# *INVESTIGATIONS OF THE NORTHERN PART OF THE RAMPART FORTIFICATIONS OF TALLINN*

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From June to August and in October 2010 extensive archaeological preliminary investigations took place in the northern part of the rampart fortifications of Tallinn (Nurk *et al.* 2011b). In front of the Skåne, Great Coast Gate and Small Coast Gate bastions, primarily in the area of the former moat, altogether fourteen trial pits were dug (Fig. 1).[1] The preliminary investigations were connected with the plan of Tallinn municipal authorities to build a new highway around the northern part of the old town, and beside it, in the former moat, two big underground parking lots. The main objective of the preliminary investigations was to specify the location of the scarp wall that supported the inner bank of the moat, and the counterscarp wall that covered the outer bank, and to ascertain their state of preservation.

## *NATURAL RELIEF AND HISTORICAL BACKGROUND OF THE STUDIED AREA*

A sandstone klint running approximately in the north-east–south-west direction, crosses the lower town of Tallinn. It is still perceivable in the town space, but has been buried by collapses and fillings. At the artillery tower Fat Margaret, located at the north-eastern corner of the medieval town fortifications, the klint turns sharply towards north-west, diagonally crossing the rampart zone discussed in this paper in front of the Great Coast Gate and further opening on a coastal precipice (Zobel 2008, 26–27, fig. 9). At the foot of the klint, north-east of the Great Coast Gate, on the coastal plain, a harbour has been located probably from the 13th–14th centuries. As a result of the postglacial land rise and artificial fillings the present-day Vanasadam (Old Harbour) now lies at *ca.* 1 km distance from the Great Coast Gate. Relying upon historical maps and written sources, the area between the Great Coast Gate and the harbour was very densely populated. Here lived fishermen and various workers required for the functioning of the harbour, and here a number of inns operated (von zur Mühlen 1998, 99, 106, 112, 131). The settlement, presumably mainly the part of it which was located up on the klint, was called Köismäe ('Rope hill', Germ. *Reeperbahn*) after the rope-spinning workshops that functioned here. In connection with the building of the fortifications a large part of the earlier cultural layer has been covered by ramparts or destroyed by digging the moats. In spite of that the earlier archaeological investigations have established the presence of a medieval and early post-medieval cultural layer north (Põhja Ave. 31, monitoring by V. Kadakas and G. Toos in 2005) as well as east

[1] Investigations were carried out in front of the Skåne bastion in June 2010 – 7 test pits, in front of the Small Coast Gate bastion in July–August 2010 – 7 test pits and in front of the Great Coast Gate bastion in October 2010 – 1 pit. Fieldwork was directed by Ragnar Nurk, consulted by the archaeologists Villu Kadakas and Guido Toos.

