Excavations of Bronze Age Burial Cairns near the Village of Bolshoy Bor in 2017 (Northern Coast of the Gulf of Finland)

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Abstract

In 2017, an expedition of History of Material Culture (IIMK) of the Russian Academy of Sciences (RAS) investigated a group of stone cairns situated near the village of Bolshoy Bor on the northern coast of the Gulf of Finland. The group in question consisted of four mounds located on a granite rock corresponding to the ancient seashore. In total, three cairns have been investigated, as along with the stone structures surrounding them. Over the course of the investigations, it was revealed that the objects were stone cairns dating to the Bronze Age. Inside the cairns, the remains of bonfires, accumulations of calcined bones and accompanying grave goods (a bronze knife) were uncovered. These findings suggest that the site was a funerary and ritual complex. In addition, elements of stone masonry were found in the cairns, viz. stone crepis walls constructed of massive boulders, circular structures, etc.

1 Introduction

The northern coast of the Gulf of Finland east of the Russian-Finnish border and the coastal regions of Finland are geomorphologically the same space. However, in terms of the archaeological study of antiquities from the Bronze Age, these territories differ from each other quite strongly. Until now, the monuments of this period on Russian territory have practically been left unstudied due to several factors, including the inaccessibility of the border area for examination until the end of the 1990s. In 2017, a group of Bronze Age burial cairns located to the west of Vyborg near Bolshoy Bor (Jokikylä, Säkkijärvi district) was excavated, with the aim of clarifying the cultural and chronological attribution of this group, as well as tracing the local features of the funeral rite in the eastern part of the area of the Northern European culture of the Bronze Age.

2 Information gained during the pre-War period on Bronze Age sites in the Gulf of Finland region

The western area of the Karelian Isthmus and the Outer Islands (Suomenlahden ulkosaaret) archipelago of the Gulf of Finland were part of Finland before the Second World War. During this time, a significant quantity of data on the archaeological sites of this region, including Bronze Age antiquities, were accumulated (Fig. 1). This information is summarised in works by T. Miettinen, P. Uino, A. I. Saksa and M. Lavento (Lavento 2001: 244–256; 2003; Miettinen 1996; Saksa 2014; Uino 1997: 104–108).

The maritime zone of Bronze Age southern and south-western Finland is part of the area of the distribution of the Nordic Bronze Age culture, with its main seat located in southern Scandinavia. Stone cairns, or cairns (Finn. *hiidenkiuas*), are the main marker of

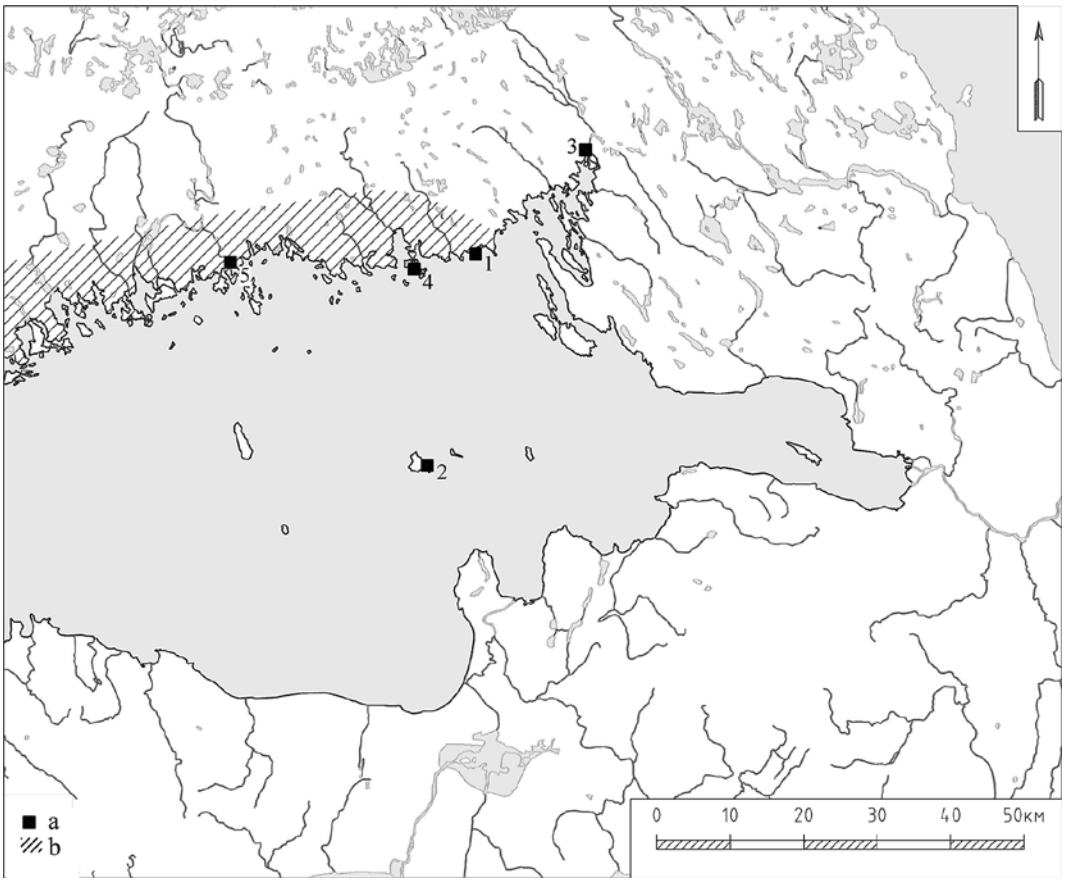

Figure 1. Antiquities of the Bronze Age on the northern coast of the Gulf of Finland. a — antiquities of the Bronze Age, b — area of the distribution of the North-European culture of the Bronze Age in the eastern part of the Gulf of Finland. 1 — cairns of Bolshoy Bor, 2 — cairn of Suisaari, Moshchny Island (Lavansaari), 3 — a single find, Vyborg (Tiikanurmi), 4 — cairn of Salovaara, 5 — cairn on Bolshoy Pogranichny island (Paatio). Drawing A. Gorodilov.

this archaeological culture. Currently, there are about 10000 known cairns in Finland, with a major part of them dating back to the Bronze Age (Salo 1992: 6; Tuovinen 2002: 66), with more than 3000 of them having been recorded (Aspund 2008: 72; Tuovinen & Vuorinen 1992).

