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RESCUE EXCAVATIONS IN TALLINN VABADUSE SQUARE AND INGERMANLAND BASTION 2008–2009

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From March 2008 until July 2009 various large-scale excavations took place in one of the central squares of Tallinn – Vabaduse Square and on the adjoining Harju or Harjuvärava hill, the former bastion Ingermanland – both situated immediately south of the medieval core of Tallinn (Fig. 1). The state (Ministry of Defence) commissioned the work on the Harju hill in connection with erecting the Monument to the War of Independence (1918–1920) and the town government ordered the digging of the square in connection with reconstructing the whole square and building a large underground parking lot. As the excavations proceeded almost non-stop, with more or less the same team of archaeologists in most cases (OÜ Agu EMS), and the excavated area formed substantially a whole, the entire process will be described in one article.¹ Lembi Lõugas has been studying the taxonomy of fish, Sirje Hiie the plant macrofossils and Kersti Kihno the pollen samples from Vabaduse Square historic period strata.

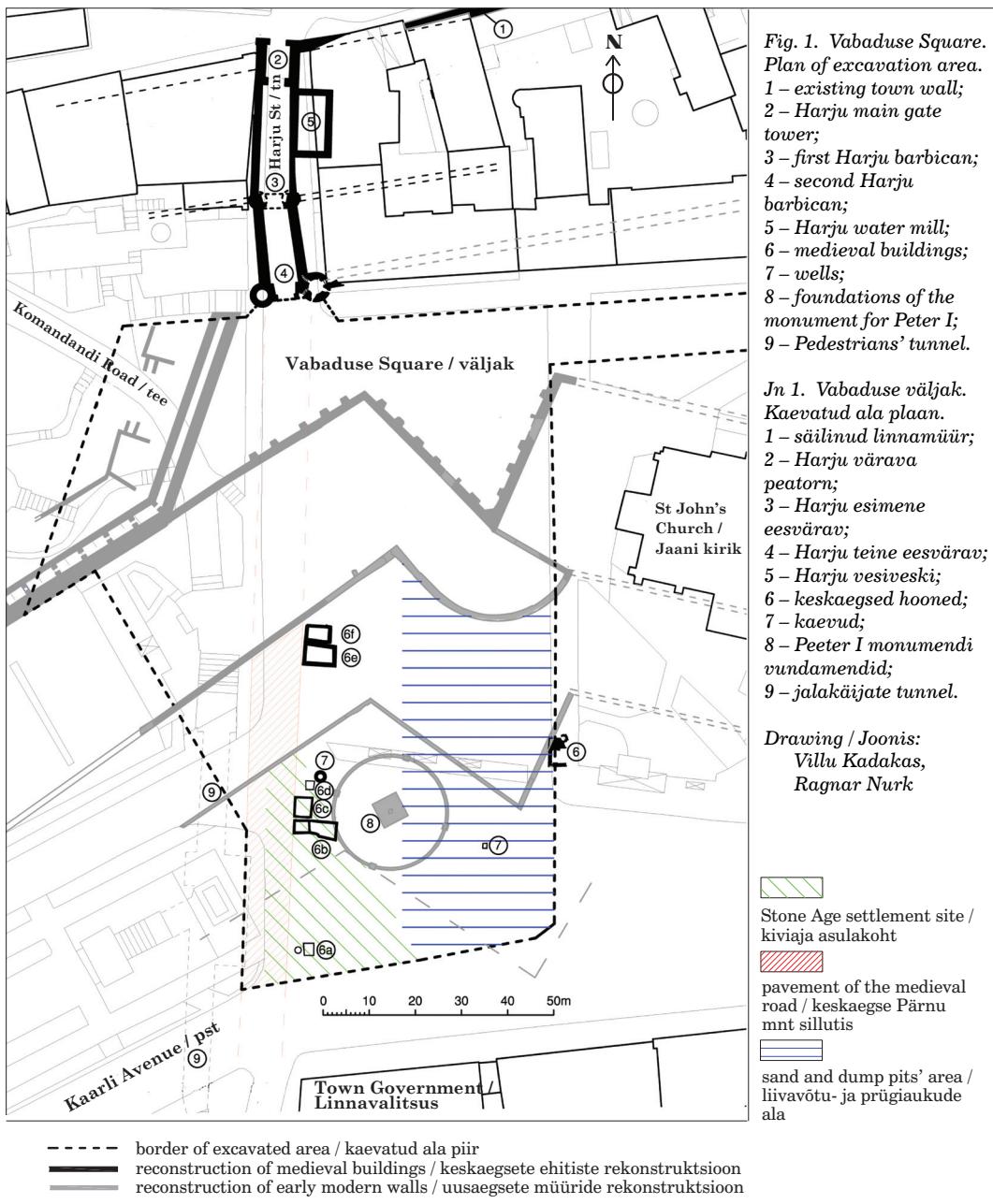
As a whole, it was the biggest archaeological urban one-year dig ever undertaken in Estonia, altogether *ca.* 13 000 m² was investigated. Previously the results have been very briefly introduced (Oras *et al.* 2009, 12–15; Kadakas 2009; Kadakas *et al.* 2009). One find – an early modern gold ring – has been described in an article (Russow *et al.* 2010). The Stone Age settlement site discovered under the Vabaduse Square on the 15th of July 2008 will be described in a separate article in the present volume (see U. Kadakas *et al.*, this volume).

HARJUVÄRAVA HILL (FORMER INGERMANLAND BASTION)

Preliminary excavations

The first preliminary excavations for finding and identifying the extent of preservation of the former eastern flank wall of the bastion (Figs. 1–3), had taken place already from the 18th of December 2006 until the 10th of January 2007 (Nurk *et al.* 2007a; Kadakas *et al.* 2008, 184). As the results were considered insufficient for proper planning the monument for the War of Independence, new preliminary investigations were ordered in early spring 2008. Work started on the 10th of March and proceeded in different

¹ This article does not cover the archaeological work done by Vladimir Sokolovski of OÜ Tael: excavations of St Barbara medieval and early modern cemetery right south-west of Vabaduse Square under Kaarli avenue in 2008; monitoring during pipes replacement in various parts of Vabaduse Square during 2008 (Oras *et al.* 2009, 14).



stages until the 17th of April 2008, after which large scale removal of the bastion's filling layers started. The test pits of the preliminary investigations proved the existence of an over 3 m thick limestone eastern flank scarp wall of the bastion (Figs. 1–3), which had been partly demolished and completely covered with soil during the recon-

struction work from ca. 1860, when the former bastion was turned into a public park. As large scale excavations followed immediately, a precise description of the preliminary excavations (Nurk *et al.* 2008) is redundant.

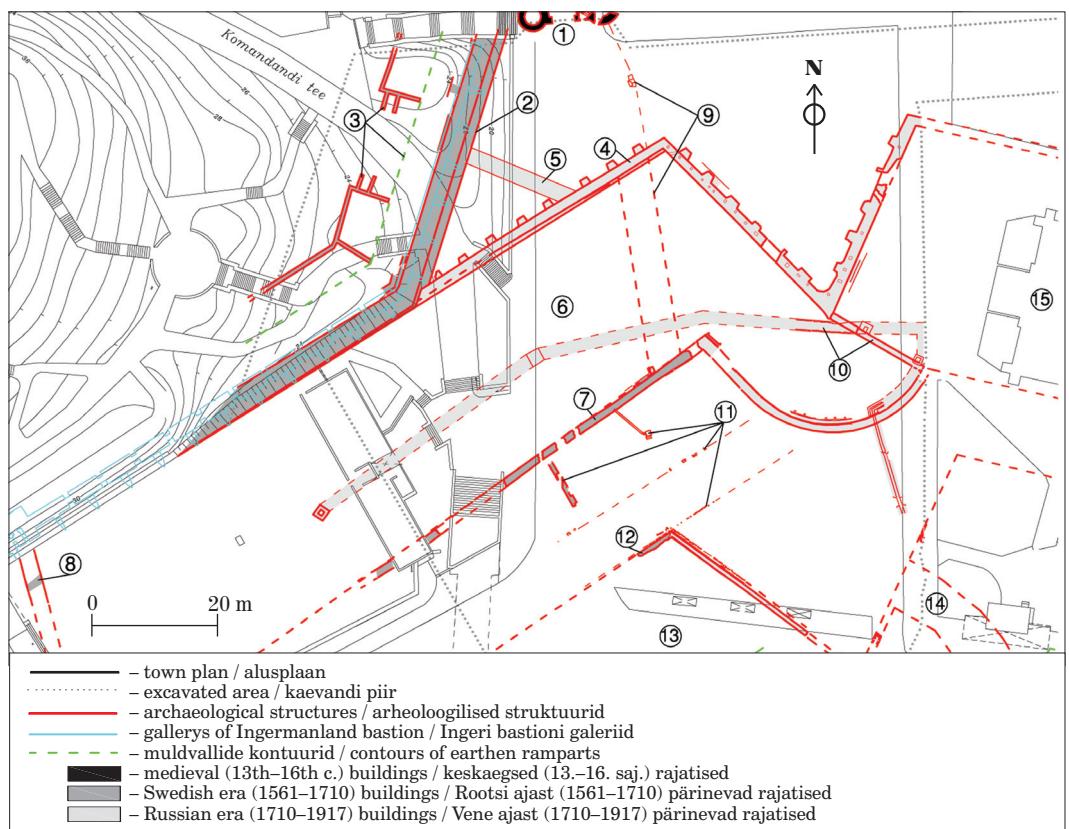
Fig. 2. Fragments of town fortifications discovered during the excavations of Ingermanland Bastion and Vabaduse Square. Situation plan and preliminary reconstruction.