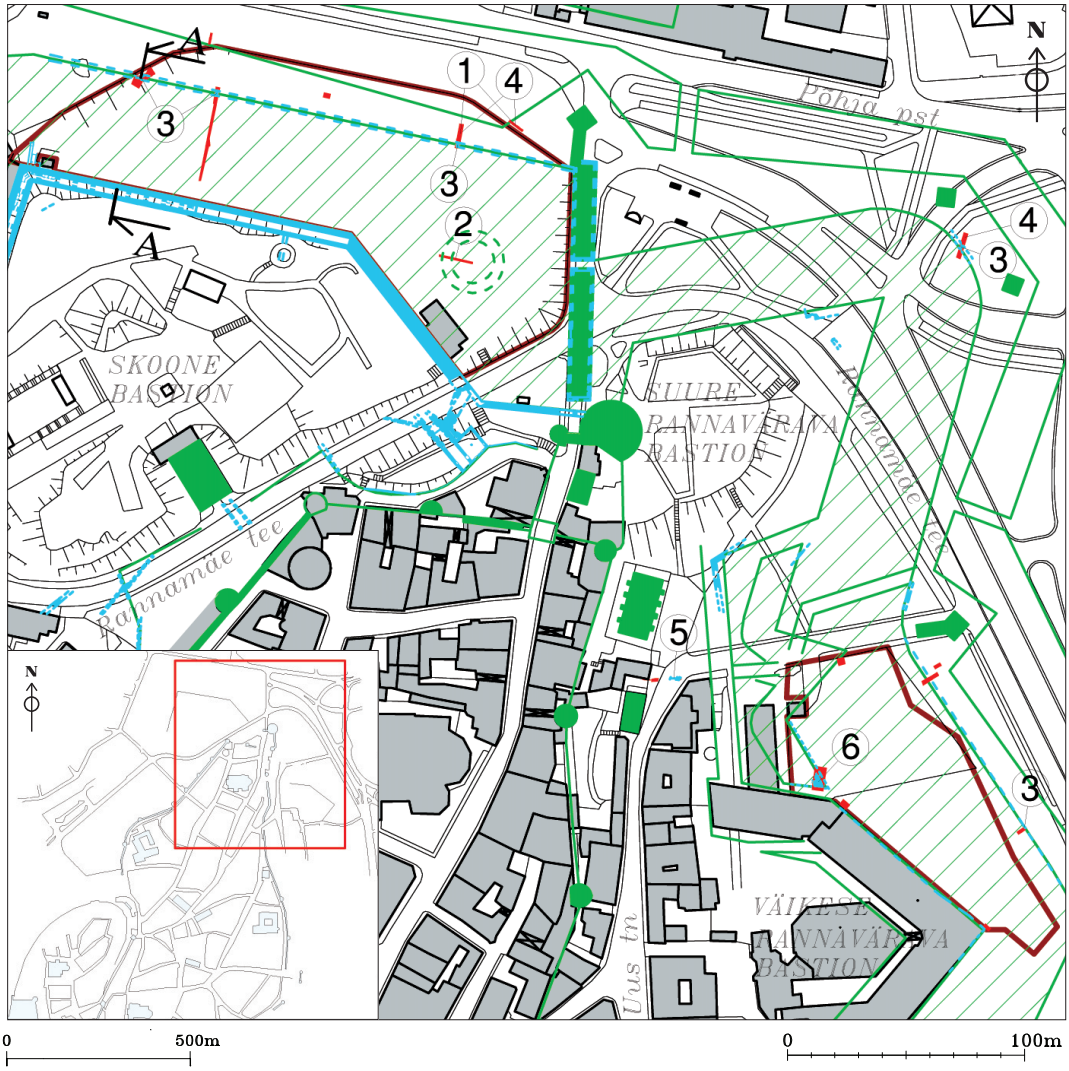


*Fig. 1. Archaeological investigations of the northern side of Tallinn rampart fortifications. Situation plan and preliminary reconstruction. 1 – test pits with the intact natural surface level and cultural layer on it, 2 – test pit for searching the walls of circular building depicted on some maps, 3 – finding places of counterscarp wall, 4 – test pits with the possible level of the covered way, 5 – trench with the walls of the Small Coast Gate rampart gate, 6 – test pit with the scarp wall of the tenaille in front of the Small Coast Gate.*

*Jn 1. Arheoloogilised uuringud Tallinna bastionaalvööndi põhjaosas. Asendiplaan ja esialgne rekonstruktsioon. 1 – šurfid puutumatu loodusliku maapinna ja kultuurkihiga selle peal, 2 – šurf kaartidel näidatud ümmarguse põhiplaaniga ehitise müüride otsimiseks, 3 – kontreskarpmüüri leiukohad, 4 – šurfid oletatava varjatud tee tasapinnaga, 5 – tranšee Väikese Rannavärava vallivärava müüridega, 6 – šurf Väikese Rannavärava esise tenaili eskarpmüüriga.*

*Drawing / Joonis: Ragnar Nurk*


*Fig. 2. The northern side of Tallinn rampart fortifications from the 1825 map. A – St Olaf's church, B – medieval Horsemill, C – barbican of the Great Coast Gate with the Fat Margaret artillery tower, D – rampart gate of the Small Coast Gate, E – guard houses, F – gun powder magazines, G – tenaille in front of the Small Coast Gate, H – covered way, I – glacis, J – caponiers.*

*Jn 2. Tallinna bastionaalvööndi põhjaosa 1825. a plaanil. A – Oleviste kirik, B – keskaegne Hobuveski, C – Suure Rannavärava eesvärav koos Paksu Margareeta suurtükitorniga, D – Väike Rannavärav, E – vahimajad, F – püssirohuaidad, G – Väikese Rannavärava esine tenail, H – varjatud tee, I – glassiivall, J – kaponiirid.*

*Drawing / Joonis: Üprus 1965, tahvel XII.*

(Mere Ave. 8/10, in 1997, Mäll & Toos 1998) of the rampart fortifications discussed in this paper. The recent investigations in the southern part of the fortification zone (Kadakas *et al*. 2010, 56–61; Nurk *et al*., this volume) have revealed that the suburban cultural layer may be well preserved even at the outwork area, on the outer bank of the moat, under the covered way and glacis.