In Finnish literature, the eastern boundary of the area of the culture of Bronze Age stone cairns is generally placed at the eastern coast of the Gulf of Finland, i.e. Russia's Leningrad oblast (e.g. Lavento 2003; Meinander 1954: 116–117) (Fig. 1, b). This opinion is based on the information gathered by Aarne M. Tallgren regarding five Bronze Age stone cairns in the vicinity of Bolshoy Bor (the village of Jokikylä in the locality of Kainiemi, on Laivakari rock) (Tallgren 1907: 72). An examination of these cairns was conducted by R. Rosén in 1917–1920.

In addition, the stone cairns on the Outer Islands of the Gulf of Finland contain information that possibly dates them to the Bronze Age. These data are summarised by T. Miettinen (Miettinen 1996). On Hogland (Suursaari) island, two cairns about 5 m in diameter were recorded on the heights of Lounatkorkia and Kumpelkallio. There is infor-

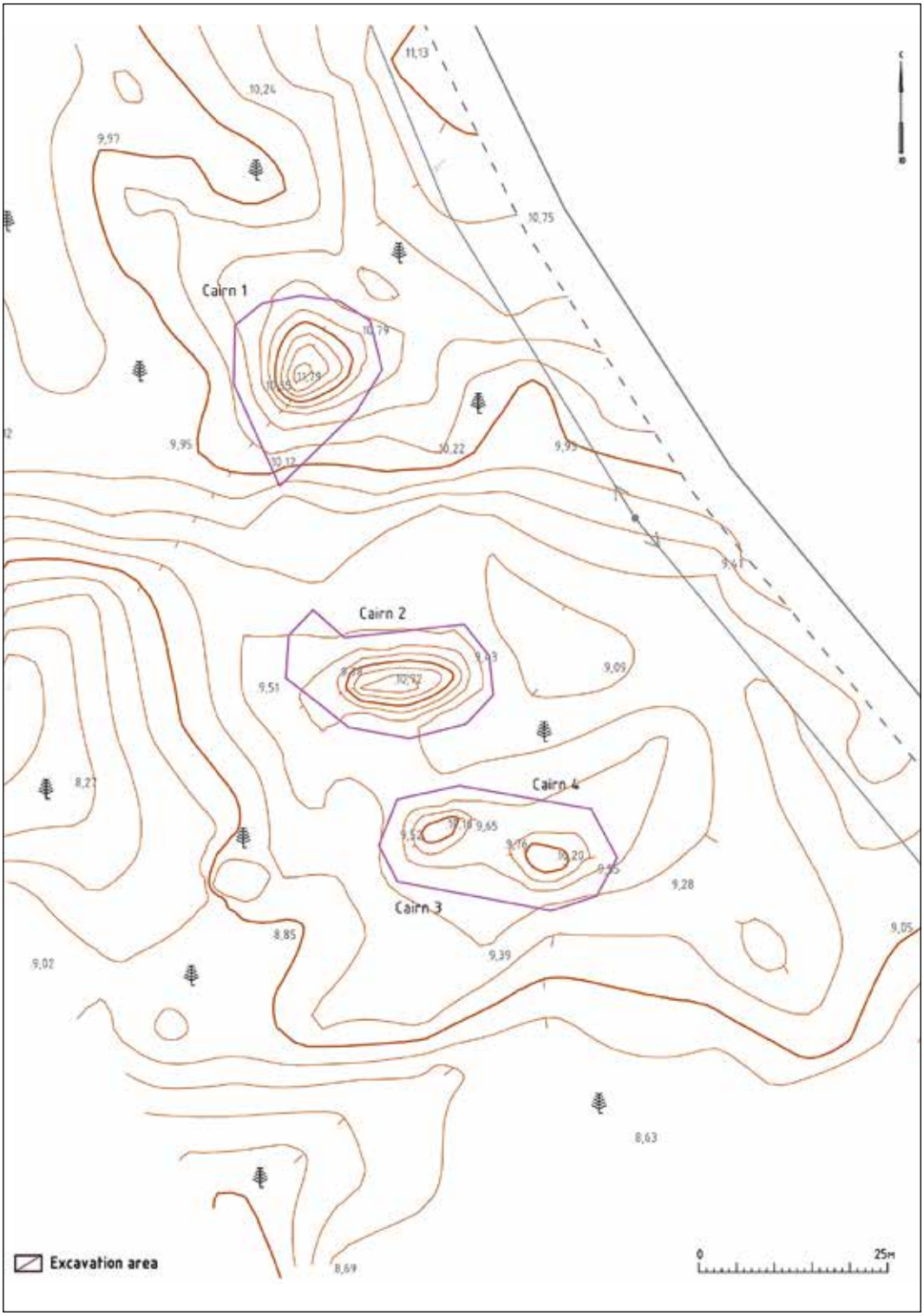

Figure 2. Topographic plan of the cairn group near the village of Bolshoy Bor. Drawing A. Gorodilov.

mation that a local teacher named E. Elenius carried out excavations of the Kumpelkallio cairn, where he found pieces of charcoal and burnt bones.

According to Torsten Edgren (Edgren 1993), a local teacher named Johannes Suomalainen informed the Archaeological Commission of Finland in 1926 that he had uncovered a stone cairn on the Suisaari promontory of Moshchny Island (Lavansaari). His measurements showed that the cairn was 10 m in diameter and 1,5 m high; nearby was a stone circle with a diameter of 7,5 m (Edgren 1993; Uino 1997: 269–270).

