



Archaeological investigations of the stone graves on Kadaka klint, Tallinn

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INTRODUCTION

Between 2018 and 2021, several archaeological investigations took place on the klint area known as Kadaka klint, located in the Haabersti district of Tallinn (Fig. 1). There are five stone graves scheduled as archaeological monuments (nos 2632–2636 in the National Registry of Cultural Monuments) in that area and possible clearance cairns. The former farmlands of the area have now become sites for property development and/or in its close proximity, therefore it was necessary to find out the exact locations and condition of the already known and possible undiscovered archaeological sites.

The work was divided into several stages: in 2018 the state of preservation and boundaries of the protected grave no 2631 were determined, in 2019 an extensive landscape survey was carried out to locate possible archaeological remains. In the autumn of 2019 and spring 2020, one of the localized graves was archaeologically excavated, and in 2021 archaeological monitoring was carried out in the protection zone of stone grave no 2631. Fieldwork on the first three instances was conducted by MTÜ Arheoloogiakeskus and in the latter case by OÜ Arheox. The fieldwork provided new information of an area where previous archaeological studies were almost lacking and no data has previously been published about it.

STONE GRAVES ON KADAKA KLINT: DISCOVERY, NATURAL ENVIRONMENT AND USE OF LANDSCAPE

The five stone graves (nos 2632–2636) on Kadaka klint were discovered by Mati Mandel in 1974, and in the same year they were proposed for listing as state protected archaeological monuments. At that time the area was relatively far from Tallinn, and for some reason it remained outside the sphere of interest of archaeologists. Although the graves were protected as monuments and their locations were mapped, the only surviving document is a monument passport of one of the graves (Mandel 1974).

However, the expansion of Tallinn began to affect the area more and more, and thus the first studies to specify the location of the graves took place in 2005 under the leadership of Vladimir Sokolovski. By that time a number of various earthworks had taken place there,