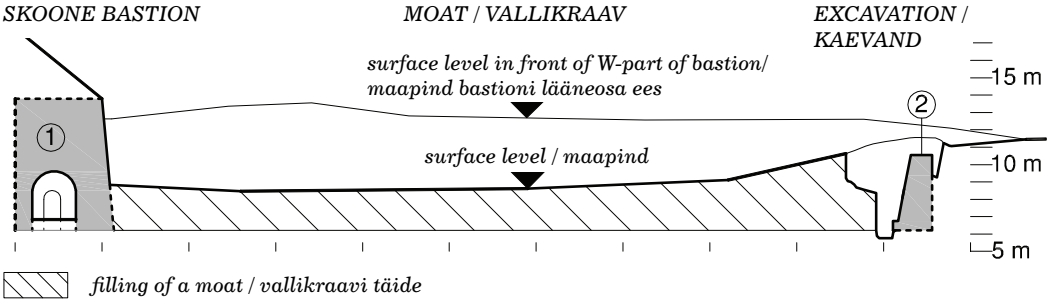


*Fig. 3. Section of the moat in front of the northern side of the Skåne bastion. 1 – scarp wall, 2 – counterscarp wall.*
*Jn 3. Vallikraavi lõige Skoone bastioni põhjaküljelt. 1 – eskarpmüür, 2 – kontreskarpmüür.*
*Drawing / Joonis: Ragnar Nurk*

The most exhaustive studies of the architecture and construction history of the fortification zone of Tallinn belong to the historian Rudolf Kenkmaa (Kenkmaa & Vilbaste 1965, 5–51) and architect Rein Zobel (see e.g. Zobel 2005, 43–55). According to the present knowledge the first rampart consisting of long straight sections together with two small stone bastions was built on the north-western and northern side of the town, from the Nun's Gate to the Great Coast Gate already at the end of the 15th and in the 16th century. One of these early bastions, called the Lion's Castle (Low Germ. *Loewenborch*), has probably remained under the earthwork of the later Skåne bastion (compare Figs 2 and 4). At the north-eastern corner of town fortifications in front of the Fat Margaret artillery tower, the first provisional rampart fortification was built during the Livonian War (1558–1583). The eastern, seaside front of the rampart fortifications, including the Great and the Small Coast Gate bastions, was constructed in the 1640s–1650s under the supervision of the local gymnasium's mathematics professor and the town's fortification engineer Gebhard Himselius. According to the new general project of the rampart fortifications, made by a famous Swedish military architect Erik Dahlbergh and authorized in its final version by the Swedish king Charles XI in 1686, Tallinn had to be encircled by a ring of 11 mighty bastions. Skåne bastion was the biggest one of the three bastions that were actually completed before, as a result of the Great Northern War (1700–1721), the town fell to the hands of Russians. They concentrated their attention mainly to the coastal defence against the possible counter-attacks of the Swedes. During the following 150 years the activities connected with the town fortifications were mainly restricted to the improvement and repair of the existing defence system. Since the second half of the 19th century most of the former fortification area has been mostly used as a green area.

### *THE SKÅNE BASTION*

Skåne bastion (Germ. *Schonen*), which has got its name from the southernmost province of Sweden, was built in 1683–1704. The bastion covering an area of 3.5 ha had lower flanks on both sides and a cavallier on the central part of it, which rose 15 m higher from the surrounding landscape. The defendable perimeter of the bastion had a length of 440 m and inside the lower part of a 7.5 m high scarp wall there were casemates. At the rear part of the bastion the gunpowder magazine was situated. When building the Rannamäe road through the rear part of the bastion in 1929 a part of the rampart was removed and

a southern part of the bastion was cut off from the main construction. Above ground only the northern and north-eastern part of the scarp wall can be seen, whilst the western side is hidden by the fill of the moat.

