

Chapter 1

**BUILDING REMAINS AT THE HILL FORT
OF KEAVA**

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Abstract

Archaeological investigations at the hill fort of Keava have revealed the remains of five fortification phases dating from the 5th–6th centuries to the early 13th century. The earliest two phases (forts I and II) were recognizable only in the area of the ramparts as definite fortification structures. The later phases (forts III–V) since the late 10th – early 11th century were observable both in the area of the ramparts (defensive structures) and in the compound (building remains), as well as in the find assemblage. The hidden gateway beneath the rampart was first built during phase III; in later times, however, it was repeatedly rebuilt. Stone material was widely used in the construction of the rampart and the gateway of the last fort, which dated from the late 12th – early 13th century. The fort was finally captured by the crusaders, most likely in 1224; they dug a large hollow on the northern hill slope and dropped the rampart.¹

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Introduction

The hill fort of Keava (Fig. 1.1) belongs to a group of promontory hill forts that have higher ramparts and trenches at both ends and lower ramparts on the sides (group II: 2 by Evald Tõnisson). Tõnisson (Tynisson 1987, 68 f.) describes the hill fort as follows:

The fort was located on the higher portion of a north-east–south-west oriented promontory and separated at both ends from the rest of the hill with high ramparts and trenches. The height of the south-western end rampart extends from 2.5 m (measured from its inner foot) up to 6 m (from outer foot); the width of the trench (dug at a distance of 6–7 m from the rampart) is 5–6 m, and the depth is 1–1.5 m. The height of the north-eastern rampart is likewise 2.5 m from its interior foot and 6–7 m from the outer foot, while the trench (situated 4–5 m away) is 3–4 m wide and 0.5–0.6 m deep. The height of the longitudinal hill slopes reaches 20 m; the height of the side ramparts from their interior feet does not exceed 1 m. In the northern corner, a 15-metre stretch of the side rampart is missing. The length of the more or less oval plateau is 55 m, and its width is up to 20 m; the surface area reaches 900 m². The south-easternmost part of the plateau slopes towards the end rampart; thus something like a hollow has arisen there. One can assume that in this part the modern surface of the plateau follows the original relief of the hill.

In addition to Tõnisson's description, after the cleaning of the hill slopes and its foot from brush in 2002, it was discovered that at the bottom of the northern foot of the hill, right in front of the place with the missing rampart, was a large hollow or depression of some 20 m in diameter (Fig. 1.1). As such a hollow could not be of natural origin, we could suggest that it was dug by the besiegers for the purpose of hollowing the hill slope and dropping the rampart. This hypothesis was verified during the later excavations.

Archaeological excavations (2001–2005) were carried out at two places labelled as excavation areas I and II. The location of area I was chosen after digging several trial pits in different parts of the plateau. As the main aim of the first excavations in 2001 was to obtain as much information as possible on both defensive structures and the occupation layer, area I was located in the middle of the north-western side rampart, where a trial pit proved the existence of a thick occupation layer (containing potsherds, animal bones and pieces of burnt clay) behind the rampart. The excavation area involved both a cross-section of the rampart (3 × 4 m) and an area of the compound behind the rampart (8 × 4 m). Later on, this excavation area was enlarged towards the central part of the compound by digging a trench (6 × 1.5 m). Thus the total surface area of this excavation reached 54 m². Due to limitations of both time and finances, the excavation of the uncovered area took place over three seasons.

