings, neglecting the fact that many of the pits were just 1 m in diameter. Most depressions are 1.5 m, rarely 2–2.5 m in diameter. Only one of the pits found is 3 m in diameter. The depth ranges from 0.12 m to 1 m; the average is ca 0.6–0.7 m. The pits are situated at elevations of 2.5 m to 15 m. Only one of them has been found at approximately 45 m a.s.l. Some of them are covered with soil or are located under shrubs and trees. The largest aggregation is the one on Lodejnyj Island.

The purpose of these objects is unclear. Many of them (those located close to the shore) might have served for storing seal hides. The confusing facts are, however, their excessive concentration in a limited area (the islands of Lodejnyj

and Žužmuj), as well as the location of some pits high up on the ridges and away from the shore, in difficult-to-access places. It would therefore be wrong to rule out other hypotheses, such as the ritual nature of the pits.

#### *Dwellings(?)*

Data on these structures is so far very scant. Presumably, dwellings are stone ovals, 10.5 m<sup>2</sup>–12 m<sup>2</sup> in area, with the remains of a hearth in the centre. Such structures have been closely investigated in northern Norway (Finnmark), where they are ascribed to ancient Sámi and dated back to the 1<sup>st</sup>–16<sup>th</sup> c. AD (Manjuhin & Lobanova 2002). In Karelia they were first detected on Olešin Island by the Norwegian archaeologists B. Olsen and J. Henriksen during the 2001 international expedition to the Kuzova archipelago. Since then, arrangements of this kind have been



discovered also on Lodejnyj and Taparuha Islands (Lobanova 2004: 103–110). None of them has been excavated so far. Thus it is not yet safe to conclude that the structures are indeed dwellings. The structures are usually situated at an elevation of approximately 15–20 m a.s.l., in convenient sheltered sites, for example in depressions between higher landforms or abutting on the foot of a hill. In other words, the natural topography screens out cold northerly and easterly winds.

#### *Ovals and semi-ovals (5)*

This is one of the least frequent types of structures. Stones are arranged in oval, semi-oval, or occasionally subrectangular structures that are composed of relatively small rocks and are 1 m or slightly more in diameter. They resemble hearths in design, but show no traces of charcoal or stone burning. Similar structures were detected in Solovki as well. Structures of another type (much larger, most often made up of fairly big flat slabs) bear external resemblance to Sámi sacrificial sites. Only two of those have been found – on Bol’šoj Kuz’mín Island (Lobanova 2004: 108) and on Syrovatka. The former was made up of three or four 3.8 m x 3 m (inner boundary) and 4.8 m x 3.5 m (outer boundary) slabs placed one upon the other. Long walls are directed NW to SE. The latter oval (built on a flat rock surface) is only partially preserved, a part of the large flat slabs is lost. Its dimensions are 2.2 m x 1.4 m.

#### *Stone “cases” (“dolmen”) (7)*

The ancient remains of this category are rectangular structures with three walls; the fourth might have been destroyed. They are made up of flattened boulders or stone slabs placed vertical-

ly and packed densely together. Originally, there might have been stone slabs or flat rocks on top. The structures vary in size from a maximum of 3.2 m x 2.4 m to a minimum of 1.6 m x 1.2 m, and their heights vary from 0.4 m to 0.7 m. Some examples have been found on the Karelian Coast and in the Solovetski archipelago. They are most numerous on Berežnye Lehludy Island: 5 known sites. Clearing within one of the structures revealed charcoal layers (Lobanova 2006: 422).

#### *Other structures (6, 8, 9)*

This group includes various single sites: the so-called “fencing” (Nemeckij Kuzov, Kotkano), “manhole” (Purnavolok), and “shelters” (Malyj Žužmuj, Berežnye Lehludy) (Fig. 5). Features analogous to the “fencing” can be found in Solovki. The other kinds of structures do not have parallels elsewhere yet.

The “fencing” on the SE shore of Nemeckij Kuzov has a square shape (2.3 m x 2.3 m). Its walls are made up of relatively small stones arranged into a ridge that is just 0.25 m high. The stones in the four corners of the structure form mounds that are higher and much wider than the walls (up to 0.7 m). According to I. Mullo, this structure was built for worshipping the god of the sun. Its shape brings to mind the solar images on ancient Sámi drums.

The “manhole” is a peculiar structure, completely overgrown with mosses and scrub. It is made up of upright flat stone slabs (4.5 m long, 1–1.2 m wide) with a capping. Stones for the roof were carefully selected and densely packed. The structure is connected to a large and deep oval pit – 3.4 m x 2.5 m and over 1 m deep (Lobanova 2006: 422–423).