Throughout many years a surprising amount of wall fragments connected with rampart fortifications have been recorded as a result of arhaeological supervision over the digging of communication trenches in the neighbourhood of the Skåne bastion. These fragments occurred mainly in two areas: between the medieval town wall and the Rannamäe road, and in the area of the moat. Still, no investigations have been carried out, neither on the bastion itself nor in its casemates, with the exception of the disclosing of the foundation of the scarp wall in one place in 2005 (Sokolovski & Jaanits 2006). The investigations of 2010 took place in front of the bastion, mainly on the present-day football field, which is located in a depression lower than the surroundings (Fig. 1).

In the trial pits dug in the western and central parts of the studied area during the preliminary investigations intact natural sand, dug lower than the original level, came to light already near the surface. Thanks to the general decline of the ground towards the north-eastern direction, the trial pits in this corner of the site revealed the undisturbed top horizon of the natural soil as well as some cultural layer upon it (Figs 1: 1; 5). Large granite stones protruded from the layers of natural sand and gravel, like on former seashore. A 10–15 cm thick humus-rich layer, probably from the period before building the Skåne bastion's outwork, rested upon the natural soil, but its excavation did not produce better datable finds. Towards north-east, beyond the borders of the investigated site, in front of the klint, the preserved cultural layer is evidently thicker. In the pit dug in 2005 on

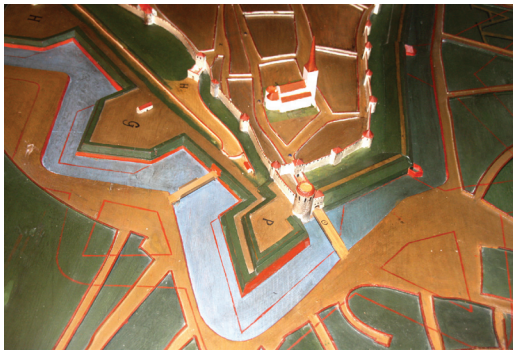

*Fig. 4. Bird's-eye view on the northern part of the fortifications of Tallinn in 1683, before the building of Skåne bastion. Copy of a model made by the order of Erik Dahlbergh, located in the Kiek in de Kök tower (TLM).*

*Jn 4. Tallinna põhjapoolsed kindlustused linnulennult 1683. aastal, enne Skoone bastioni ehitamist. Erik Dahlberghi korraldusel valmistatud maketi koopia Kiek in de Köki tornis (TLM).*

*Photo / Foto: Ragnar Nurk*

*Fig. 5. Test pit in front of the Skåne bastion on the outer side of the moat, in the north-eastern corner of the investigated plot. Former seashore with granite stones, in profile upon it a thin black cultural layer and the layer of clayish 'bricks' which formed the surface of the covered way.*

*Jn 5. Šurf Skoone bastioni esisel alal vallikraavi väliskaldal, uuritud kinnistu kirdenurgas. Endine suurte raudkividega mererand, selle peal profiilis õhuke must kultuurkiht ja varjatud tee pinna moodustanud "savipätside" kiht.*

*Photo / Foto: Ragnar Nurk*

*Fig. 6. Present-day football field north of the Skåne bastion, with counterscarp wall in front and scarp wall in the rear.*
*Jn 6. Skoone bastioni põhjakülje esine jalgpalliväljak, kontreskarpmüüriga ees ja eskarpmüüriga taga.*
*Photo / Foto: Ragnar Nurk*

*Fig. 7. The cornice stones of the counterscarp wall from the test pit dug in front of the Great Coast Gate bastion.*
*Jn 7. Kontreskarpmüüri karniisikivid Suure Rannavärava bastioni eest.*
*Photo / Foto: Ragnar Nurk*

the site Põhja Ave. 31 the layer containing finds of the 16th–18th centuries was over 1 m thick and the excavation did not reach the bottom.