1 – Harju Gate (the second barbican); 2 – scarp wall of Ingermanland bastion; 3 – inner supporting walls of gun platform and the presumable contour of the inner slope of breastwork; 4 – scarp wall of double tenaille; 5 – drainage tunnel of the galleries of Ingermanland bastion; 6 – moat; 7 – counterscarp wall; 8 – drinking water conduit from Lake Ülemiste to the medieval moat; 9 – bridge and road to Harju Gate; 10 – secondary structures in moat (from 19th century); 11 – structures on the covered way; 12 – the inner supporting wall of glacis; 13 – the area of glacis; 14 – a passage through the glacis; 15 – St John's church.

Jn 2. *Ingeri bastioni ja Vabaduse väljaku kaevamiste käigus avastatud linnakindlustuste fragmendid. Asendiplaan koos esialgse rekonstruktsiooniga.*

1 – Harju värav (teine eesvärav); 2 – Ingeri bastioni eskarpmüür; 3 – suurtükkide platvormi sisemised tugimüürid ja rinnatise sisenõlva eeldatav kontuur; 4 – topeltnaili eskarpmüür; 5 – Ingeri bastioni galeriide drenaažitunnel; 6 – vallikraav; 7 – kontreskarpmüür; 8 – veejuhe Ülemiste järvest keskaegesse vallikraavi; 9 – sild ja tee Harju väravasse; 10 – sekundaarsed struktuurid vallikraavis (19. sajandist); 11 – struktuurid varjatud teel; 12 – glassiivvalli sisemine tugimüür; 13 – glassiivvalli maa-ala; 14 – läbipääs glassiivallist; 15 – Jaani kirik.

Drawing / Joonis: Villu Kadakas, Ragnar Nurk



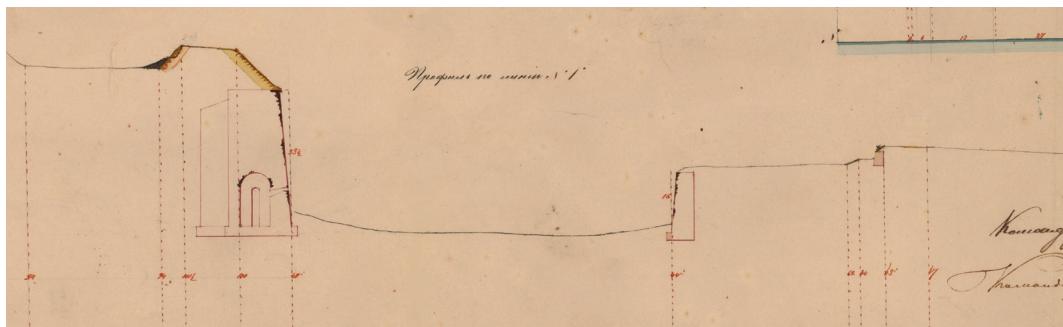


Fig. 3. Section south of Ingermanland bastion, drawing 1847. Elements of rampart fortifications (from left): scarp wall of bastion, moat, counterscarp wall, covered way, the inner supporting wall of glacis, glacis.
Jn 3. Loige Ingeri bastioni löünaküljelt, 1847. a joonis. Muldkindlustuste elemendid (vasakult): bastioni eskarpmüür, vallikraav, kontreskarpmüür, varjatud tee, glassii tagune tugimüür, glassiivall.
 (EAA 79-2-43.)

History of the bastion

The whole bastion, an artificial mound reaching almost 20 m above the present level of the square was erected in the turn of the 17th – 18th centuries. It was built by the order of the Swedish state together with the adjoining bastion Sweden² as the first stage of a planned extensive defence line, which was never completed (Kenkmaa & Vilbaste 1965, 31). From the beginning, both bastions were surrounded with massive limestone scarp walls, which have galleries inside.³ The eastern flank of the bastion was positioned over 10 m lower than the central part of it, corresponding exactly to the excavation area. Accordingly the scarp wall of the flank was lower than of the rest of the bastion as well. The topmost parts of the bastion were probably finished already under Russian rule after the Great Northern War (1700–1721), later maintained and repaired to unknown extent until the middle of the 19th century (Kenkmaa & Vilbaste 1965, 48–49).

Eastern flank scarp wall and inner support walls for the rampart

During the large scale excavations of 2008, the façade of the partly preserved eastern flank scarp wall of the bastion was uncovered, i.e. the filling soil removed from the outer side of it, exposing the wall once again in the town milieu after ca. 150 years. The rectangular masonry blocks covering the façade had unfortunately been mostly removed during the reconstruction work of the 19th century. The rounded cornice covering the upper exterior edge of the wall (or cordon in fortification terms) was preserved only in the southern section of the wall, which had partly remained uncovered by soil. The inside part of the wall, built with lime mortar of untreated limestone and rubble, was mostly preserved. The total height of the wall was about 11 m. The thickness of the wall in its upper part was ca. 3.2–3.3 m, but lower this was growing up to at least 6 m, both

² *Sverige* in Swedish; nowadays known as the hill Lindamägi, south of Toompea castle.

³ In 2005 Guido Toos and Villu Kadakas investigated the underground galleries inside the eastern face and flank scarp walls (Kadakas *et al.* 2005). The gallery under the eastern flank wall, which had been abandoned for one and a half centuries, mostly filled with water, was then accessed and measured with the help of hobby-divers Martin Kagadze and Jüri Kaljundi.

in the exterior side as a slope and in the interior side step by step. According to historic maps and cross-sections the wall should have inner buttresses or counterforts (Fig. 3), but probably the excavation was not deep enough to reach them. The top part of soil was removed from the whole eastern flank of the bastion, making a small square for the column, positioned on this terrace. It appeared, as predicted by preliminary excavations already, that parapet, the upper part of the bastion exterior edge with embrasures for cannons (Fig. 3), had never been built of stone, but in a form of an earth rampart. Surprisingly, a network of thin limestone walls (*ca.* 60 cm wide) were found from this area, covered with later park soil and directly not depicted on historic plans of the bastion (Fig. 2; Oras *et al.* 2009, fig. 4). The wall parts parallel to the scarp walls had probably a function to support the earth rampart of the flank from the inside. The inner edge of the rampart had been probably formed as a flat platform (*ca.* 7 m wide) for cannons, with a surface *ca.* 1.5 m higher from the rest of the flank's surface. The two sets of short parallel twin walls may have been supporting the inclined paths for rolling the cannons from the lower surface of the flank to their shooting positions on this upper platform or *terreplein*.⁴

Cultural layer in eastern flank rampart

The consistency of the earth rampart was another surprise, noticed during the preliminary excavations already. The main body of the bastion up to the top level of scarp wall seems to consist of re-deposited natural soil taken from the moat. In contrast, the upper rampart in a rather uniform way has been piled up of a former cultural layer, taken from the surrounding former suburb, possibly from the new moat and esplanade areas. The limited budget enabled to sieve *ca.* half of the soil from the rampart. It resulted in about 1850 artifacts⁵, mostly ceramics, but also metal and bone from the 13th–17th centuries, offering a cross-section of the material culture of the people of Tallinn through centuries. The number of finds still makes it one of the biggest find collections of medieval and early modern Tallinn ever collected.⁶ The finishing date of the deposit – somewhere around the Great Northern War – makes the collection as a sealed deposit very valuable in the sense of improving dates of early modern local pottery with the help of better datable imported wares.