“Shelters” are rectangular structures of huge boulders or blocks occupying an area of 12 m<sup>2</sup>–16 m<sup>2</sup>. There is an entrance in one of the short

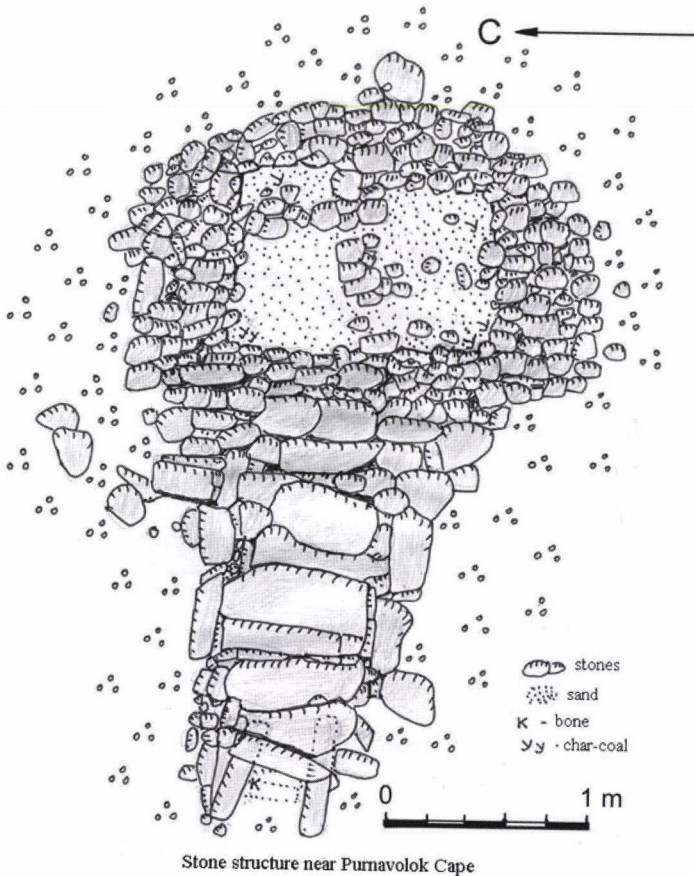


Fig. 5.  
Unidentified construction  
("shelter") near  
Cape Purnavolok.

walls. The most massive stone blocks, over 0.5 m high, were used in the shelter on Pečak headland on Bol'shoj Žužmuj Island.

## Summary

To sum up, we have considered nine principal types of stone structures found on the western coast of the White Sea. The statistical data given in Table 1 does not include the numerous ruined stone structures, for which the original appearance cannot be reconstructed.

Similar monuments of the nearby Solovetski archipelago are also numerous and even more diverse. We do not know the exact number of ob-

jects, but it does exceed 1000 (Martynov 2002). Although the assortment of the stone structures differs — Solovki are very rich in cairns and labyrinths — they are mono-cultural in the two areas. A few of them were possibly venerated by Sámi people who lived there in the Middle Ages and earlier (approximately between 1000 BC and the 15<sup>th</sup>–16<sup>th</sup> c. AD). According to certain written sources, Sámi lived in the Kem area until 1589 (Materials 1941: 325). Sources from the 17<sup>th</sup> century inform us of this population on the western shore of the White Sea (Vitov et al. 1974: 16).

A few sites might date somewhat earlier than the Middle Ages. In order to prove this hy-



pothesis, further intense survey in the vicinity of the known monuments is necessary. Shore line displacement does not offer much support in the dating of the archaeological material in our research area, because the current shore line is approximately the same as two thousand years ago (Elina et al. 2000: 183). Not all objects are of ancient origin, of course. Some of them, such as cairns with crosses and “headed” boulders, were erected in the 19<sup>th</sup>–20<sup>th</sup> centuries by Pomors or tourists.

The survey work is still at early stage. For example, the interpretation of stone constructions will benefit from osteological analyses of burials. Characteristic markers for Pomor seamen and fishermen, Orthodox crosses, are lacking in the uncovered graves, and thus the builders of these monuments are still a question mark to us.

There are many other questions that we cannot answer with currently available materials. The exact dating of the monuments offers numerous challenges, as well as the study of their functions, the structure of the sanctuaries, and their relation to the labyrinths. The monuments were most probably created in different periods of time and could serve different purposes.

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