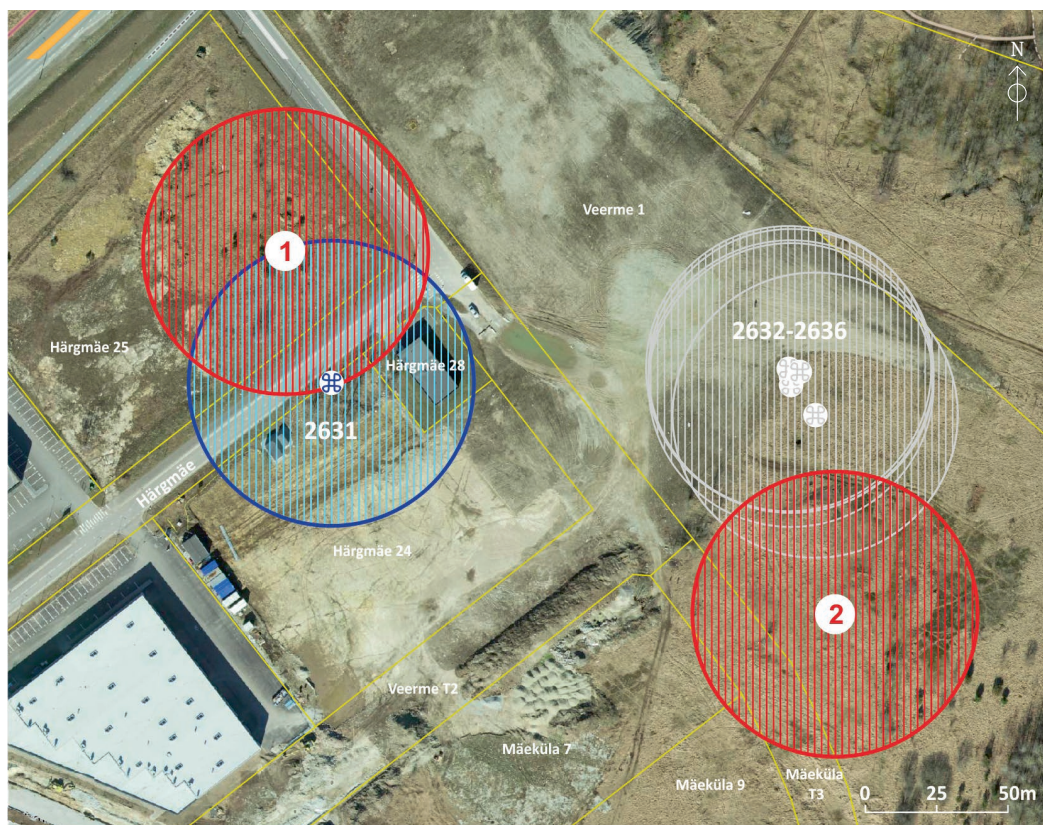


Fig. 1. Stone graves on Kadaka klint. 2631 – stone grave, 2632–2636 – protected stone graves that do not exist (any longer). 1 – stone grave at Härgmäe St. 25, discovered and excavated in 2019–2020, 2 – stone grave at Veerme St. 8, discovered in 2019.

Jn 1. Kadaka klindipealse kivikalmed. 2631 – kivikalme, 2632–2636 – kaitsealused kivikalmed, mida tegelikkuses (enam) ei ole. 1 – avastatud ja läbi uuritud kivikalme Härgmäe tn 25 kinnistul, 2 – avastatud kivikalme Veerme tänav 8 kinnistul.

Drawing / Joonis: Reet Maldre

rubbish had been dumped, the soil had been removed, new soil had been brought and planned, and the landscape had thus been changed beyond recognition. This was probably the reason why these studies did not provide significant clarity on the locations of the graves, but rather added new questions. In the course of these investigations, seven low but relatively wide heaps were found near the klint edge. The diameter of the heaps was 7–8 metres thus resembling stone graves, but they rose only 40–60 cm above the surrounding ground. Narrow trenches were dug on top of two best-preserved heaps, from which the turf layer was removed and the uppermost layer of stones was cleared out. The latter consisted of small limestones with plenty of soil between them, resembling rather a clearance cairn than a stone grave. Nevertheless, it was suggested that some of the cairns could be the stone graves discovered by Mandel (Sokolovski 2005). A location map of those heaps was included in the excavation report, but it does not correspond to the locations of the graves on the web map application of the Estonian Land Board which is linked to the data from the National Register of Cultural Monuments.

After 2005, the graves were revisited several times and their supposed locations were recorded, however the measured coordinates of different years did not match with each other. This relatively confusing situation with the location and data of the graves was the starting point of the investigations that were launched in 2019.

The study area, covering over 21 hectares was located on the North Estonian klint plateau. It was bordered by the steep klint escarpment on its north-northeastern and northeastern sides and it reached up to 250 metres southwest and south of it. As it is typical to areas near the klint edge, the soil layer of the study area was thin with a plant cover characteristic to alvars. The graves were located in an open landscape, at least 150 metres from the escarpment.

Kadaka klint is part of the larger Suurupi klint, the same klint edge that continues to the northwest and first runs through the villages of Tiskre and Tabasalu and then further through the villages of Rannamõisa and Ilmandu. The nearest archaeological sites are known in the current village of Tiskre, 1.8 km northwest of the graves. A settlement site, two cup-marked stones and probably a cemetery of 13th–18th century are located there. Two cup-marked stones and a settlement site of Hüüru are located about 4 km west of the study area. Further northwest is the settlement site of Rannamõisa. That site is located on the coastal plane and is dated to the Late Bronze Age and to the Pre-Roman Iron Age (Lang 2007, 50).

Sites from the Bronze Age and the Pre-Roman Iron Age are typically located on higher klint plateaus in northern Estonia where various archaeological sites are known – stone graves, settlement sites, field systems and cup-marked stones. In the study area, only stone graves and possible field clearance cairns are known. The nearest settlement sites in Hüüru and Tiskre are most probably not related to the study area, considering the relatively long distance of them.