Along with the stone cairns, an object also dated to the Bronze Age was discovered, consisting of a single find of a spectacle fibula from the surroundings of Vyborg (found in Tiikanurmi, fig. 1, 3) (Hackman 1897: 43, Fig. 31; Meinander 1954: 116–117). This brooch belongs to type XXIV E2, according to Evert Baudou, and is encountered in Northern Europe from periods IV and V (i.e. ca 1100–700 BC) (Baudou 1960: 75–76, Taf. XV). Andreas Oldeberg, in his study on spectacle fibulae, dates the Vyborg find to period V (about 900–700 BC) (Oldeberg 1933). The nearest finds of spectacle fibulae come from southwestern Finland and a hoard from western Estonia (Saaremaa) (Sperling 2014: Abb. 4, 5).

3 Excavations of the cairns near the village of Bolshoy Bor in 2017

The group of cairns of 'Bolshoy Bor 1' is situated in the Vyborg region of Leningrad oblast within the territory of the rural settlement of Seleznevo (Ykspää), 2 km southwest from the settlement of Bolshoy Bor (Jokikylä, Säkkijärvi district), in a forest 30 m westward from a country road leading to Cape Konek (Koiniemi) and 1,5 km northward from the extremity of the cape (Fig. 1, 1). The cairns are located on the rock outcrop ("*ram's forehead*") overlooking the sea, ranged in the submeridional direction and surrounded by boggy lowlands on three sides. The absolute altitude of the rock surface here ranges between 9,5 and 11 m above sea level. The earliest information on the stone cairns on Cape Konek dates back to the beginning of the 20th century; this group was re-discovered by Aleksandr M. Zhul'nikov in 2016.

The group under consideration consists of four cairns arranged in a chain in the submeridional direction and distanced 4–15 m from each other (Fig. 2). Each cairn was tied to a local elevation of the rock surface 0,2–0,7 m high. This element creates the impression of the cairns being higher than they actually are. E.g., the structure of cairn no. 2 has two courses in height that is about 0,5 m, but visually the seeming height of the cairn is at least 1 m.

In 2017, a regional Leningrad Oblast expedition of the Institute for the History of Material Culture (IIMK) of the Russian Academy of Sciences (RAS) carried out explorations at the site. Four excavations were started, covering a total area of about 1050 sq. m. Cairns no. 1, 3 and 4 were investigated completely, while cairn no. 2 was studied partially.

Cairn no. 1 is located in the northern area of the group, on a rocky elevation at height marks of ca 11 m above sea level; it was partially covered with moss and overgrown with a few trees. After the moss layer and trees had been removed, the general structure of the object was revealed. The cairn under study was an amorphous stone cairn measuring 16 × 17 m and up to 1,3 m in height; in its central part, a depression up to 0,3 m deep was found. From the south, an additional structure measuring 4 × 7 m adjoined the cairn. The total area of the cairn was 200 m^2. A wall of a round plan constructed of large granite boulders served as the base of the cairn. The boulders rested upon the layer of the buried soil (Fig. 3, 4). The external diameter of the wall was 10,5 m; the stones were set tightly to each other and measured about 0,7 × 0,5 × 0,5 m. In the northeastern section of the cairn, a second course of the stone wall was recorded; these lay upon the first course and were of smaller dimensions. It is probable that the circle was origi-