VABADUSE SQUARE

Preliminary excavations

Preliminary excavations on Vabaduse Square took place between February 2 and April 30 in 2007 already: test pits were erected for gathering data about the cultural layer of the medieval and early modern suburb in the southern areas and the scarp and counterscarp walls of 17th – 18th century bastion fortifications under the northern

⁴ After some dispute, these walls were demolished in spite of the field-archaeologists' efforts to influence the outcome in the other direction.

⁵ AI 6843.

⁶ This collection was vastly outnumbered during the following excavations in the Vabaduse Square in late 2008 / early 2009. As it appeared during the later excavations under the square, a large part of finds in those areas derive rather from a town dump than suburban settlement. Therefore it cannot be excluded that part of the finds from the bastion rampart originally came from the Old Town households, not only suburban ones.

areas of the square (Nurk *et al.* 2007b; Kadakas *et al.* 2008, 184). The existence of a thick medieval and early modern cultural layer was identified, as well as generally a very good state of preservation of the scarp and counterscarp walls.

The late 18th century tenaille scarp and counterscarp walls with the moat

From May 28 until November 2008 the filling layers of the moat area between the adjoining scarp (*ca.* 5.5 m high and 1.3–2 m thick) and counterscarp (*ca.* 4 m high and 1.1–2 m thick) walls of a late 18th century fortification – tenaille – as well as the filling layers of the tenaille itself (consisting of fillings of earlier moats) were step by step removed with an excavator (Figs. 1, 2, 4). The area lacked occupation layers of a medieval suburb and therefore the digging was only monitored, concentrating on preservation and cleaning of the fortification walls, gathering selectively occasional data from the soil layers as well as the artefacts: 19th century wares, mostly contemporary to the time when the moat was filled in the middle of the century.

According to written records and historic drawings the tenaille, more precisely here actually double tenaille, with a triangular central part (Oras *et al.* 2009, fig. 3) and two wings, was built together with the corresponding round part of the counterscarp approximately in the 1760s–1790s. Together with two new half-bastions without name it was one of the latest additions to the southern defence line of Tallinn (Zo-



Fig. 4. Vabaduse Square in July 2008 from north. Tenaille scarp and counterscarp walls.

Jn 4. Vabaduse väljak juulis 2008. Tenaili eskarp- ja kontreskarpmüürid.

Photo / Foto: Erki Russow

bel 1999, 7). Previously, as built in the end of the Swedish era, the moat had extended till the northern edge of the present square and the counterscarp continued almost in a straight line in south-west–north-east direction, parallel to the south-east face of Ingemanland bastion, until the eastern edge of the present square. A part of the Swedish period counterscarp had been preserved opposite to the western wing of the tenaille. Both the scarp and counterscarp walls of the late 18th century had been mostly preserved in a rather good condition. Under these walls also the supporting timber rafts were discovered. The tenaille scarp has rectangular counterforts built to the inside. The upper cornice or cordon similar to that of Ingemanland bastion scarp wall had been partly preserved on top of the tenaille scarp and even almost intact on the round part of counterscarp. On the scarp wall also a row of post holes was still visible, probably belonging to the wooden fence from the period of 1820s–1840s when on the tenaille one of the first public parks in town was opened (called by people as *Kindergarten*) (see Vende 1990, 75). The moat has been filled and the area levelled somewhere in the middle of the 19th century with the soil of ramparts and some additional demolition debris and contemporary household waste, but fortunately in the way that the scarp and counterscarp remained under the new square surface – they had been disturbed only while building 20th century pipe trenches (Figs. 1, 2, 4). Large portions of both walls were preserved and exposed after the excavations in the underground parking area.

The primary objective of that kind of fore-works situated low in moat between bastions was to protect curtain wall. The Harju Gate, which had been closed since 1538, was opened again in 1767 (Kivi 1972, 33; Zobel 1980, 254) and the passageway there was lead by a wooden bridge over dry moat and then over the western wing of tenaille. The scarp wall of tenaille has been built at least in two characteristically slightly different stages, which junction in the line of Harju street and gate. For an unknown reason, the building quality of the scarp wall of the western wing of tenaille was remarkably higher than in the central part of it. So it would be logical to presume that the construction of tenaille began from the shoulder of the Ingemanland bastion, where the flank and face of the bastion met, to open traffic as soon as possible, and continued maybe after a pause of some length.⁷ The central part and eastern wing of tenaille and the south-westernmost of two new half bastions had to be completed by 1776 at the latest, because this year the next gate – Karja Gate – was already opened again after large-scale reconstruction (Kivi 1972, 47).

Small fragments of pavement, some rows of post holes of former wooden palisades and vague remains of temporary buildings had been preserved on the covered path – a road running along the top of counterscarp around the moat. The glacis – an earth rampart sloping outwards, covering the soldiers moving on that path from enemy bullets, had been supported by a thin limestone wall (*ca.* 0.7 m thick, *ca.* 1 m high). This glacis wall was not preserved during the excavations because it was positioned very high under the pavement of the present square and thus did not fit the

⁷ The survey of one beam fragment of pine tree, sawn from the wooden raft laying under the western wing of tenaille scarp wall, carried out by Tartu University dendrochronologist Alar Läänelaid, gave a result that this tree had been chopped down between growing periods of 1765 and 1766.



Fig. 5. Vabaduse Square. First excavation plot in July.

Jn 5. Vabaduse väljak. Esimene kaevand juulis.

Photo / Foto: Erki Russow

underground parking area project. The building of the glacis rampart and the wall succeeded the digging of moat and erecting the counterscarp wall. Determining the date of the glacis is rather important, because before building it, the 17th century suburb was finally demolished in the area and in this way the glacis 'sealed' all the remains of the previous occupation layers and building remains. The covered way and glacis were originally created during the years of the Great Northern War, but the part of them opposite to the central, salient part of tenaille, was of course totally reconstructed during the last decades of 18th century. These two general building phases were actually clearly distinguishable both for counterscarp and the supporting wall of the covered way, whereby earlier parts had – probably as a war-time sign – remarkably lower building quality.

Excavation plots in the southern part of the square: cultural layers

South of the counterscarp the medieval and early modern suburban cultural layers had been preserved on an area of approximately 3500 m² (Fig. 1), disturbed here and there only by 20th century pipe trenches. Excavation of the cultural layer started with a small 300 m² plot in the southern part of the area on July 7 2008 (Fig. 5). On July 15 the first finds from Stone Age were identified in the apparently natural sand under the medieval cultural layer. Subsequently the whole excavation area south of the counterscarp was dug step by step concentrating the work on plots of various size and form (26 plots, each ca. 100–300 m²). The position, size and form of the plots was chosen according to the progress plans of construction work, concentrating on areas which the builders wanted to get free for construction first, thus enabling the archaeological excavations and the construction work to be carried on simultaneously. Usually exca-

vations were going on in two plots at the same time, concentrating on Stone Age layers in one and on medieval and early modern layers in the other, using the small team of the archaeologists most effectively.⁸ In general, the occupation layer of the medieval and early modern suburb, where it was preserved, was only *ca.* 20 cm thick, containing artefacts from all the appropriate centuries. It was not possible to distinguish between different strata inside the occupation layer. The filling layer of the glacis rampart did not differ much in consistency, except it was not so dense and included mostly only 17th century artefacts.

Medieval road

In the west the excavation area bordered with an underground tunnel for pedestrians – by building it in the late 1970s the area was fully excavated without archaeologists. According to rumours, a lot of human bones were found – obviously from burials of the St Barbara cemetery from 14th–18th centuries which had been situated right to the west and south-west of the tunnel. It was partly excavated in summer 2008 by Vladimir Sokolovski from OÜ Tael, under the southern part of Kaarli avenue (Oras *et al.* 2009, 14).⁹

According to town topography it was previously known that one of the major roads approaching the town from the south, has been running through the present Vabaduse Square, marked as Roosikrantsi street in the south and Harju street in the north in the present street network (Fig. 1). This road accessed the town through the Harju Gates, which have been standing right north-west of the present square. As already mentioned above, the gate was closed in 1538 and opened again in 1767 in connection of building the tenaille in front of it. The exit through the glacis for this new gate was situated in the triangular part of the glacis in the eastern edge of the present square, i.e. the old road was never used again. In accordance, right on the eastern side of the pedestrian tunnel, partly destroyed while building it, a rubble pavement of a *ca.* 10 m wide road, running in north – south direction, was discovered on natural sand, *ca.* 2.5 m deeper from the present street level (Fig. 6).