The location of excavation area II was chosen with the aim of obtaining information about why the rampart is missing in the northern corner of the fort, and whether or not it has any connection with the large hollow at the foot of the hill. In addition, there was an intriguing narrow hollow running crosswise to the

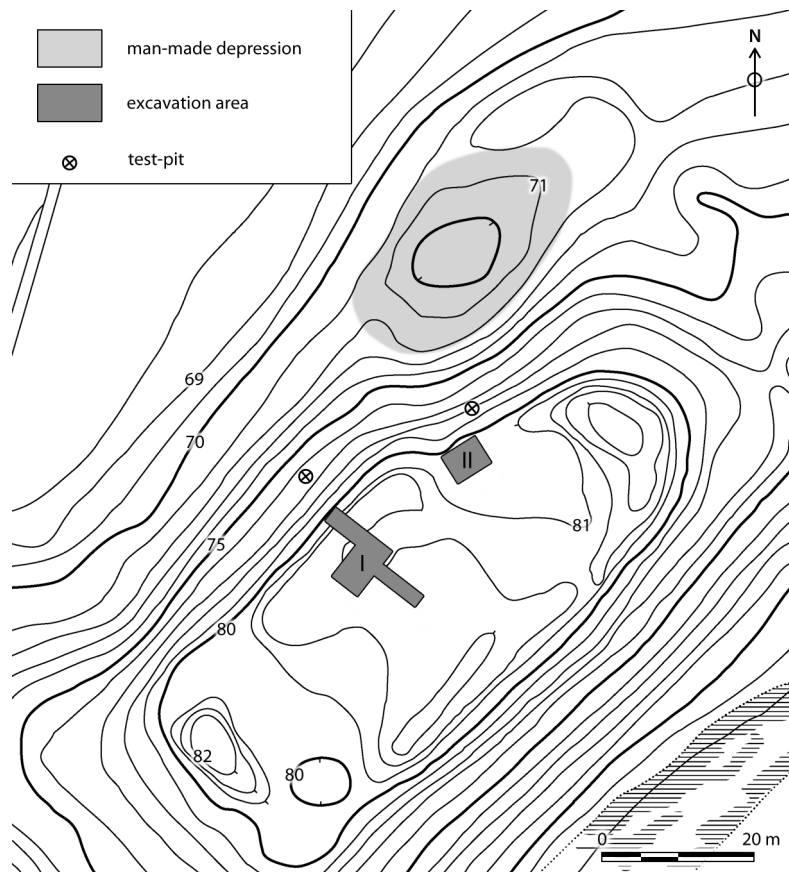


Fig. 1.1. The hill fort at Keava with excavation areas I and II, test-pits, and a man-made depression.

line of the rampart (resembling something like a trace of a collapsed gateway) that was recognizable at this place. Initially, excavation area II was measured to be 5×4 m, yet in the course of excavations it was enlarged in two directions so that the final surface area reached 34 m^2 . The excavation of this area likewise took three seasons.

In the area of the plane compound, excavation was initially performed using 10-cm-thick arbitrary layers. After the discovery of stone constructions they were not removed, but preserved until the complete excavation; the areas in the surroundings that revealed no stones were dug using horizontal layers. In the area of the rampart, the uppermost stone cover was open as a whole; later, after the removal of the stones, the excavation was continued using arbitrary layers. All features as well as all layers were drawn and photographed, and then removed in order to excavate deeper. The location of all artefacts found in the course of the excavations was measured (i.e. the coordinates and the depth from a zero-point); potsherds, pieces of burnt clay and animal bones were gathered from the areas

measured by ca. 20 × 20 cm. Soil removed during the excavations was sieved (the openings of the sieves being 5 mm).

Preliminary reports on the results of the excavations were published annually in the journal *Archaeological Fieldwork in Estonia* (Lang et al. 2002; 2003; 2004; 2005). As a matter of fact, several preliminary suggestions and understandings were later reconsidered, as the overall picture of the hill fort as a whole, and its stratigraphy in particular, gradually changed and became more complete during the excavations.

The rampart

Excavation area I

The profile of the rampart, the final cleaning of which was completed at the end of the excavations during the third season, clearly demonstrated that there had been at least four, but most likely even five fortification phases on the hill (Fig. 1.2). Here I will analyze these phases in the sequence in which they were uncovered in the course of the excavations, i.e. starting from the last (the fifth and fourth) and ending with the first phase.