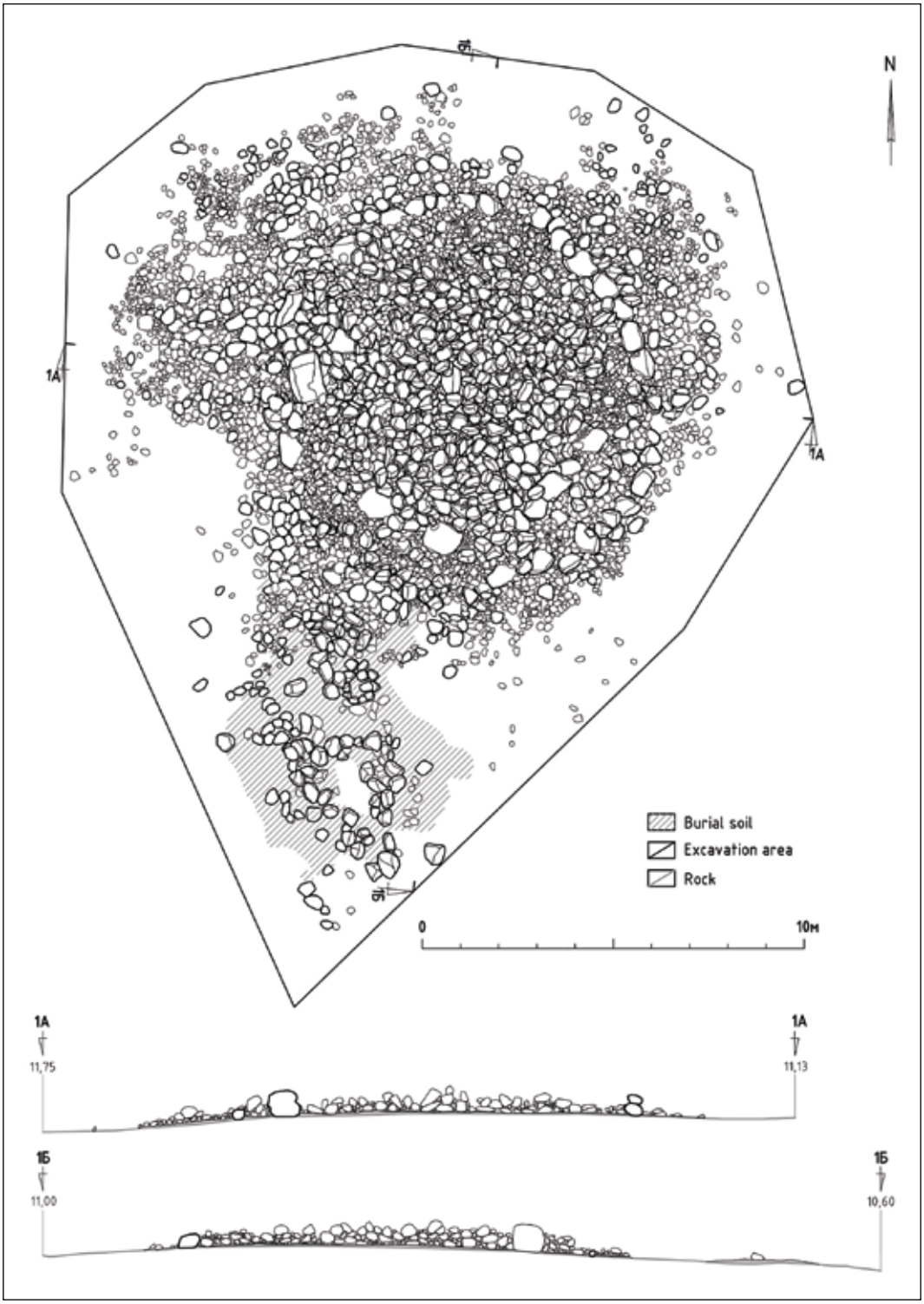

Figure 3. Plan of cairn 1 after removing the topsoil layer. Drawing A. Ivanova, A. Gorodilov.

Figure 4. Cairn 1 after partial dismantling of the cairn. Photo: A. Gorodilov 2017.

nally constructed of several courses of stones which eventually were scattered, forming a chaotic collapse outside the central circle. In the internal area, in the southern half of the cairn, there was a concentric semi-circle constituted by massive boulders (Fig. 5). The lower horizon of the inner space of the cairn is constituted by tightly laid medium-sized boulders. Around the inner side of the wall is a 'belt' about one metre wide consisting of smaller boulders and pebbles lying over the lower horizon. Under the lower horizon, an intercalation of buried soil with a thickness of 5–7 cm was found covering the rock foundation.

Excavation of the buried soil layer revealed three concentrations of burnt bones, all of them in the upper part of the layer. Concentration 1 was located in the eastern part of the cairn, to the north of the inner half-ring. The dimensions of the concentration are 0,9 x 0,6 m, while the area is 0,3 m^2. The bones in the concentration were poorly burned. In total, about 500 fragments of burnt bones with a size exceeding 0,5 x 0,5 cm were found in the concentration. The maximum size of the fragments does not exceed 2 x 1 cm, with the average size being 1 x 0,5 cm.

Concentration 3 was revealed at a distance of 0,5 m from concentration 1, also on top of a layer of buried soil. Bone concentration was overlapped with massive stones of the inner half-ring. The dimensions of the stones are 1,2 x 1 x 0,3 m and 1 x 0,8 x 0,5 m. The bones in the concentration were located in two compact groups of 0,3 x 0,3 m, located at a distance of 0,5 m from each other; single burnt bones were scattered in this space. In total, 250 bone fragments with dimensions of more than 0,5 x 0,5 cm were found. The maximum size of the bones does not exceed 2 x 1 cm.

Concentration 3 was probably the earliest one, made at the time of the construction of the cairn. Concentration 1 probably be-

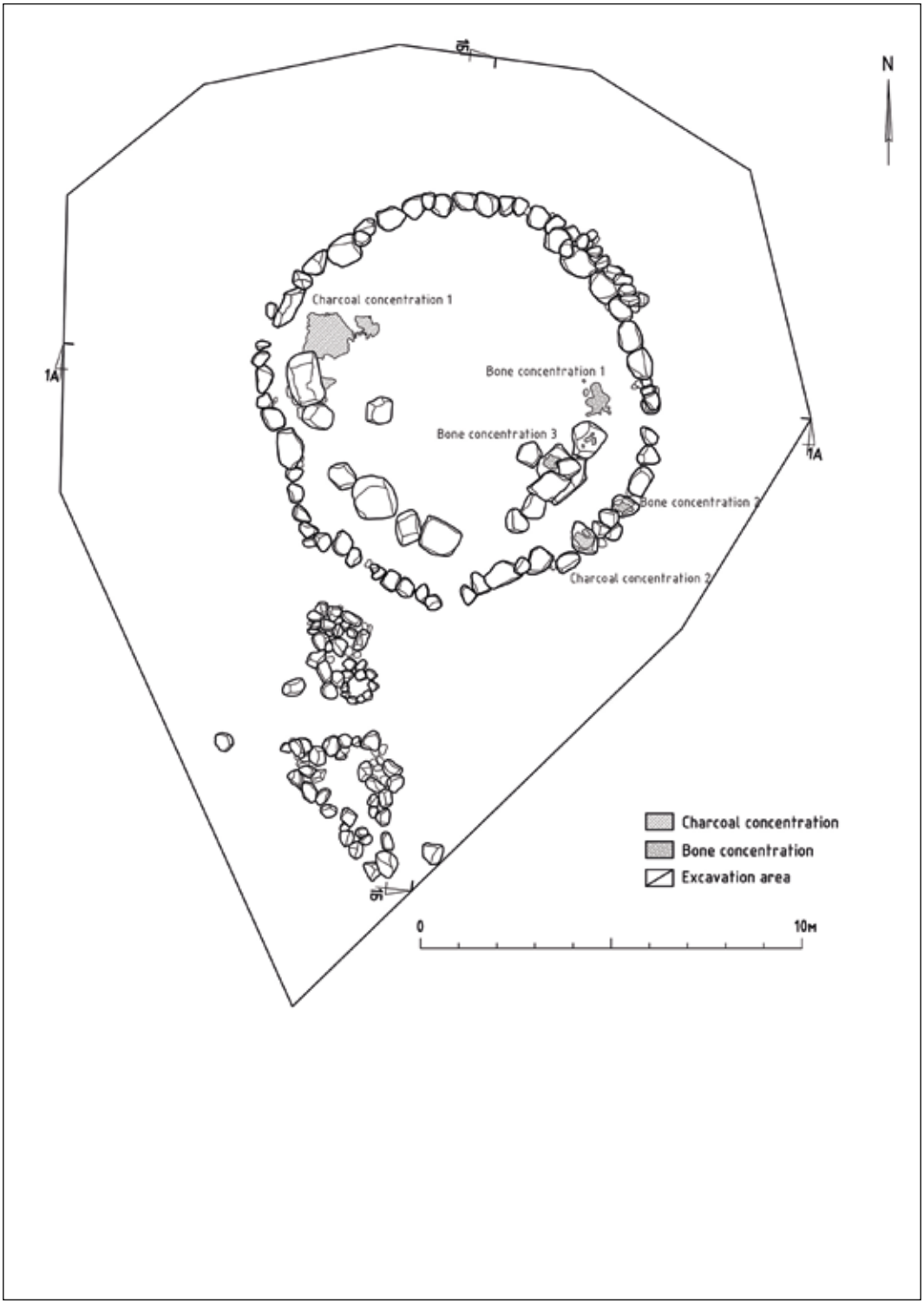

Figure 5. Plan of cairn 1 after the dismantling of the cairn. Drawing A. Ivanova, A. Gorodilov.

longs to the same period, since no traces of the reconstruction of the stone fill above it was noted.