The nearest area with similar nature and landscape use is the Rannamõisa–Ilmandu–Muraste area, located approximately 8 km to the northwest, where stone graves and fossil fields are located in the zone near the klint edge. The graves at both Ilmandu and Rannamõisa villages have been archaeologically investigated (Lang 2007, 188) as well as the field systems at Ilmandu and Muraste (Lang *et al.* 2004). The oldest of the graves are Ilmandu III and Rannamõisa III, which are probably the oldest *tarand* graves in northern Estonia. The oldest burial of the Ilmandu III grave dates back to the second or third quarter of the I millennium BC, but the same grave was also used for burials in the Roman Iron Age (Lang 2007, 188). It is possible that there are also stone-cist graves in that area (Lang 2007, fig. 82). The oldest field systems at Ilmandu have been dated to the Early Pre-Roman Iron Age and agricultural use of the area lasted until the Modern Period (Lang 2007, 97). Similar landscape use is also traceable east of Tallinn around the villages of Rebala and Jõelähtme, also in the Kuusalu–Kahala area and further to the east (cf. e.g. Vedru 2010). Numerous archaeological investigations have resulted in detecting a number of settlement sites from the same periods as the graves and fields in these regions. Usually the settlement sites are located further away from the graves, but generally still in the same area. These parallels from other regions with similar environmental conditions allow to suggest that settlements and other sites were probably also present on Kadaka klint previously. All of them were presumably destroyed in the second half of the 20th century.

It seems that after the end of the prehistoric period, the area of Kadaka klint was sparsely inhabited. In the 17th century the area belonged to Harku manor, but the nearest settlement unit was Kotipere (*Kottepere*) farm, located down the klint on the coastal plain (RA, EAA.1.2.C-II-4). At the end of the 18th century and the beginning of the 19th century, there

was a place called *Mäpä* on the klint, where a tavern was located (Mellin 1798, map ‘Der Revalsche Kreis’). It was situated not far from the graves of the area. At the end of the 19th century, there was a village there with households scattered on both sides of the Paldiski Road.

During World War I, ammunition depots of Peter the Great’s naval fortress were started to be built into the limestone escarpment. Although their construction probably did not directly affect the area on the high limestone plateau, some activity also took place on it at that time. This is evidenced by ditches dug into the limestone.

RESULTS OF THE FIELDWORK

Survey

The main aim of the survey was to find out whether the irregularly shaped northeast–southwest oriented heap that is scheduled as stone grave no 2631, was actually a burial site, and if so, to determine the boundaries of the grave. The primal method of this study was digging test pits and a trench. Both the heap and its surroundings were inspected with a metal detector. In the northeastern part of the heap, two fragments of human bones were found between the limestones. A trench was dug in the possible central part of the grave and an undisturbed burial was discovered there. The burial was not cleaned out but left for possible excavations in the future. No finds that would allow dating the grave were discovered (Vedru 2018).

A landscape survey of the whole area was then carried out to find out if previously known graves and/or clearance cairns are still existing and also to prospect for new archaeological sites. The area was also searched with a metal detector and test pits were dug. Test pits were made in heaps and other places that were higher from the surrounding ground. Sometimes test pits were also dug into uneven ground as such places might feature destroyed graves.

In the course of this work, a heavily demolished stone grave was discovered on the Härgmäe St. 25 plot (Fig. 1: 1), about 45 metres to the north-northwest from stone grave no 2631. The diameter of this irregular heap measured up to 10 metres and it was ca. 50 cm higher from the surrounding ground surface. A large number of bone fragments were found from it, human bones among them. Also three sherds from a robust handmade clay vessel were collected from these test pits (AI 8081).

A single stone-cist grave was discovered in the middle of the destroyed area on the Veerme St. 1 plot (Fig. 1: 2). Its diameter was 8–9 metres and it was up to one metre higher from the surrounding ground surface. The grave had a north–south oriented depression in the middle which could mark the location of the central cist. The grave consisted of limestones and granite stones and it lacked a turf layer. A test pit was dug into the central part of it. Fragments of human foot bones and coarse pottery were unearthed just under the uppermost stones (AI 8080; Vedru 2019). This grave was studied no further after the bones were found.