Fig. 6. Vabaduse Square. Rubble pavement of the Pärnu road.

Jn 6. Vabaduse väljak. Pärnu maantee kivisillutus.
Photo / Foto: Villu Kadakas



Fig. 7. Gold ducat, West-Friesland (1601).

Jn 7. Kuldtkat, Lääne-Friisimaa (1601).
Photo / Foto: Villu Kadakas

⁸ Most of the excavation was done by the archaeologists of OÜ Agu EMS, except one plot (*ca.* 150 m²), which was dug by archaeologists Peeter Talvar and Ain Lavi from OÜ Arheograator.

⁹ A larger part of the cemetery has been excavated earlier on the corner of Kaarli avenue and Roosikrantsi street 1988–1992, 1995 by Vladimir Sokolovski (Russow *et al.* 2006, 178) and 1999–2000 by Jaak Mäll.

The very few finds from the rubble of the pavement indicate that it was possibly laid originally in the 14th century. According to some finds (Fig. 7) and stratification sequences, the same pavement was probably used until the Great Northern War when everything in this suburban area was finally demolished for making room for an element of the new fortification system – the glacis.

Medieval and early modern households and building remains

Along the eastern side of the road, remains of a fence (or several fences) could be recorded. It was marked by postholes of ca. 20–25 cm in diameter with distances varying 220–350 cm. The fence was naturally necessary for keeping the human and animal traffic from damaging the orchards etc. on the suburban plots. Judging by the remains of four buildings erected along the eastern side of the road, the area directly east of the road was possibly divided between several plots going deep inside the block. At least some of the plots had buildings as well.

Remains of at least six buildings were identified right on the eastern side of the road (Fig. 1). Only the parts which were originally built underground were preserved. Three of the buildings (B, E & F) had small rectangular limestone cellars built with lime mortar. Three buildings (A, B, D) had small timber cellars and one (C) was without a cellar – just some foundation stones of a square ground plan were preserved. The timber cellar of building A in the south-west corner of the excavation area was very small (ca. 2.5 × 2.1 m), more like a wooden box, which resembled a cesspit at first glance (Fig. 8). Closer study revealed that there were no signs of excrement in it and it had a nice floor made of planks lying on 3 joists. Its location close to the road supports the hypothesis that it may have been rather a cellar of a small wooden house. A timber storage barrel (ca. 125 cm in diameter) was situated ca. 70 cm away from the cellar, probably belonging to the same household. The building D was represented by a very similar ca. 2 × 2 m wooden cellar or box as well. Remains of similar wooden boxes/cellars were found under stone cellars of houses E and F as well, obviously predecessors of the latter. Of course, it is a dis-

putable matter, whether to call these underground household boxes or timber cellars.

The most elaborate of all the buildings was B: a combination of a timber cellar (320 × 295 cm) close to the road and a limestone cellar (620/635 × 355/405 cm) behind it (Figs. 1, 9). The timber part was built of horizontal planks supported by four thick vertical posts (ca. 25 × 15 cm) in the corners. The corner posts had been so massive that it is possible that these could have supported not only the cellar walls but the upper storey(s?) as well. Remains of a timber floor of planks, resting on 5 joists was recorded. The stone



*Fig. 8. Vabaduse Square. Timber cellar A.
In 8. Vabaduse väljak. Puust kelder A.
Photo / Foto: Villu Kadakas*



Fig. 9. Vabaduse Square. Stone cellar of building B.

Jn 9. Vabaduse väljak. Hoone B kivist kelder.

Photo / Foto: Villu Kadakas

cellar was a rather sophisticated building. It had a masonry portal and a barred window like the houses inside the medieval town, connecting it to the timber cellar or leading to a staircase between the two cellars.¹⁰ In the north-west corner of the stone cellar was a (hypocaust?) oven, probably for heating the main floor and rebuilt several times. The house layout resembles a typical *diele-dornse* house in the Old Town of Tallinn: a *diele* with a chimney and fireplace close to the street and a slightly smaller *dornse* in the back of the house, heated with a hypocaust oven in the basement floor. There were dozens of artefact pieces – mostly ceramics but also metal household instruments – lying on the floor of the stone cellar datable to the 17th century. These can be probably connected with the last usage period of the same household, although it cannot be excluded that some artefacts have eroded into the cellar from the surrounding cultural layer. This house had gone through at least some major buildings periods: e.g. at some time the timber cellar close to the road had been filled and a stone floor for the main storey laid upon it. It was difficult to date the cellars – there were very few datable finds which could have been firmly connected with the original construction activities.

¹⁰ Unfortunately this connection zone of the two cellars was badly disturbed by a 20th century pipe trench.

Some of the cellars might have been originally built only in the 17th century, but some much earlier. It is possible that on top of the stone cellar of the building B, several timber buildings have been erected at different times, the last one(s) during the 17th century, but the stone cellar itself might be of much earlier origin. The building C was probably a simple dwelling house made of horizontal beams on a light foundation consisting of a row of loose stones. Only two foundations had been preserved, the position of the third is indicated by the edge of the road and the fourth by the extension of a thin lime layer probably in connection with the floor. In the north-eastern corner of the building, a small oven has been located, of which only a box of vertical limestone slabs ('lee' in Estonian) in front of the oven, had been preserved. It cannot be excluded that there had been several more light timber houses of horizontal beams along the road, without any foundations or with very light foundations, of which nothing had been preserved. The northernmost two buildings (E & F) were simple rectangular stone cellars built next to each other close to the road. Different building stages were visible: possibly the cellar E has been built as an extension for the cellar F, at least it seems that at some period, probably at a later stage, one house has been standing on top of both cellars. A decorated masonry window detail of renaissance style had been used as a simple cellar wall stone on the top of the eastern wall of the cellar E. Nevertheless, it was not clear if this detail was put into the wall during original construction it or had been used for repairing the top of the cellar wall before building a new wooden house on top a pre-Livonian War (i.e. before 1558 AD) cellar. Remains of two earlier timber boxes or small cellars were found from under those two limestone cellars E and F.

Regarding the function of the buildings, it can only be assumed that these had been dwelling cottages in a very general sense. The suburb of Tallinn obviously was a dwelling place for the poorer town population, mostly ethnic Estonians in contrast to the mostly German-speaking Old Town. According to written records many households of the Old Town had gardens (Paju 2007, 154–155) and probably some kind of summer cottages in the suburb as well. The location close to one of the main gates and roads obviously favoured using these plots and cottages for other functions as well: inns, taverns, shops, artisan workshops etc. Curiously, only two wells were found in the whole excavated area: one behind the building D and another in the south-east corner of the excavation area, far away from all the building remains. Future analysis of the data recorded during excavations about the suburban landscape, the building remains and find material, which can be connected to those households, could give insight into this matter.

Medieval and early modern sand quarry and town dump

While the excavations extended further eastwards, it became apparent that the natural ground surface had not been preserved in the whole eastern half of the cultural layers south of the counterscarp wall. The natural surface of this whole area, after the removal of cultural layers, seemed to have developed during digging dozens of pits into the natural sand (Fig. 1). Compared to the neighbouring areas where natural upper sand had preserved, it appeared that probably the clean coarse sea sand, suitable for mixing with lime for making mortar, had mostly been taken away. As there have probably been no very extensive even layers of sand but lenses of gravel and mixed areas

of sand and clay as well, it became obvious that the gravel for making the pavement of the road in the western edge of the excavation area must have been taken from those pits as well. The filling of the pits apparently consisted of a cultural layer with lots of finds from the 13th–17th centuries. Evidently the pits had been used for deploying dump, probably from the Old Town, throughout those centuries. It was very difficult to distinguish between filling layers of different pits of different times while excavating.¹¹ In general, it seems that the earliest find material (13th–14th centuries) was almost all concentrated to the northern areas of the sand quarry, i.e. closer to the Old Town, even close to the northern edge of the quarry area, whereas the southern areas included mostly 16th–17th century find material. Consequently the quarry was originally started close to the Old Town, perhaps from the bank of the original moat and the sand diggers gradually moved southwards searching for new sand as the northern areas were emptied. The ca. 20 m wide strip of land east of the road was spared for the plots and households along the road.

The find material from the pits of this sand quarry area is one of the biggest archaeological collections of find material in Tallinn so far – more than 11 000 finds have been registered.¹² Although without better context, the vast number gives a good general statistics of the Old Town people's consumption habits of both imported and local wares, as well as metal and glass implements of all the centuries offering a lot of possibilities for analysis for future decades. The budget of the rescue excavation did not enable deeper analysis than creating the basic register.