Bone concentration 2 was found under one of the stones of the ring structure in the southeastern part of the cairn. The concentration was also corresponding to the upper part of the buried soil layer. The size of the concentration is 0,5 x 0,3 m. In total, it consisted of 30 fragments of burnt bones with dimensions not exceeding 1 x 1 cm. A massive boulder with dimensions of 0,7 x 0,5 x 0,5 m was located above the concentration.

The bones in all three concentrations are highly fragmented and relate mainly to tubular bones. In the course of the analysis carried out at the Museum for Anthropology and Ethnography (RAS), it turned out to be impossible to determine their species.

Apart from the bone concentrations, a concentration of coals measuring 0,5 x 0,4 m was revealed in the southeastern part of the stone ring lying on a layer of buried soil under a boulder measuring 0,9 x 0,6 x 0,5 m. Another concentration of coals measuring 1,1 x 1,2 m was revealed in the western part of the cairn to the north of the inner half-ring, close to a huge stone 1,3 x 0,8 x 0,8 m in size. The latter was partially crumbled, probably due to fire impact.

^{14}C dates of the 13th and 19th centuries were obtained from the bones of concentration 1 and the buried soil layer samples of cairn 1[1]. The late dating is probably the result from a large amount of modern organics, including tree roots.

Cairn no. 2 is located in the centre of the group on a rocky elevation up to 0,7 m in height at the height marks of about 10 m above sea level; it was partially covered with moss and also overgrown with a few trees. The cairn was an amorphous stone cairn measuring 12 x 14 m and up to 1 m high. The total area of the cairn was 170 m^2 (Fig. 6, 7). An excavation of the cairn was not carried out on account of the planned conservation of the site as an object of archaeological heritage. A stone annexe on the western side of the cairn was excavated. The annexe had dimensions of 3 × 7 m and was constructed of 1–2 courses of medium- and small-sized boulders. In the foundation of the annexe, two circular stone structures about 2 m in diameter adjoining tightly with each other were cleared out. In the eastern circular structure, a concentration of burnt bones covering an area of 0,3 x 0,3 m was uncovered. In total, about 25 fragments of burnt bones with dimensions exceeding 0,5 x 0,5 cm were found in the concentration. The maximum size of the bones did not exceed 1 x 1 cm. No fragments from the concentration were identified.

Cairns no. 3 and 4 are located in the southern section of the group on small rocky elevations up to 0,2 m high, at height marks of about 10 m above sea level. The distance between the cairns was 4 m; they were investigated over a single excavated area.

Cairn no. 3 was represented by a nearly round structure measuring 9 x 11 m and with a height of about 0,5 m; it was partly covered with moss. The total area of the cairn was 75 m^2. After dismantling the upper horizon of chaotically lying stones (Fig. 8, 9), the internal structure of the cairn was revealed. The lower horizon was constructed of stones of nearly equal dimensions (on average 0,4 x 0,3 x 0,3 m) laid tightly to each other. On the northern, eastern and western sides around the outer edge of the cairn, these stones formed something like a wall bordering the internal space. However, no distinct structure was discernible as it was in the first cairn. In the southwestern section of the inner space, a cupstone was found; in its centre was a round depression 3 cm in diameter and 4 cm deep, possibly of natural origin. In the central part of the cairn was a vertically set stone block with a height of 0,5 m. To the east of the centre of the cairn, in the upper part of the layer of buried soil beneath the stones, was a concentration of burnt bones measuring 0,5 x 0,6 m. In total, about 110 fragments of burnt bones exceeding 0,5 x 0,5 cm in size were found in the concentration. The maximum size of the bones did not exceed 2 x 1

Figure 6. Cairn 2 after removing the topsoil layer. Photo: A. Gorodilov 2017.

cm. No fragments of bones were identified (Fig. 10).

Cairn no. 4. From the beginning of the excavations, the eastern part of this cairn was disturbed and the western part was partially covered with moss. In terms of its shape, this cairn was similar to cairn no. 3; it was a nearly round structure measuring 12 x 9 m and about 0,4 m high. The total area of the cairn was 75 m^2. Before the beginning of the excavation, the nature of the internal structure of the cairn was unclear (Fig. 8, 9). After dismantling the stones chaotically lying in the peripheral section of the cairn, a structure about 5 m in diameter was revealed. The lower course of the masonry was laid of stones of a similar size (about 0,4 x 0,3 x 0,3 m) laid tightly to each other. Beneath the stones, in a layer of the buried soil to the north from the centre of the cairn, a concentration of burnt bones measuring 1,5 x 0,7 m was extended in the latitudinal direction. The bones were located in the upper part of the layer of buried soil. In total, about 200 fragments of burnt bones exceeding 0,5 x 0,5 cm in size were found in the concentration. The maximum size of the bones did not exceed 2 x 1 cm. No fragments of bones were identified (Fig. 10). In the central area of the concentration, a bronze knife was uncovered among the burnt bones (Fig. 10, b). The knife is rather small, with a length of 6.1 cm and the blade being 1 cm wide, 2 mm thick, and triangular in the cross-section; its edges were worked through the technique of cold hammering. The knife was manufactured from a copper-based alloy with an admixture of 6–8% tin, 2–3% arsenic, 1–2% antimony, 0,5–1% nickel, less than 0,6% silver and less than 0,5% zinc.[2]