Excavations of the stone grave at Härgmäe street

The excavations of the demolished stone grave at Härgmäe St. 25 that was discovered in 2018 took place in 2019–2020 (Figs 2–3). The preserved part of the grave consisted of stones of different size and shape. Amongst them were also large and thick parts of the limestone bedrock. Given the size of the stones and the fact that some of them were covered by sandy subsoil, as well as the location of bones and finds, it was clear that the burial site was not in its original state and location. Apparently it was not just a disrupted grave, but a former grave that had been repeatedly moved from one place to another. The bones and finds were predominantly

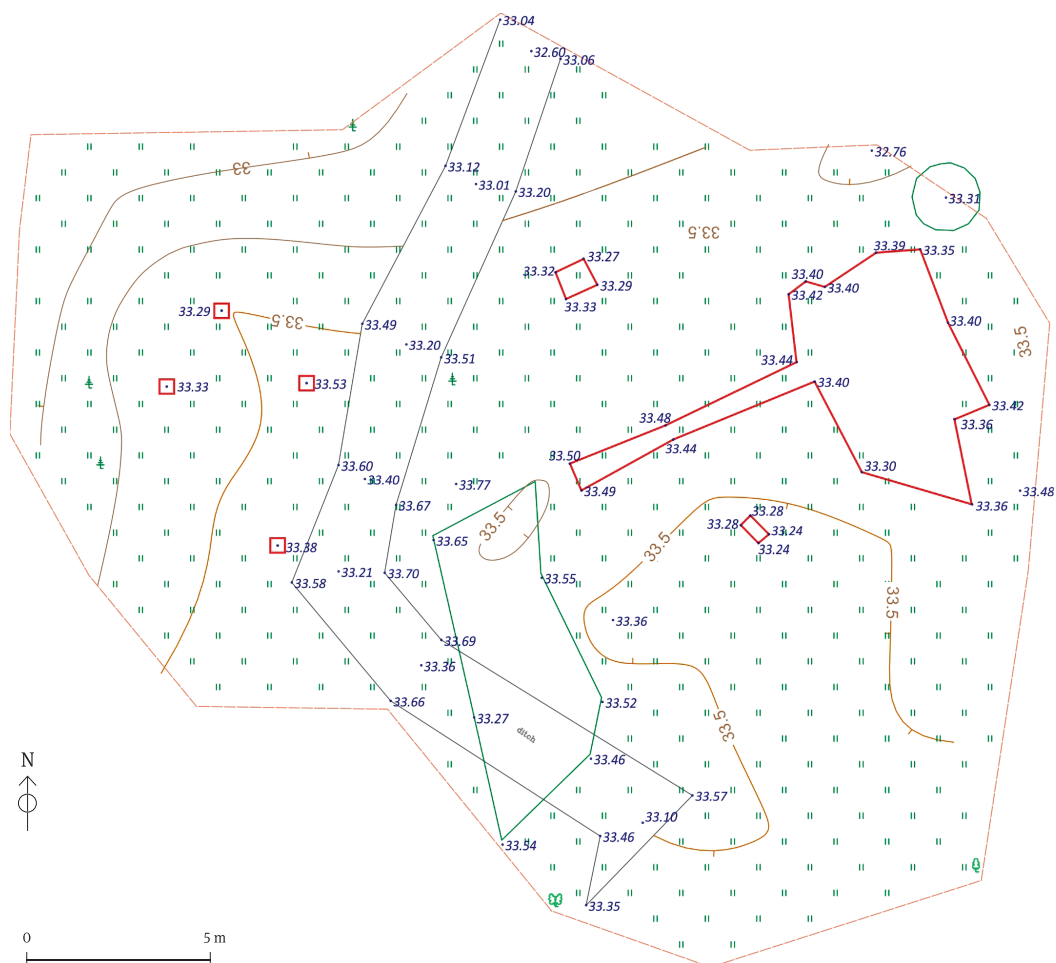


Fig. 2. Stone grave at Härgmäe St. 25. The excavation area and test pits of 2019–2020 are marked with the dark red line.
Jn 2. Kivikalme Härgmäe tn 25. 2019.–2020. a kaevand ja proovišurfid on antud tumepunase joonega.
 Mapping / Mõõdistus: OÜ Survey; drawing / joonis: Reet Maldre

located in the eastern edge of the heap, where they were located both in clusters and shat-tered. Both unburnt and burnt human bones were found together, including animal bones and human bones. Although most of the finds were discovered between stones, bones were also found in the turf layer. The number of unburnt human bones was very small, and there were no complete burials. The striated pot sherds date back to the Early Bronze Age and although these was not found from their original location, they still probably date the grave to the same period (Vedru 2020).