Forts V and IV

After the removal of turf and the uppermost humus layer, we observed that the rampart of the hill fort was covered with a layer of stones, mostly medium-sized limestone slabs (Fig. 1.3). No order was discovered in the location of these stones; as they all bore clear traces of burning, one may conclude that (the last phase of) the fort was destroyed by fire. The stones on the rampart originated from the filling of wooden constructions, the remains of which were uncovered beneath the uppermost stone layer. Four post holes wedged with stones were discovered beneath this stone cover, and two of these were located on the outer, and two on the inner edge of the rampart (Figs 1.4 and 1.14). The distance between the outermost post holes was 1.25 m and between the innermost ones 1.85 m; the distance between the innermost and outermost post holes reached 2–2.2 m (thus indicating the width of the rampart). The posts had been 17–30 cm thick. Between the innermost and outermost post holes, remains of wooden cross-walls were discovered; one post on the outer edge was relatively well preserved.

Thus, according to the excavation results, the rampart was built such that both the inner and outer wooden walls were connected with cross-walls made of timbers; the rectangular box-like structures (measured by 2–2.2 × 1.25–1.85 m) that were formed as a result of this were filled in with sand and stones. Beneath the wooden structures there was an earthen bank (formed from both the remains of earlier fortifications and earth taken from aside and added in order to make the base higher and the hill edge steeper). Some form of wooden palisade was probably also located at the top of the rampart. The rampart of fort IV was erected directly on top of the ruins of an earlier rampart (that of fort III), without raising or



Fig. 1.2. Profile of the side rampart in excavation area I. Drawing by Sijja Kalle and Riina Vesi.



Fig. 1.3. The top-most layer on the rampart. Photo by Valter Lang.



Fig. 1.4. Post holes and remains of timber construction in the area of rampart, fort V or IV. Photo by Valter Lang.

widening the bank (as was done in the case of earlier rebuildings). We were unable to measure the original height of the side rampart with wooden cells filled in with sand and stones, and the palisade, as we found only its lowermost features; nevertheless, it was most likely somewhat higher than the residential houses behind it. The ruins of the collapsed rampart covered a 2–3-m-wide zone behind the rampart.

The radiocarbon dates acquired from the wooden remains of Keava forts IV–V are very similar to each other; they belong to the 11th–12th and early 13th centuries AD if calibrated (Fig. 1.5). No clear signs indicating the existence of two fortification phases during these centuries were visible either during the excavation of the uppermost layers or in the profile of the rampart. The reason to distinguish them, however, comes from the results of the excavation in the compound: first, there were clearly two habitation phases, both of which yielded finds from the 11th – early 13th centuries; and second, some building details discovered proved that the wooden parts of the rampart and the timber houses behind it were built simultaneously (see below). It is quite understandable that in burning down the rampart, the houses in the compound were also burnt (as they were located side

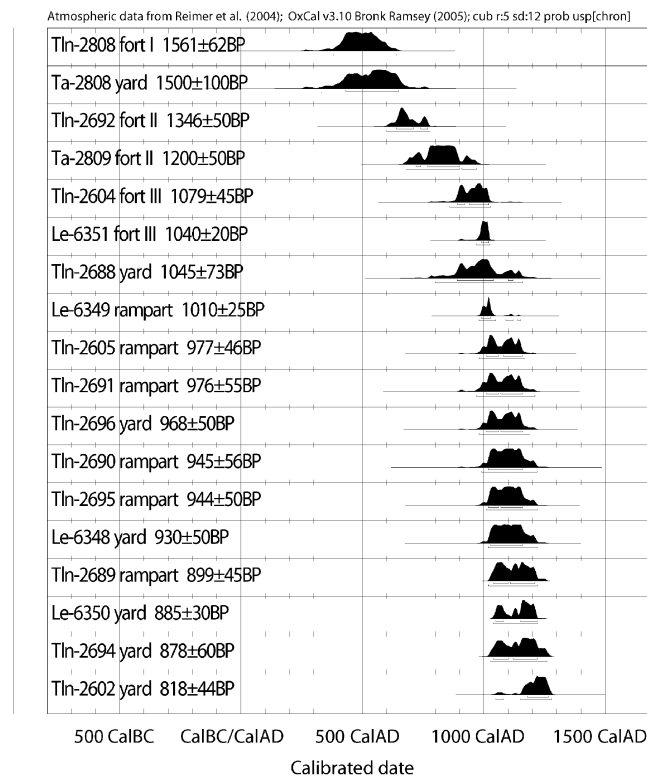


Fig. 1.5. Radiocarbon dates from area I at the hill fort of Keava.