4 The chronology and cultural context

The excavated cairns constitute a single complex. They are each tied to identical elements of the landscape, these being small elevations on the rock's surface, and are located within

the limits of a single rock. They share a series of common construction features. The outer outline of the cairns is bordered with a stone wall; the latter is best preserved in cairn no. 1 (masonry of two courses); the diameter of these circular structures varies from 5 m (cairn no. 4) to 10,5 m (cairn no. 1). The amorphous outlines of the cairns observable prior to the excavations had probably been formed due to the collapse of the stones of the external walls, whereas originally the cairns had vertical walls and were of a round plan. The lower horizon of the internal space of the cairns was constituted by tightly laid boulders of similar size. Different stone structures were recorded in the foundations of the cairns: a semi-circle in cairn no. 1 and an upright stone in the centre of cairn no. 3. Of note is also the discovery of a cupstone in the construction of the lower horizon of cairn no. 3. One to three concentrations of burnt bones and charcoal were found in the layer of the buried soil beneath the lower horizon of stones in each structure. A bronze knife was uncovered in one of the bone concentrations. Two of the cairns were adjoined by stone masonries. Analysis of the burnt skeletal remains has not allowed us to identify their species.

It is now believed that the construction of stone cairns in Finland could have started as early as the end of the Stone Age. This theory is supported by ^{14}C dates obtained for cairns from the Finnish interior (Taavitsainen 2003a; 2003b). However, the main part of the cairns belongs to the Bronze and Iron Ages. Until 1988, a total of 250 cairns were excavated in Finland. Of these, 114 were dated: 57% to the Bronze Age, and the rest to the Iron Age (Asplund 2008:73).

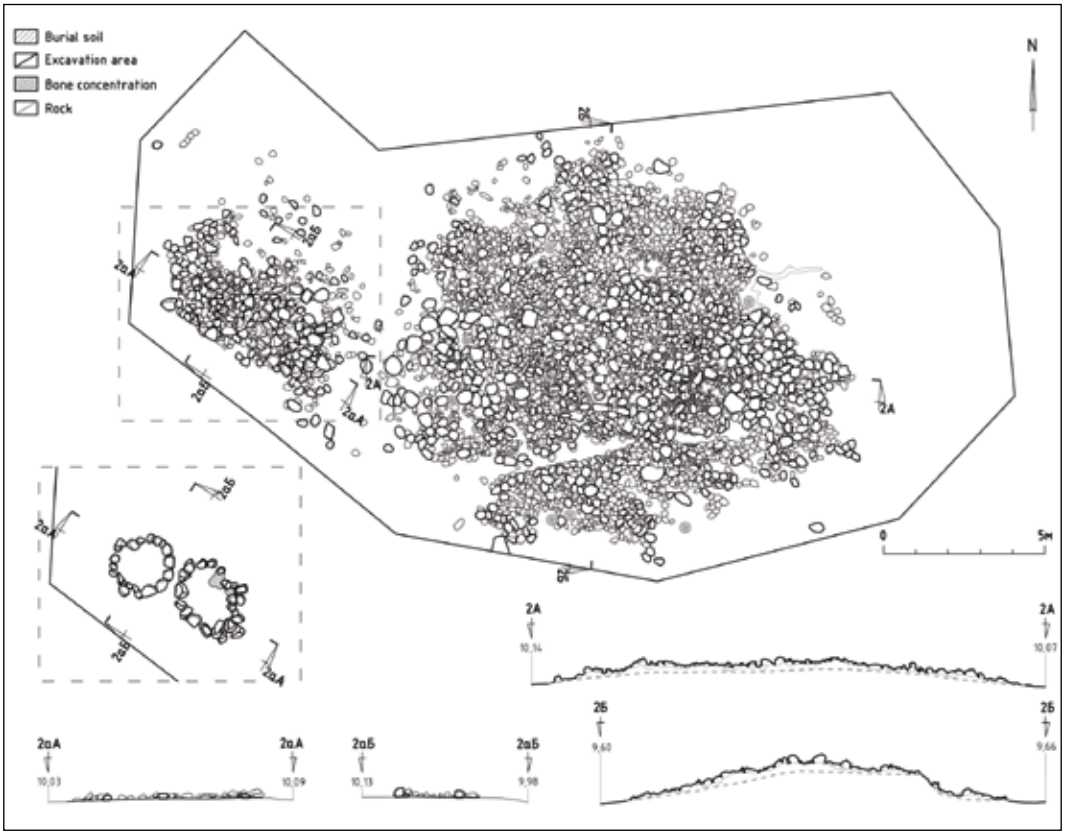

Figure 7. Plan of cairn 2 after removing the topsoil layer. Drawing A. Ivanova, A. Gorodilov.

Figure 8. Cairns 3 and 4 after removing the topsoil layer. Photo: A. Gorodilov 2017.

The study showed that a significant portion of the cairns belonged to the Iron Age. T. Tuovinen identified two groups: P (Bronze Age cairns) and R (Iron Age cairns) (Tuovinen 2002: 190-195). A detailed analysis of the construction time of the cairns was made on the basis of morphological and spatial criteria by T. Tuovinen while studying the cairns of the Åboland region in southwestern Finland. He found that a significant part of the cairns belonged to the Iron Age.

An important difference between the identified groups lies in the average area of the stone covering of the cairn. The average area of the cairns of group P reaches 162 m^2, while the average area for group R was 28 m^2. Also, Tuovinen identified microtopographic characteristics of the location of the cairns as defining features. The cairns of group P are usually located low in relation to the highest top, but still on a hill, whereas the cairns of group R are more often high in relation to the highest top but located on the plane (Tuovinen 2002: 193).