According to the written sources somewhere in front of the Great Coast Gate also two remarkable institutions were situated in the 15th–16th century: the St Gertrud's chapel and the hospital called 'pock-house' (Germ. *Pockenhaus*). In 1691, while digging a moat in front of the right flank of the Skåne bastion, walls of some old circular building with a diameter of *ca*. 25 m were discovered, partly supported by buttresses on the outside. According to the explanatory text on one of the maps depicting these walls it was supposed to be the foundation of St Gertrud's chapel (Vende 1994). Because of the circular shape it is also possible that it was actually a defensive tower, e.g. a port tower mentioned in written sources (historian Robert Treufeldt, pers. comm.). From the other kind of circular buildings we could also mention the Horsemill preserved in the north-western corner of the lower town. The excavation (Fig. 1: 2) revealed that in this part of the moat, in front of the northern side of the Skåne bastion half a meter thick moraine layer, containing quite large sandstone sarsens was preserved upon the hard sandstone bedrock. However, no traces of the foundations discovered in 1691 could be found in the trench any more. Most likely these were demolished already in the following year in connection with widening the moat. A small possibility still remains to find them in the future, if they were built on hard sandstone bedrock and are situated not exactly where they should be according to the old maps.

Although the bastion was mostly completed by 1704, the counterscarp wall was built by the Russians only in the 1790s–1800s. It was probably one of the last greater construction activities undertaken in the zone of rampart fortifications of Tallinn. The partial preservation of the counterscarp wall beneath the present-day football field was known already from earlier recordings (Tamm 1974, 8–9, figs p. 1, 9; Pantelejev 1988, 5, figs p. 1, 3), but its exact location had to be specified. The investigations proved that

it runs straight in the east – west direction through the investigated area (Fig. 1). Under most of the football field the wall was preserved only to the height of 2 m immediately beneath the sod layer (Fig. 6). In the higher western edge of the football field the counterscarp wall was preserved even in its full height (see Fig. 3), as probably also in front of the western side of the bastion. The wall had been built upon the sandstone plateau, the surface of which is at about the same level at both ends of the investigated site. On the 0.5 m high foundation built on hard sandstone stood a 3.5 m high and 1.3–2 m thick wall. The top surface of the cornice stone, which moat-side edge was unfortunately broken, was covered with a thin layer of clay, used as isolation. Behind the wall the earlier bank of the moat was also recognizable as a level of loose limestone slabs together with the relatively humus-rich layer on it. Inside the moat, on the sandstone there was a mixed clayish layer and on it a humus-rich layer, which had accumulated while the moat was still open. Test pits proved also that the supporting wall of the inner side of the glacis has been quite surely demolished in front of the northern side of the bastion.

*Fig. 8. Excavation with the southern corner of the tenaille scarp wall in front of the Small Coast Gate rampart gate. The building beside the excavation is a reconstruction of the Small Coast Gate bastion from 1980s.*
*Jn 8. Kaevand Väikese Rannavärava esise tenaili eskarpmüüri lõunanurgaga. Kõrvalolev, 1980. aastate alguses ehitatud hoone imiteerib ajaloolist Väikese Rannavärava bastioni.*
*Photo / Foto: Ragnar Nurk*

### *THE GREAT COAST GATE BASTION*

The main part of the earthwork of the Great Coast Gate bastion, located at the north-eastern corner of the lower town, has survived and is used as a park, located beside the artillery tower of Fat Margaret. But the tip of the bastion is by now under a lively crossing, and no sections of the scarp wall can be seen on the ground either. Possible fragments of the scarp wall of the bastion were recorded in 1988 in connection with laying electric cables (Pantelejev 1988, 4–5, figs p. 2–3). In 2010 a test pit was dug in a patch of greenery on the crossing, to ascertain the location of the counterscarp wall in the place where it extended furthest towards north-east, curving around the tip of the bastion.

In our excavation the counterscarp wall was preserved in almost full height. On the upper surface of the wall, 1.45 m thick at the top, a surprising discovery of a vertical joint juncture, probably marking the border of two building stages came to light. It made an impression that a new lining wall had been later built in front of the moat side of the original wall. The original wall may have been built already simultaneously with the Great Coast Gate bastion in the 1640s. The later, moat side of the wall resembled the one in front of the Skåne bastion, dating most likely from the middle or

the second half of the 18th century. On the wall the cornice stones were missing, but several of these were found loose in the fill soil (Fig. 7). The edge of these cornice stones was with a rectangular cross-section, with rounded corners.