Fig. 3. Demolished grave at Härgmäe St. 25. View from the north.
Jn 3. Lõhutud kalme Härgmäe tn 25 kinnistul. Vaade põh-ja poolt.
 Photo / Foto: Gurly Vedru

ANALYSIS OF THE ANTHROPOLOGICAL MATERIAL

All together over 900 bone fragments were found, most of them burnt animal bones. The anthropological material of the grave at Härgmäe street belongs mostly to inhumations, but some of the material was burnt.

The cremation temperature has not been very high. The brownish-black colour of the bone fragments refers to temperature around 200–300°C. In some cases pale brown and greyish colour was observed which indicates that the temperature occasionally exceeded 300°C (Walker *et al.* 2008). However, the cremation temperature has been below 700°C, because bones of grey or white colour that would indicate higher temperatures were not present.

Among cremated bone material, the remains of at least one individual were detected. Concluding from unfused proximal epiphysis of the right first metacarpal, the age of the buried human was below 16 years. In the same bone unit (no 16) other unfused epiphyses of phalanges were found; some fragments of phalanges, ribs and distal part of ulnar diaphysis were also present. In bone unit no 20, burnt dental roots, fragments of mandible, scapula and vertebra were also found.

The bone units with inhumated bones or their fragments were more common. The material consisted mostly of small bones, bones of hand and feet, but some fragments from femoral, tibial, humeral, radial and ulnar bones were found. The find with fragments from mandible (both first molars preserved in tooth sockets) confirms the remains of a young adult (approximately 25–40 years old; dental age estimation after Brothwell 1981). We cannot rule out the presence of the second individual among inhumated bones, as analysed material contained two pairs of navicular bones.

ANIMAL BONES

Most of the material is made up of small dark burnt fragments, which remained mostly unidentified. For several fragments it was not possible to determine whether they were burnt or not. The bones were found both separately and in larger and smaller clusters and both burnt and unburnt bones occurred together. The distribution of the bone finds in the trench was uneven. Most of the fragments were found from the northeastern part of the excavated area.

At least 22 animal bones were identified (Table 1), but the bone material probably contains more.

Of the animal species, cattle (*Bos taurus*), sheep/goat (*Ovis aries* / *Capra hircus*), squirrel (*Sciurus vulgaris*), vole (*Microtus sp.*) and frog (*Anura*) are present.

At least four bone fragments belong to birds (*Aves*): two fragments of coracoid to black grouse or capercaillie (can be one specimen), one fragment of coracoid seems to belong to duck, and one diaphysis of long bone remained unidentified.¹

¹ Bird bones were identified by Freydis Ehrlich (TÜ).

Table 1. Anatomical and taxonomical composition of animal bones.**Tabel 1.** Loomaluude anatoomiline ja taksonoomiline koostis.

Compiled by / Koostanud: Liina Maldre

	Mandibula	Dens	Vertebra lumbalis	Coracoideum	Humerus	Ulna	Radius	Metacarpus	Os carpale IV	Femur	Tibiofibula	Phalanx I	Os longum	Os planum	Total
<i>Bos taurus</i>			1		2			1	1			1			6
<i>Ovis aries</i>							1								1
<i>Ovis aries/Capra hircus</i>		1				1	1								3
<i>Ungulata</i>														1*	1
<i>Sciurus vulgaris</i>										2					2
<i>Microtus sp.</i>	2														2
<i>Rodentia</i>										1					1
<i>Anura</i>											1				1
<i>Aves</i>				4											4
<i>Vertebrata</i>													1**		1
Total	2	1	1	4	2	1	2	1	1	3	1	1	1	1	22

* *Bos taurus*? Scapula?** *Aves*? Radius?