Among the sites excavated in various regions of the coastal part of Finland, the closest analogies for the cairns near Bolshoi Bor are cairns no. 86 and 98 at the cemetery of Rieskaronmäki and the burial ground of Uotinperä 2 in Nakkila in the Satakunta region investigated by Unto Salo (Salo 1981: 64–95, kuva 20, 39, 40). In one of the burials, a bronze knife similar to the find from cairn no. 4 at Bolshoy Bor was found (Salo 1981, kuva 117). The knife is 6,27 cm long, with the blade being 1 cm wide.

A similar cairn was explored by J. Pukkila in 2004 at Alastaro Isovarenmäki in southwestern Finland (Pukkila 2004; Pukkila & Pellinen 2019). In a burial cairn measuring 8 x 10 m, Pukkila found a concentration of burnt bones measuring 1,3 x 1 m with a fragment of a bronze plate and a fragment of a bronze knife ca. 2 cm long, 1 cm wide and 2 mm thick (Pukkila & Pellinen 2019, kuva 10, 11). This knife fragment is the closest analogy to that found at the excavation of cairn no. 4 near Bolshoy

Bor. They are similar in both metric characteristics (width, thickness, section) and shape. Knives of this type are known from the excavations of the sites of Denmark and southern Sweden in the II-IV periods (Larsson 1986: 44-45, Pukkila & Pellinen 2019:111); at least five such knives are known in Finland[3]. For the bones from Alastaro Isovarenmäki, the ^{14}C date of 2835 ± 45 BP (Hela-896) was obtained, which allowed the construction of the cairn to be dated to between the late 2nd and early 1st millennium BC. Based on the date and the knife find, J. Pukkila identified the cairn to be from the IV period of the Bronze Age (Pukkila & Pellinen 2019: 108-110).

The closest Bronze Age burial cairns to Bolshoy Bor are located in the region of Kymenlaakso in southeastern Finland. Currently, about 50 cairns are known to be there (Miettinen 2012:55). The closest excavated cairn reliably dated to the Bronze Age is that of Salovaara, investigated by T. Miettinen in 1991–1992 near Kotka (Miettinen 1997). This cairn is located about 70 km to the west from the cairns of Bolshoy Bor (fig. 1, 4). Here, a cairn of a similar form, with a diameter of ca. 11 m and with an annexe was examined. It is situated on an altitude of 10,5 m (Baltic system), similarly to the Bolshoy Bor cairns. During the excavation, a double spike button of the North-European type dated to period IV, according to Baudou (ca 1100–900 BC), was found in a concentration of burnt bones (Baudou 1960: 87–88, Taf. XVIII: XXVIA1). The ^{14}C date for the bones, 700 ± 30 BP (Su-2805), refers to the 13th-14th centuries AD, likely because of the modern vegetation in the sample (Miettinen 2012:60).

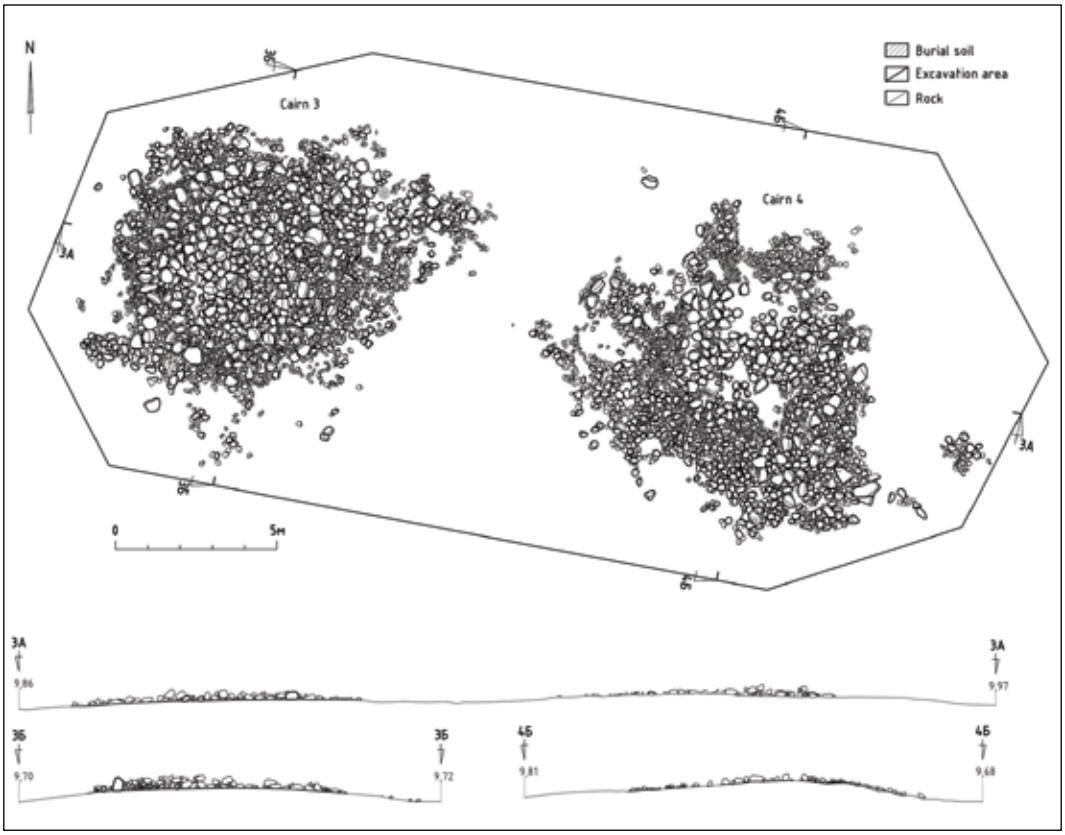

Figure 9. Plan of cairns 3 and 4 after removing the topsoil layer. Drawing A. Ivanova, A. Gorodilov.