Behind the counterscarp wall a 2 m wide cut had been dug through an earlier thick fill layer during the construction of the wall; our excavation did not reach the intact natural layers. The upper part of the soil brought to fill the cut consisted of a peculiar porous clayey matter, the surface of which probably formed the plane of the covered way, slightly sloping towards the moat. Here the compound was crumbly, but in the pits dug into the outer bank of the moat in front of the Skåne bastion rectangular 'bricks' cut from this material had been placed side by side (Fig. 4). Considering the thickness of the fill layer upon the presumable level of the covered way it seems likely that in front of the Great Coast Gate bastion the glacis and walls of two diamond-shaped caponiers are also preserved.[2]

### *THE SMALL COAST GATE BASTION*

Nothing visible has survived of the historic Small Coast Gate bastion, but while building the big complex of warerooms and workshops at the beginning of the 1980s it was given an appearance imitating a bastion. The outer wall of the building was erected almost exactly on the place of the scarp wall (Fig. 6), but considerably higher than the original one had stood. The test pits of 2010 were dug in the area in front of the northern and north-eastern side of the building, which is divided between a parking lot and a public garden. Even before, in April 2010, in connection with installing a gas line, we also came across foundation fragments, presumably belonging to the rampart gate of the Small Coast Gate, at the corner of the Uus street and the Väike Rannavärava street (Fig. 1: 5; Nurk *et al.* 2011a).

The eastern part of the rampart fortifications' zone was reconstructed at the beginning of the 1750s by Russians (Zobel 1977, 20, note 15). The most important improvements were three tenailles built in front of the curtain walls between the bastions. To be more accurate, these were flexuous double tenailles, consisting of a triangular central part and two wings extending towards the shoulder angles (i.e. the intersection of face and flank) of the neighbouring bastions. A similar double tenaille was exhaustively investigated in 2008–2009 in connection with the building of an underground parking-lot in Vabaduse Square (Kadakas *et al.* 2010, 54–55, fig. 2). The tenailles on the eastern side of the town were surrounded by the moat on all sides, they did not touch the curtain wall and bastions.

In one of the excavations the southern corner of the tenaille which was situated in front of the rampart gate of the Small Coast Gate was documented (Figs 1: 6; 8). It appeared that the slightly salient foundation, 70 cm high, of the tenaille's scarp wall had been built on a timber raft. The wall itself, preserved to the height of 3.3 m had an inclined outer side, so that its thickness remained between 1.45–2 m. The foundation had been built on a nearly 2 m higher level and the wall itself was at least 1 m higher than Zobel (1977, 20–21) had presumed on the basis of the results of the analysis of historical drawings of Russian military engineers.

In connection with the building of the tenailles the moat in front of them had also been widened. The main aim of the investigations was to specify the location of the latest

[2] These caponiers appear still on the fortification plan of 1858 when most of the fortifications were handed over to the town authorities (Zobel 1980, fig. 334).

counterscarp wall, which, according to the maps, should have run straight in this section just as in front of the Skåne bastion. Unfortunately, of the two test pits only the southern one (see Fig. 1) gave a result, and even there only an about 1 m high bottom part of the wall was preserved. The scarp wall of the tenaille and the countescarp wall were built approximately on the same absolute altitude, half a metre higher than the present-day sea level.

## *CONCLUSION*

As a result of the investigations carried out in 2010 in the northern part of the earthen rampart fortifications zone of Tallinn new information was obtained mainly about the moat in front of the rampart zone and the outwork. The counterscarp wall was recorded at five points altogether. The architecture of the wall and its high-grade accomplishment resemble the counterscarp wall of the same construction stage, the second half of the 18th century, recorded previously on the southern side of the town. It was discovered that probably in front of the Great Coast Gate bastion only a thickening was built to the earlier counterscarp wall. At the Skåne bastion it appeared that before the building of the wall the outer bank of the moat was, for a long time, just a slope, which was indicated by a humus-rich layer containing loose slanting limestone slabs. In front of both the Skåne bastion and the Great Coast Gate bastion the plane of the covered way running along the outer bank of the moat consisted of a peculiar porous clayey material – crumbly compound or a layer of 'bricks' cut from the same material. In the outwork area a cultural layer from the period prior to the building of the fortifications is also sporadically preserved, but probably better on the coastal plain than on the sandstone klint. From the other side it could be more difficult to reach the cultural layer in front of the klint due to the thicker later filling layers.