Foundations of the monument and iron fence for Peter I

The only element in the southern parts of the excavation area from post-fortification period worth mentioning was the limestone foundation for the monument erected in honour of the Russian emperor Peter I in 1910, on the occasion of the 200th anniversary of conquering the territory of present Estonia. The monument was surrounded by a cast iron fence, ca. 25 m in diameter, with four gas lanterns, represented in the foundation as small protruding rectangles (Fig. 1).

Lantern post pits under Kaarli avenue

After the end of the core excavations in March 2009 minor digs still continued in the peripheral parts of Vabaduse Square. All the Soviet time lantern posts of Vabaduse Square and Kaarli avenue were replaced, building the foundations of the new posts not on the places of the previous ones but next to these. Pits ca. 2 × 2 m and 2.5 m deep were dug. In the eastern part of Vabaduse Square the pits revealed similar filling layers of early modern period (16th–17th centuries) as in the neighbouring excavated areas. These are probably similar filling strata of the sand pits. In front of the town government house suburban occupation layer *in situ* is definitely present, although in only two pits natural sand was reached. Even the Stone Age settlement site occupation layer can still exist in this area.

¹¹ Due to the rush situation and hard weather conditions of the rescue excavations the original idea to distinguish between filling strata of different sand pits was soon abandoned.

¹² AI 6860.



Fig. 10. Walls of the south-eastern tower of the Harju Gate's later barbican.

Jn 10. Harju hilisema eesvärava kagutorni müürid.
Photo / Foto: Ragnar Nurk



Fig. 11. East wall of the earlier barbican of the Harju Gate. Foundation of the round tower in foreground.

Jn 11. Harju varasema eesvärava idamüür. Esiplaanil ümartorni vundament.
Photo / Foto: Erki Russow

In Kaarli avenue, two pits in front of the house of SEB Bank, on the corner of Roosikrantsi street, revealed mixed human bones and some intact burials in the pit profiles and below the bottom of these pits. This has evidently been the area of St Barbara cemetery. The rest of the pits in Kaarli avenue did not reveal any strata of direct interest from the archaeological point of view. The central and northern areas of the avenue have been under the covered way and glacis rampart of the 17th and 18th centuries. As the natural ground has been sloping up towards the west, in the direction of the Tõnismägi hill, the glacis rampart has according to the pits' results not been so much piled up, but partly carved out of the natural hill, removing most of the natural ground level and strata of direct archaeological interest. Only in the southern part of the avenue are thick layers of filling, mostly from after demolishing the town's fortifications and building the avenue period. Natural ground was not reached in the pits there. The natural ground level and upper strata of it were carefully recorded and studied in the northern and central areas of the avenue with great interest, with the main aim to get additional data about the surrounding landscape of the Stone Age settlement site. Unfortunately no proof was found, if the occupation layer of the site had once existed in the avenue area, but it might be that the upper sand strata, including the Stone Age find material, has been mostly removed from this area.

Monitoring on Harju Gate foundations

Another peripheral work was the monitoring during the replacement of heating pipes and pavement at Harju street, above the foundations of the medieval

Harju Gate's barbican (Figs. 1, 10–11). The foundations of the southern twin towers of the second barbican were first revealed while replacing electric cables during already the summer of 2008.¹³ Digging for replacing the heating pipes started on April 23 and was finally finished by July 16 in 2009. It appeared that the foundations of the gate walls had been preserved surprisingly high – in some points even *ca.* 25 cm below the pavement. A solution for changing the new pipeline location project was worked out upon the initiative of the archaeologists, according to which the preserved gate walls were not disturbed.

According to historic records the last walls of the gate were demolished by 1875 (Kaal 1936, 49; Kivi 1972, 33). According to Rein Zobel, the earliest part of the gate system was the main tower on the line of the town wall. In the 14th century the first addition with stone walls – the first barbican with an outer gate with slender corner turrets and a drawbridge were built together with a watermill, using the water of the moat, on its eastern side. In the middle of the 15th century another similar barbican was added to the south, in connection with digging the second moat and the second surrounding wall (Zobel 1980, 64–65, 98, 165–170, 255).

The south-eastern tower of the second barbican had been first 'discovered' in the 1930s already while building the house at Vabaduse väljak 10 – one of the very first monitored and properly documented digs in Tallinn, done voluntarily and by his own agenda by the architect K. Kaal (1936). In summer 2009, the possibilities of the archaeologists were rather limited, as the replacement of the pavement did not necessitate cleaning the walls by itself so much and the construction company was in a great hurry. Still it was possible to clean the top surface and outlines of some better preserved walls, especially the eastern wall of both barbicans and the connection zone of both barbicans. The latter was most rewarding, because for the first time solid evidence was obtained that the turrets of the first, 14th century barbican had reached to the ground: a round foundation of the eastern turret was discovered (Fig. 11). The western rock base stone of the first barbican's gate was discovered as well, both giving data for reconstructing the gate of the first barbican more precisely. On July 15, on the eastern side of Harju street, a small opening was discovered after removing the pavement stones. Surprisingly it was discovered that the basement storey of the 14th century watermill has preserved underground in a very good condition (Fig. 12). All the walls and vaults are intact, but the timber equipment has been removed long ago. The channel of water, running through one of the chambers in the east–west direction, where the wheels have been positioned is intact, but full of rubbish. Some of the rubbish suggested that the chambers were accessed in the Soviet period, but no one has probably been there for some decades. A blocked doorway has connected the chambers with the neighbouring house at Harju Street 13, through which new access can be established. The reconstruction of the ground plan, made by Andres Sildre of the gate's and mill's walls was marked on the pavement, using different stones. The south-east turret of the second barbican was exposed underground in a special concrete chamber under a shatterproof glass.

¹³ This work was monitored by Vladimir Sokolovski of OÜ Tael. Nevertheless the recording of the gate towers' remains with the appropriate report was ordered from architect and historian Andres Sildre, who was helped by Garel Püüa and Ragnar Nurk for measuring the ruins with a total station.



Fig. 12. Vaults of Harju watermill's cellars under Harju street.

Jn 12. Harju vesiveski keldri völvid Harju tn all.

Photo / Foto: Ragnar Nurk



Fig. 13. Limestone water conduit for the drinking water from Lake Ülemiste.

Jn 13. Ülemiste järve paekivist veejuhe.

Photo / Foto: Garel Püüa

In the moat, outside the borders of the main excavation area, south of the Ingermanland bastion, during pipe trench monitoring in April 2008 Garel Püüa discovered a vaulted limestone water conduit (Fig. 13; Püüa *et al.* 2008), which supplied the Harju mill's pond, the public wells and the moat with water from Lake Ülemiste since the middle of the 14th century (Zobel 2008, 153–154).

Taxonomy of fish found from Vabaduse Square

Fish bones were collected from a limited area within an excavation plot I from the 13th–14th century layer *in situ*. The

purpose was to apply sieving in collecting fish bones: both dry and wet sieving was used. First, a large sieve of 5 mm mesh was used for 2 m³ dry soil and bones collected from this sieve (marked as assemblage A). Therefore 100 l of fraction taken under the 5 mm sieve was used for water sieving by 1.5 mm mesh. The bone assemblage collected from this sieve is marked as B.

The fish bones from assemblage A have a total weight of 18.7 g. From this amount 13.2 g (70.6%) were successfully identified to the species. 61 bone fragments were identified. The Table 1 reflects the results of the identification of assemblage A.