CONCLUDING REMARKS: THE LOST SETTLEMENT UNIT OF KADAKA KLINT

The prehistoric – and also later – settlements of North Estonia were often located on the klint plateau not far from the klint edge. There have been favourable natural preconditions for both early farmers and later settlements. In this zone of thin and fertile alvar soils both stone graves of the Bronze Age and Pre-Roman Iron Age as well as field systems of later periods can be found. Also other traces of prehistoric human activities can be found from these areas. In the vicinity of Kadaka klint, such use of landscape characterizes the area further to the northeast in Rannamõisa, Ilmandu and Muraste villages.

Kadaka klint had the same natural conditions and there is probably no reason to doubt that the area was inhabited and used in a similar manner. The few stone graves preserved in the area also support this assumption. Although at least one of the graves was severely disturbed, it still gave evidence of people that buried their dead in that place during the Bronze Age. As most of the stone graves were not built very far from the habitation sites, it is reasonable to expect that the settlement site of the same era was located on the same klint plateau. However, the study did not succeed to locate the settlement site despite the search.

Five stone graves were situated in the area in 1974, later possible clearance cairns were discovered. In 2018–2019 only three of the stone graves had still preserved, no remains of ancient field remains were re-discovered. In the 1970s, when the graves were found, the area was still rural, but it has changed since. The extent of and reason for the earthworks carried out in Kadaka klint area remains unclear. As the original soil was partially removed and replaced by new filling soil, it is highly possible that the settlement site(s) of the local inhabitants was removed in the process. In some smaller areas of the klint the top soil was removed, revealing the limestone bedrock. These spots were still detectable in the area. Considering all the earthworks carried out here, it is understandable that no traces of previous inhabitants could be found.

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KADAKA PANGA KIVIKALMETE ARHEOLOOGILISED UURINGUD TALLINNAS

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2018.–2021. aastal toimusid Tallinnas Haabersti linnaosas paikneval klindipealsel alal, mida teatakse Kadaka pangana, mitmed arheoloogilised uuringud. Algselt on siin olnud klindiserva lähedusele iseloomulik avatud loopealne ala, mida on viimastel aastakümnetel mitmesuguste pinnasetöödega korduvalt lõhutud. Alal on muinsuskaitse all viis kivikalmet, mis avastati juba 1974. aastal. Hiljem on neid üritatud lokaliseerida, kuid suurema eduta. Siiski on siin mainitud mitmete kuhjatiste olemasolu, mis väliskuju põhjal otsustades võiksid olla nii kivikalmed kui ka põllukivihunnikud.

Kadaka klindipealsel tehtud tööd hõlmasid nii maastikuvaatlust, prooviauuke, arheoloogilisi kaevamisi kui ka järelevahtet. Tööde tulemusena selgus, et üks kaitse all olevatest kalmetest (reg nr 2631) on tõepoolest matmispaik, kuigi seda on aegade jooksul lõhutud. Samuti tuvastati kaks kalmet selle läheduses

(jn 1: 1, 2). Neist kalmetest kaevati 2019.–2020. aastal läbi Härgmäe tänav 25 kinnistul paiknenud lõhutud matmispaik. Selgus, et see oli täielikult purustatud ning kalmekive oli ilmselt korduvalt ühest kohast teise lükatud. Leiti nii põletamata kui ka põletatud inimluude fragmente ning savinõukilde. Viimastest osa oli riibitud pinnaga, pärinedes arvatavasti pronksiajast.

Põhja-Eesti muinasaegsed, aga ka hilisemad asustusüksused paiknesid sageli klindipealsel, enamasti klindiserva lähedal, kus asusid varaseks põlluharimiseks soodsad viljakad loopealsed mullad. Seega võiks Kadaka asustusüksus olla võrreldav nt Rannamõisa, Ilmandu ja Murastega. Kivikalmetega samaaegsed asulakohad paiknesid sageli kalmete lähedal, kuid Kadaka panga uuringualal asulakohta ega ka põllujäänuseid leida ei õnnestunud, põhjuseks arvatavasti piirkonnas alates 1970. aastatest aset leidnud ulatuslikud mullatööd.