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# *ARHEOLOOGILISED UURINGUD TALLINNA BASTIONIVÖÖNDI PÕHJAPOOLSES OSAS*

*Ragnar Nurk, Villu Kadakas ja Guido Toos*

2010. a juunis–augustis ja oktoobris toimusid Tallinna Kultuuriväärtuste Ameti tellimisel ulatuslikud arheoloogilised eeluuringud Tallinna bastionaalvööndi põhjaosas. Skoone, Suure Rannavärava ja Väikese Rannavärava bastioni esisele maa-alale, esmajoones kunagise vallikraavi kohale kaevati kokku 14 šurfi (jn 1). Eeluuringud olid seotud linnavalitsuse kavaga rajada ümber vanalinna põhjaosa uus liiklusmagistraal ja selle kõrvale kunagisse vallikraavi kaks maa-alust autoparklat. Peamiseks eesmärgiks oli täpsustada kraavi sisekallast toestanud eskarpmüüri ja väliskallast katnud kontreskarpmüüri paiknemist (jn 2, 4) ning selgitada välja, kui hästi need on säilinud.

Uuritava ala algses reljeefis enne linna tekkimist ja kindlustuste rajamist andis tooni liivakiviklint, mis kulges Paksu Margareeta suurtükitornist umbes loode suunas. Alates 13.–14. saj on Suurest Rannaväravast kirdes paiknenud Tallinna sadam. On teada, et sadamasse viiva tee ümbrus oli kesk- ja varauusajal tihedalt asustatud. Lisaks on andmeid, et Suure Rannavärava esisel alal paiknesid hiliskeskajal Gertrudi kabel ja rõugemajaks nimetatud raviasutus. 1691. aastal Skoone bastioni esise vallikraavi kaevamisel leitud ja paaril tollasel plaanil näidatud ümmarguse põhiplaaniga ehitist on peetud Gertrudi kabeliks või kaitsetorniks. Kuna selle ehitise müüride olemasolu kontrollimiseks Skoone bastioni põhjakülje ette kaevatud šurfist neid ei leitud, siis tundub tõenäolisena, et need lammutati seoses vallikraavi laiendamisega. Skoone bastioni põhjaküljel vallikraavi väliskaldal, kunagisel liivakiviplatool on eeslinna perioodi kultuurkiht samuti valdavalt hävinud, v.a ainult välitöödel uuritud ala kirdenurgas (jn 3, 5). Tõenäoliselt on kultuurkiht paremini säilinud rannikumadalikul, Suure ja Väikese Rannavärava bastionide esisel alal, kus see on kaetud paksemate hiliste täidetega.

Uuringutega saadi uusi andmeid muldkindlustuste esisest vallikraavist ja eelkindlustustest. Avati Väikese Rannavärava vallivärava esise tenaili eskarpmüüri lõunanurk (jn 8). 1750. aastate alguse tenaili müür oli rajatud puitprussidest alusparvele ja oli säilinud 3,3 m kõrgusena, mida on u kolmandik enam kui Rein Zobel oli seda varem ajalooliste jooniste põhjal eeldanud. Kontreskarpmüür dokumenteeriti kokku viies punktis (jn 1: 3, 6 ja 7). Müüri arhitektuur ja heatasemeline teostus sarnanevad linna lõunaküljelt leitud samast ehitusetapist pärineva, 18. saj teise poole kontreskarpmüüriga. Suure Rannavärava bastioni ees, kus algne kontreskarpmüür oli ehitatud juba u 17. saj keskpaiku, piirduti samal ajal vaid varasemale müürile vallikraavi poolsesse külge paksenduse ladumisega. Skoone bastioni juures selgus, et vallikraavi väliskaldaks oli enne müüri ehitamist pikka aega pinnasest nõlv, mida näitas huumusrikas kiht koos selles leiduvate lahtiste kaldus paekividega. Nii Skoone kui ka Suure Rannavärava bastioni ees moodustas vallikraavi väliskaldal kulgenud varjatud tee tasandi omapärasest poorsest savist massi või samast materjalist lõigatud "pätside" kihi pealispind (jn 1: 4; 5). Bastionaalvööndi kõige välimise osa moodustanud glasiivalli varjatud tee poolsest küljest toetanud väike müür on tõenäoliselt hävinud Skoone bastioni põhjaküljel, kuid mujal uuritud bastionide ees ilmselt rohkem või vähem säilinud, nagu ka varjatud teel paiknenud kaponiiride müürid.