<i>Taxons (weight g / NISP) / Taksonid (kaal g / hulk)</i>	<i>Bone element / Luuelement</i>	<i>NISP/ Hulk</i>	<i>Description / Kirjeldus</i>
Pike (<i>Esox lucius</i>) – (5.7 / 18)	<i>Vertebrae praecaudalis</i> <i>Vertebrae caudalis</i> <i>Dentale sin.</i> <i>Dentale dext.</i> <i>Dentale</i> <i>Palatinum dext.</i> <i>Articulare sin.</i> <i>Maxillare sin.</i> <i>Maxillare dext.</i> <i>Ectopterygoideum sin.</i> <i>Ectopterygoideum dext.</i> <i>Quadratum dext.</i>	3 3 1 1 2 1 1 1 1 1 1 1 1	45–50 cm individual 45–50 cm individual ca. 60 cm individual fragment, ca. 40 cm indiv. fragments
Cod (<i>Gadus morhua</i>) – (1.3 / 5)	<i>Vertebrae praecaudales</i> <i>Vertebrae praecaudalis</i> <i>Vertebra caudales</i> <i>Quadratum sin.</i>	1 2 1 1	ca. 60 cm individual ca. 35 cm individual ca. 40 cm individual
Flounder (<i>Pleuronectes flesus</i>) – (0.6 / 5)	<i>Vertebrae caudalis</i> <i>Urohyale</i> <i>Os anale</i> <i>Operculare sin.</i>	2 1 1 1	
Baltic herring (<i>Clupea harengus membras</i>) – (0.4 / 1)	<i>Articulare sin.</i>	1	
Perch (<i>Perca fluviatilis</i>) – (1.6 / 16)	<i>Keratohyale dext.</i> <i>Operculare sin.</i> <i>Operculare dext.</i> <i>Cleithrum sin.</i> <i>Cleithrum dext.</i> <i>Frontale sin.</i> <i>Supracleithrale sin.</i> <i>Suboperculare sin.</i> <i>Quadratum dext.</i>	3 2 1 4 2 1 1 1 1	dorsal fragment dorsal fragment
Dace (<i>Leuciscus leuciscus</i>) – (0.3 / 1)	<i>Os pharyngeum</i>	1	
Ide (<i>Leuciscus idus</i>) – (0.3 / 1)	<i>Praeoperculare sin.</i>	1	
Bream (<i>Abramis brama</i>) – (1.4 / 4)	<i>Operculare dext.</i> <i>Praeoperculare dext.</i> <i>Vertebra praecaudales</i> <i>Vertebra caudales</i>	1 1 1 1	
Roach (<i>Rutilus rutilus</i>) – (0.5 / 1)	<i>Operculare sin.</i>	1	
Cyprinids (<i>Cyprinidae</i>) – (1.1 / 9)	<i>Vertebrae</i> <i>Costa</i> <i>Praeoperculare</i> <i>Suboperculare dext.</i> <i>Supracleithrale</i> <i>Squamae</i>	2 1 1 1 1 3	fragments fragment

Table 1. Fish species, weight (g) of bones, bone elements, their number and possible body length of specimen in the bone assemblage A. (NISP – number of identified specimens.)

Tabel 1. Kalade liigid, luude kaal (g), luuelementid, nende arv ja võimalik isendi kehapikkus luukogumis A (NISP – eraldatud isendite hulk.)

Compiled by / Koostaja: Lembi Lõugas

The fish bones from assemblage B have a total weight of 19.3 g. From this amount 7.8 g (40.4%) were successfully identified to the species. There were 292 bone fragments and 666 scales (650 from perch) identified to the species. The Table 2 reflects the results of the identification of assemblage B.

Taxons (weight g / NISP) / Taksonid (kaal g / hulk)	Bone element / Luuelement	NISP / Hulk	Description / Kirjeldus
Pike (<i>Esox lucius</i>) – (0.5 / 14)	<i>Vertebrae praecaudalis</i> <i>Vertebrae caudalis</i> <i>Dentale sin.</i> <i>Quadratum dext.</i> <i>Squamae</i>	6 4 1 1 2	20–45 cm individual
Cod (<i>Gadus morhua</i>) – (0.3 / 7)	<i>Vertebrae caudalis</i> <i>Quadratum sin.</i>	6 1	ca. 40 cm individual
Flounder (<i>Pleuronectes flesus</i>) – (0.9 / 36)	<i>Vertebrae praecaudalis</i> <i>Vertebrae caudalis</i> <i>Quadratum dext.</i> <i>Os anale</i> <i>Urohyale</i>	9 23 2 1 1	15–25 cm individual 20–45 cm individual
Baltic herring (<i>Clupea harengus membras</i>) – (0.8 / 126)	<i>Prooticum</i> <i>Vertebrae praecaudalis</i> <i>Vertebrae caudalis</i> <i>Suboperculare dext.</i> <i>Maxillare</i> <i>Quadratum sin.</i> <i>Articulare dext.</i> <i>Supramaxillare</i>	2 71 47 1 2 1 1 1	8–30 cm individual
Perch (<i>Perca fluviatilis</i>) – (4.1 / 709)	<i>Vertebrae praecaudalis</i> <i>Vertebrae caudalis</i> <i>Cleithrum</i> <i>Vomer</i> <i>Dentale sin.</i> <i>Articulare sin.</i> <i>Maxillare sin.</i> <i>Maxillare dext.</i> <i>Quadratum sin.</i> <i>Praeoperculare</i> <i>Supracleithrale sin.</i> <i>Posttemporale dext.</i> <i>Squamae</i>	22 24 2 1 1 1 1 1 1 2 2 1 650	'small fish' fragments
Whitefish (<i>Coregonus sp.</i>) – (0.1 / 1)	<i>Vertebra caudalis</i>	1	
Roach (<i>Rutilus rutilus</i>) – (0.3 / 32)	<i>Ossa pharyngeales</i> <i>Vertebrae praecaudalis</i> <i>Vertebrae praecaudales II</i> <i>Vertebrae caudalis</i>	2 16 1 13	
Cyprinids (Cyprinidae) – (0.8 / 33)	<i>Vertebrae praecaudalis</i> <i>Vertebrae caudalis</i> <i>Os pharyngium</i> <i>Keratohyale</i> <i>Praeoperculare sin.</i> <i>Suboperculare sin.</i> <i>Squamae</i>	2 12 1 2 1 1 14	

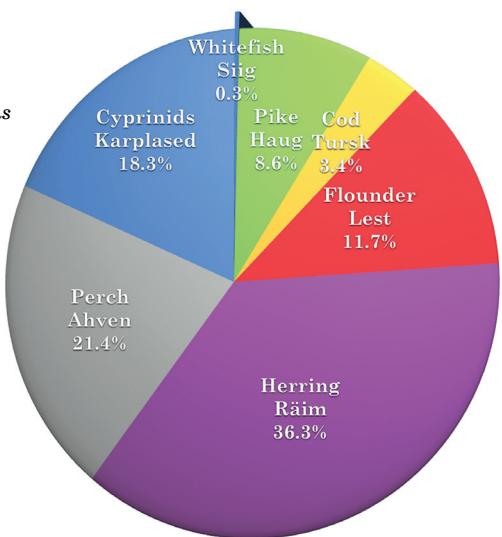
Table 2. Fish species, weight (g) of bones, bone elements, their number and possible body length of specimen in the bone assemblage B. (NISP – number of identified specimens.)

Tabel 2. Kalade liigid, luude kaal (g), luuelementid, nende arv ja võimalik isendi kehapikkus luukogumis B. (NISP – eraldatud isendite hulk.)

Compiled by / Koostaja: Lembi Löugas

The assemblages A and B were different by their collecting method as well as the character of the material. Although the soil amount in case of A was much bigger comparing to B, the number of bones in A was lower. At the same time larger bones are

Fig. 14. Relative distribution of bones of different fish together in assemblages A and B.
Jn 14. Erinevate kalade luude suhteline jaotumus
A ja B luukogumites kokku.
Drawing / Joonis: Lembi Lõugas



better for identification as seen in the percentage of successfully identified bones in the A assemblage. As expected, the assemblage B contained much more bones of smaller fish. Based on NISP the relative importance of different fish species is demonstrated in figure (Fig. 14). The figure does not show the importance by biomass.

Archaeobotanical investigations of the medieval cultural layer in Vabaduse Square

Two sets of soil samples from the medieval cultural layer and underlying sand were taken for plant micro- and macrofossil analyses from plot I during the excavations (samples 1 & 2). Plant macrofossils were additionally determined from residue left after wet sieving for fish bones, collected from the layer dated to the 13th–14th centuries.

On the basis of preliminary results the total number of plant species found from the samples was 25. The detailed list of identified plant species is presented in the report of plant macrofossil analysis of the excavations (Hiie 2009). Five species of cultivated plants were found – rye (*Secale cereale*), wheat (*Triticum aestivum*), barley (*Hordeum vulgare*), oat (*Avena sativa*) and pea (*Pisum sativum*). Wild plants collected for food were presented only by one seed of raspberry (*Rubus idaeus*). The rest of the seeds belonged to the typical settlement weeds like fat hen (*Chenopodium album*), burdock (*Arctium spp.*), sorrel (*Rumex crispus*), annual nettle (*Urtica urens*) and white dead-nettle (*Lamium album*). Weeds of cultivated fields, for instance black-bindweed (*Fallopia convolvulus*) and sun spurge (*Euphorbia helioscopia*) might be accompanied with cereals. Remarkable is the great number of the finds of fool's parsley (*Aethusa cynapium*) which is a typical ruderal plant in anthropogenic habitats, but has quite scattered distribution in Estonia.