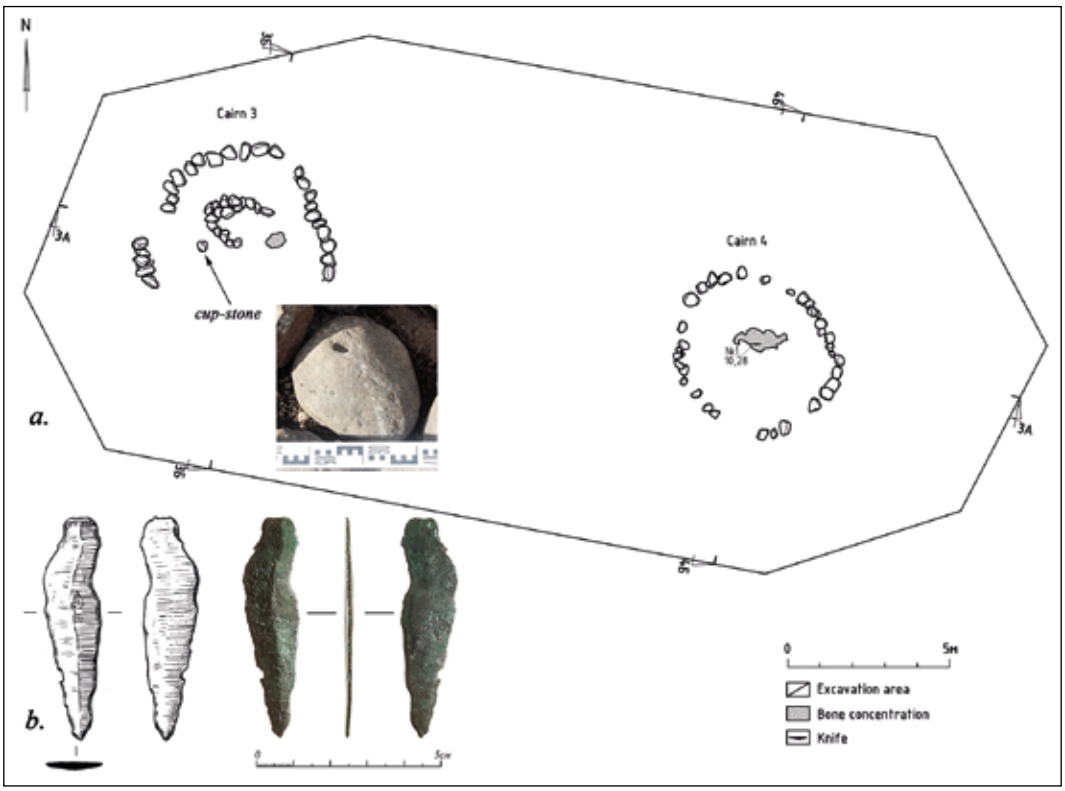

Figure 10. a. Plan of cairns 3 and 4 after the dismantling of the cairn. b. Bronze knife from cairn 4. Drawing A. Ivanova, A. Gorodilov.

In 1939, Ella Kivikoski carried out excavations of the stone cairn on Bolshoy Pogranichny island (formerly Paatio island) in Virolahti Bay (Kivikoski 1940). This cairn is situated 20 km to the west from the cairns of Bolshoy Bor (Fig. 1, 5). The cairn is located on a rock, at a height of 6,2 m above sea level; it is 6–6,5 m in diameter and about 0,75 m high; in its centre, the cairn was disturbed by a pit. During the excavations, a circle structure laid of larger boulders 3,5 m in diameter was revealed in the foundation of the stone cairn. Under the layer of stones, burnt bones (36 g) and a few fragments of flint were collected from the buried soil. E. Kivikoski estimated that, through its form and structure, this cairn must be dated to the Bronze Age, but she also did not exclude the possibility of a younger date based on the altitude chronology of the shore terraces.

5 Conclusions

The cairns near the village of Bolshoy Bor can be dated to the Bronze Age for a number of reasons. The cairns are located at an altitude of 9,5-11 m (Baltic system) and on a rocky hill, but not at the dominant height of the terrain, which is typical for the cairns of the Bronze Age. All cairns are located on local rocky hills. This makes them appear larger than they actually are, which is also a feature of the Bronze Age burial cairns (Holmblad 2010:121). The area of each cairn near Bolshoy Bor ranges from 75 to 200 square metres, which also allows us to attribute them to the Bronze Age. The internal structure of the burial mounds, namely the presence of ring stone constructions and annexes (cairns no. 1 and 2), have analogies among the Bronze Age burial cairns located

in neighbouring territories, including the burial grounds of Rieskaronmäki, Watinpera 2, Alastaro Isovarenmäki, Salovaara, etc. Unfortunately, the ^{14}C dates of the bones from the concentrations did not provide accurate dating of the construction, probably due to the presence of modern organics, including tree roots, in the samples. However, the bronze knife found in cairn no. 4 is closely similar to that found in Alastaro Isovarenmäki and can also be attributed to the Bronze Age IV period. The question of the duration of the life of the site cannot be finally determined. It is likely that cairns no. 3 and no. 4 did not function for long, judging by the absence of a complex structure of the cairns and the single concentrations of bones. Cairn no. 1 could have functioned for a longer time. Both the presence of an inner half-ring inside the cairn, with the initial bone concentration under its stones, and the presence of bone concentration under the stones of the outer ring suggest the possibility of a burial conducted at a later time. Similar cases are known in Finland (Pukkila & Pellinen 2019:110-111). Taking into account these facts, the period of function of the cairn group near Bolshoy Bor can be limited to IV-V period (the late 2nd – early 1st millennium BC).

The coastal region of the Gulf of Finland west of Vyborg (within Russian territory) has remained a rather poorly studied area until recently. The continuation of archaeological investigations will allow the researchers to define more precisely the chronological and territorial boundaries of the tradition of the construction of stone cairns, or *hiidenkiuas*, and to examine in more detail the dynamics of the cultural interactions in the region of the Gulf of Finland during the Bronze Age.

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Notes

1 770+-25 BP (1220-1280 AD (95.4%)) (SPb-2526) and 80+-25 BP (1692-1729 and 1811-1920 AD (95.4%)) (SPb-2519).
2 The composition of the metal was identified by Sergey V. Khavrin (The State Hermitage Museum).
3 I would like to thank Jarkko Saipio for his help in attributing and searching for analogies to the knife from the Bolshoy Bor site.