For pollen analysis samples of 2 cm^3 were treated with heavy liquid (CdJ_2 and KJ solution with the gravity of 2.2 g/cm^3) to remove minerogenic matter (Pokrovskaja 1950) after that standard laboratory technique (Berglund and Ralska-Jasiewiczowa 1986) was used. Three pollen sub-samples were analyzed from the cultural layer and

one from the underlying coarse yellow sand from the northern profile of plot I (sample 1). All samples were characterized by high concentration of microscopic charcoal particles. Pollen was not found.

The composition of sub-samples taken from the cultural layer of the southern profile of plot 1 (sample 2) was totally different. Organic rich deposit contains good preserved pollen dominated by wild grasses (Poaceae). From settlement indicators the most dominant were Cerealia and Asteraceae (*Liguliflorae* pollen type). Only few arboreal pollen (mainly *Betula*, *Pinus*) were found. High charcoal dust concentration values must be mentioned.

Probably a lot of macrofossil material from the samples of the Stone Age cultural layer, taken from plot I and plot II (see U. Kadakas *et al.*, this volume) originate in fact rather from the Middle Ages than the Stone Age due to various processes which have led the macrofossils down to earlier layers. Especially noteworthy are e.g. henbane (*Hyoscyamus niger*) and greater celandine (*Chelidonium majus*), which have been cultivated since the Middle Ages as medicinal plant. It is not surprising, because according to written records a garden of Tallinn's town pharmacist was situated 'close to the chapel of St Barbara' in 1452, and a herbal garden has been mentioned in connection of another town's pharmacist 'in front of the Harju Gates' in 1530 (Paju 2007, 153–154; Gustavson 1972, 21) which must have been very close to the sample place. As the location descriptions are rather vague, it cannot be excluded that the pharmacist's garden was even inside the borders of the excavated area, on the eastern side of the road.

Conclusions

The excavations offered a rare possibility to study early modern town fortifications in a rather large area in quite a detail. New information was got for both the flank of the bastion of Ingermanland and the *tenaille* in Vabaduse Square, which was not available from written records. A very large area by Tallinn's standards – *ca.* 5000 m² – of medieval and early modern suburb was studied with a historic road pavement and building remains attached to it, enabling a much larger view than typically on several suburban plots, covering almost a whole block. The huge amount of artefacts uncovered will offer various study possibilities for various specialists in the future.

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**PÄÄSTEKAEVAMISED TALLINNAS VABADUSE VÄLJAKUL
JA INGERI BASTIONIL 2008–2009**
**Villu Kadakas, Ragnar Nurk, Garel Püüa, Guido Toos,
Lembi Lõugas, Sirje Hiie ja Kersti Kihno**

2008. a märtsist 2009. a juulini toimusid Vabaduse väljakul ja Harju mäel, kunagisel Ingeri bastionil ulatuslikud päästekaevamised (jn 1–3). Enamuse piirkonnas aset leidnud välitöödest juhatasid Agu EMS OÜ arheoloogid. L. Lõugas uuris kalaluude põhjal liigilist koosseisu, S. Hiie taimseid makrofossiile ja K. Kihno öietolmujäänuiseid. Tervikuna oli ilmselt tegemist suurima enam-vähem ühel hooajal toiminud arheoloogilise kaevetöoga Eestis: kokku uuriti läbi u 13 000 m², millest kiviaja asulakoha kaevamisi käsitleb käesoleva kogumiku esimene artikkel.

Esimesed arheoloogilised eeluuringud toimusid Ingeri bastioni idaflangil juba 2006–2007 ning täiendavad eeluuringud sooritati 2008. a kevadel, mis aprilli keskpaigas kujunesid ulatuslikuks päästekaevamiseks. Kaevati välja idaflangi üle 3 m paksune ja u 11 m kõrgune 17.–18. saj vahetusel koos bastioniga rajatud paekivist eskarpmüür, mis oli osaliselt lammutatud ja pargimulla alla maetud 1860. aastatel. Enam kui 10 m võrra ülejäänud bastionist madalamana idaflangi ülaosa pinnas eemaldati kuni u eskarpmüüri harjani. Selgus, et flangi laskeavadega rinnatis – laskevall suurtükkide kaitseks – kujutas enesest kaldu nõlvadega muldvalli – see ei ole kunagi olnud kivist. Üllatusena leiti valli tagant u 60 cm paksuste kivimüüride võrgustik, mida ei ole ajaloolistel plaanidel kujutatud (jn 1, 2). Eskarpmüüriga paralleelsed müürid on ilmselt toetanud seestpoolt laskevalli taha rajatud ning ülejäänud flangi pinnast u 1,5 m kõrgemat ja u 7 m laiust platvormi, millel paiknesid suurtükid. Platvormile veeretati suurtükid ilmselt kahe kaldtee kaudu, milles olid säilinud kaks komplekti paralleelseid lühikesi müüre. Ootamatult selgus, et laskevall on erinevalt bastioni ülejäänud muldkehast kuhjatud mitte looduslikust pinnastest, vaid 13.–17. saj leide sisaldavast kultuurkihist, mis arvatavasti pärimeb bastioni lähiümbruse keskaegsest eeslinnast.

Vabaduse väljaku kohta saadi esimesi arheoloogilisi andmeid juba 2007. a eeluuringutega, kui tuvastati hästi säilinud bastionaalrajatiste müürid ja keskaegse eeslinna kultuurkihti. Suuremad tööd algasid 2008. a mais bastionaalrajatiste perioodi vallikraavi täitepinnase eemaldamise ja müüride väljakaevamisega. Suvel kaevati välja 18. saj II poolel väljaku põhjaosa kohale rajatud

madala muldkindlustuse – tenaili – eskarpmüür (u 5,5 m kõrge ja u 1,3–2 m paks) ning vallikraavi vastasküljel vastav kontreskarpmüür (u 4 m kõrge ja u 1,1–2 m paks). Samuti eemaldati jätk-järgult järelevalve all ekskavaatoriga tenaili täitepinnas – varasemate vallikraavide täited (jn 1, 2, 4). Kirjalike allikate järgi rajati topelttenail koos kolmnurkse keskosaga (jn 1, 2, 4), kahe tiivaga ja kaarja kontreskarpmüüriga Tallinna muldkindlustuste ühe viimase suurema ehitisena u 1760.–1790. aastatel. Varasem, Roots'i aja lõpul rajatud kontreskarp oli ulatunud Ingeri bastioni idafaasi eskarpmüüriga paralleelselt ühe sirgena üle praeguse väljaku kirde suunas – sellest oli säilinud üks lõik tenaili läänetiiva vastas (jn 2). Selgus, et tenaili eskarpmüür on ehitatud puitparvele kontraforssidega siseküljel. Mõlemad müürid olid hästi säilinud – kohati olid alles ka müüri katvad ümara profiliiga karniisikivid. Sellise ettenihutatud kaitseehitise ülesandeks oli kaitsta bastionite vahel paiknevat kurtiinvalli ja Harju värvat, mis pärast sulgemist 1538. a avati taas 1767. Selleni pääses üle vallikraavi kulgeva sillaga üle uue tenaili. Vallikraavi lounakalda ümber kulgenud nn varjatud teel leiti jälgvi palissaadidest jm kergematest rajatistest. Varjatud teed eraldas sellest lõuna pool laiunud lõuna suunas kaldu pinnaga glassiivallist, mis kaitses teel liukujaid vaenlase kuulide eest, madal õhuke müür (u 70 cm paks ja u 1 m kõrge). Glassiivalli rajamisel on selle koha peal paiknenud eeslinna hoonestus lõplikult lammutatud ja selle jäänused maetud.

Kontreskarpmüürist lõuna pool oli eeslinna kultuurkihti säilinud u 3500 m² suurusel alal (jn 1, 5). Eeslinna kultuurkihti oli keskmiselt vaid 20 cm paksune ning sisaldas 13.–17. saj leide. Kaevatud ala lääneküljel, jalakäijate tunneli kõrval, avastati suurel alal keskaegse u 10 m laiuse, Harju värvast lähtunud ja piki praegust Roosikrantsi tänavat lõuna suunas kulgenud Pärnu maantee kruusasillutis (jn 1, 6). Väheste leidude ja ümbritseva stratigraafia järgi otsustades rajati sillutis ilmselt 14. saj, kuid oli leidude alusel (jn 7) kasutuses kuni muldkindlustuste rajamiseni Põhjasõja paiku. Maantee idaküljel leiti 220–350 cm vahega postiaukude rida, mis ilmselt kuulus piki maanteed asunud kruntide ette püstitatud tarale. Arvatavasti oli maanteest

ida pool paiknenud kvartal jagatud ida-lääne suunas piklikeks kruuntideks, millest mõnedel paiknes maantee ääres ka hoone.

Leiti vähemalt kuue ehitise maa-alused osad: puust ja kivist keldrite jäänused (jn 1). Hoonetel B, E ja F olid paekivist lubiseguga laotud väikesed keldrid ning hoonetel A, B ja D veel väiksemad puust keldrid (jn 8) või majapidamiskastid ning hoonel C kelder puudus – säilinud olid vaid kahe seina vundamenti markeerivad kiviread ning püstti paeplaatidest leekoht. Hoones B – kõige esinduslikumas ehitises – olid kokku ehitatud kivist (jn 9; u 620/635 × 355/405 cm) kelder hoovi pool ning puust kelder (320 × 295 cm) tänavा ääres. Puitkeldrit toetasid neli ruumi nurkadesse sügavale maasse rammitud posti (u 25 × 15 cm), mille peale võis olla püstitatud mitmekorraseline vahvärkhoone. Kivist keldril oli tahutud paekividest portaal ja trellitatud aknaava, samuti kerisahi ruumi loodenurgas. Kivikeldri põrandal lasunud leiud lubavad hoone viimase kasutuse dateerida 17. sajandisse. Keldrite rajamise dateerimine on keeruline, sest hävinud majade asemele võidi varasemate kivikeldrite peale püstitada korduval uusi puitehooneid. Arvatavasti oli tegemist eluhoonetega, kuid asukoht ühe peamise maantee ja linnavärvava läheduses soosis kahtlemata körtside, poodide ja töökodade pidamist, mida on paraku arheologiliselt keeruline tööstada. Leiumaterjali, dokumenteeritud ehitusjäännuste ja maastikulelementide sügavam analüüs pakub sel teemal edaspidi arutelu võimalusi.

Kirjeldatud maantee- ja hoonejäänu test idas ja kontreskarpmüürist lõunas oli linnaelne looduslik maapind varasemate kaevetöödega suures osas hävitatud. Ilmselt on ära kaevatud kivihoo nete ehituseks sobiva liiva ja maanteessillutiseks sobiva kruusa kihid ning täites tekkinud augud seejärel linna prügiga. Varasema täitega aukude järgi otsustades algas kaevandamine juba 13. saj II poolel (uuritud ala põhjaservas) ning 17. sajandiks jötü kaevandamisega uuritud ala lõunaser vani (jn 1). Arvatavasti toodi liivaaukudesse täiteks prügi esijoones vanalinnast. Kogu Vabaduse väljakу kaevamistelt koguti üle 11 000 leiu, suurem osa päri neeb just nendest prügiaukdest.

Ühe kõige hilisema rajatisena dokumenteeriti kunagisele Heinaturule 1910. a püstitatud Peeter I monumendi ja seda ümbritsenud gaasilaternatega malmaia paekivist vundamendid (jn 1). Lisaks põhikaevandile tehti järelevalvet kogu väljakу ulti tuses ja Kaarli puustel uute laternapostide paigaldamisel kaevatud aukudes. Väljakу idaosas paljandusid aukudes suure kaevandi idaosaga sarnased

täitekihid ning eeslinna elutegevuskihi ja looduslike pinnaseni jötü vaid linnavalitsuse hoone ees kahes šurfis. SEB panga hoone ees Kaarli pst alguses paljandus kahes šurfis Püha Barbara kalmistu segatud matustekihi, šurfide põhjas ja profilis ka üksikud terved matused. Kaarli pst põhja- ja keskosas selgus, et 18. sajandil glassiivalli rajamisel on pinnast mitte niivõrd kuhjadud, vaid kohati hoopis varasemat pinnast ära kaevatud valli kalde ja esplanaadi rajamisel. Ei keskaegse eeslinna ega kivi aja kultuurkihi ei õnnestunud siin leida. Puistee lõunaosas seevastu on paksud täitekihid, millest šurfid läbi ei ulatunud.

Juba 2008. a suvel paljandusid kaablitrasside rajamisel OÜ Tael teostatud järelevalve käigus Harju II eesvärvava kagupoole nurgatori jäänused. Tööd kunagise Harju värvava kohal jätkusid 2009. a suvel keskküttetrassi ja kogu sillutise vahetamisega OÜ Agu EMS järelevalve all (jn 1, 10–11). Selgus, et suures osas on värvavaehitiste müürid säilinud peaaegu sillutise all. Sillutise ümberladumise käigus õnnestus välja puhastada osa paremini säilinud müüride pealispinda. Uut informatsiooni saadi I (varasema) eesvärvava värvavakäigu tsooni müüristiku kohta – leiti varasema eesvärvava kagutorni ümar vundament (jn 10), mis on Rein Zobeli järgi püstitatud 14. saj II poolel, kuid mille puhul polnud seni kindel, kas torni müürid ulatusid maani või oli tegemist konsooltornidega. Leiti II eesvärvava ava läänepoolse piida graniidist baasikivi. 15. saj keskpaigas rajatud II eesvärvava kagutorni keldrikorras kaevati täies mahus välja (jn 10). Harju tänavा idaosa all avastati sillutise eemaldamise järel avaus, kust pääses tänavा all paiknevatesse keldritesse. Selgus, et maa all on heas seisus säilinud 14. sajandil ehitatud vesiveski keldrikorras (jn 12–13): seinad ja völvid on alles, kuid puitosad on hävinud. Andres Sildre rekonstruktiooni järgi markeeriti Harju värvava ja vesiveski müürid tänavasillutises erineva kiviga ning II eesvärvava kagutorn eksponeeriti klaasi all betoonkambris.

Kalaluude kogumisel kasutati suurt kuni 5 mm läbilaskevõimega sõela ja väiksemat 1,5 mm sõela. Kalaluid koguti I kaevandist 13.–14. sajandi kultuurkihist. Esmalt koguti luud suuremalt sõelalt (luukogum A) ning seejärel vesisõeluti umbes 100 l suure sõela alt võetud fraktsiooni (saadi luukogum B).

A ja B osa erinesid nii oma kogumismetoodika kui ka materjali iseloomu poolest (tabel 1 ja 2). Kuigi A osas oli pinnase hulk tunduvalt suurem, saadi seal arvuliselt vähem luid kui B osast, kus pinnase hulk oli kordi väiksem. Samas on suuremaid luid kergem määräta, mistõttu A osas oli võimalik näi-

teks karplaste sugukonna liike eristada. Väiksemate kalade hulk oli B osas suurem. Lähtudes määratud luude arvust jagunes kogu materjali suhteline osatähtsus liigitati järgmiselt: räim – 36,3%; ahven – 21,4%; karplased (sh särg, latikas, säinas ja teib) – 18,3%; siig – 0,3%; haug – 8,6%; tursk – 3,4% (jn 14). Taimsete mikro- ja makrojäänuste analüüsiks võeti keskaegsest kultuurkihist kaks seeriat proove (proovid 1 & 2). Makrojäänused määratati lisaks veel 13.–14. sajandi sõelutud pinnaseproovidest peale kalaluude väljakorjamist. Esialgse analüüsi tulemusena leiti 25 taimeliiki. Kultuurtaimedest esinecid rukis (*Secale cereale*), nisu (*Triticum aestivum*),

kaer (*Avena sativa*) ja hernes (*Pisum sativum*). Looduslikud toidutaimed olid esindatud ainult ühe vaarikaseemnega (*Rubus idaeus*). Valdava osa moodustasid tüüpilised inimkaaslejad taimed. Üllatavalt rohkesti esines koeraputke (*Aethusa cynapium*), mida tavaliselt esineb väheste isenditena.

Öietolmuanalüüs jaoks võeti proovid kaevandi I põhjaprofilil kultuurkihist ja selle all lasuvast liivast. Kõik proovid sisaldasid ohtralt mikroskoopilisi söeosakesi, õietolmu paraku ei leitud. Samas sisaldas kaevandi I lõunaprofilil kultuurkiht hästi säilinud õietolmu. Kompleksis oli valdag kõrreliste (Poaceae) ning kultuurkõrreliste (*Cerealia tüüp*) õietolm.