by side and even connected with each other). In other words, this means that the existence of two habitation phases in the compound must correspond to the two fortification phases on the rampart. One can assume that the ruins of fort IV were almost completely removed before the building of fort V (at least in the area of excavation I), which can perhaps be explained only by the fact that the erection of fort V immediately followed the collapse of fort IV. If there was a somewhat longer lacuna in habitation/fortification, the ruins of an earlier phase were covered with turf and preserved until later times. If this interpretation is valid, the fortifications of fort IV were mostly wooden, and only the last, i.e. the fifth phase of the hill fort was built with greater use of stone. As suggested by both the radiocarbon dates and finds (chapter 2), fort IV was founded in the late 11th century and fort V was finally destroyed in the 1220's. The date of the destruction of fort IV and the foundation of fort V is still unknown; this most likely did not happen before the late 12th century.²

Fort III

Fortification phase III was mostly built of wood and sand, with lesser use of stone. Before the erection of wooden cells, the bank of the rampart was elevated 50–60 cm from the level of the ruins of fort II (i.e. up to 110 cm from the original surface of the hill). The measurements of the cells and the width of the rampart were similar to those of forts IV–V. Two post holes wedged with stones were discovered at the inner edge of the rampart; they were located close to two post holes of the later fort but somewhat deeper. The outer edge of the rampart was marked with the remains of two burnt posts in an upright position. Two radiocarbon dates are valid for this fortification phase: one sample was taken from one of these upright posts, and the other from the remains of burnt timbers running crosswise to the rampart (Le-6351 and Tln-2604). These samples were dated to the 10th – early 11th century (Fig. 1.5).

Fort II

The bank of the rampart was raised ca. 25 cm from the level of the ruins of earlier fort I; at the same time, this bank was widened (the width reached 3 m). Wooden structures, most likely cells as in later times, were erected on this earthen foundation. The width of wooden structures on the rampart was 1.7–2 m. The inner edge of the rampart was marked with a thick burnt timber running lengthwise to the rampart (Fig. 1.6); on the outer edge there were some remains of posts (one in an upright position) and a few stones were preserved. In addition, there were remains of several burnt timbers in the interior part of the rampart, which were radiocarbon dated to the (late 7th) 8th–9th centuries (Tln-2692 and Ta-2809; Fig. 1.5).

² As established by other researchers (e.g. Tõnisson 2008), the most remarkable fortifications of Estonian hill forts belong to the late 12th and early 13th centuries.



Fig. 1.6. Structures in the rampart (fort II); the inner edge of the rampart is marked with a thick burnt timber. Photo by Valter Lang.

Fort I

The first fortification layer was only observable in the profile of the rampart as a 2–5-cm thick dark layer containing pieces of charcoal. The width of the rampart at that time was around 2 m, whereas the original surface of the edge of the hill was elevated ca. 25–45 cm. The layer with charcoal was radiocarbon dated to the 5th–6th centuries, and there is one other similar date (5th–7th centuries) obtained from a timber beneath the later habitation phase in the compound (Tln-2808 and Ta-2808; Fig. 1.5). Judging from its find place near the rampart, the latter most likely also originated from defensive buildings (and not from a residential house in the compound, for instance).

Excavation area II

The results obtained from the excavations in area II partly confirmed the observations made on the structure of the side rampart in area I. As mentioned above, this research area was located in a place where the side rampart was missing, whereas the south-western edge of the excavation area reached the north-eastern end of the still-extant side rampart. Due to the fact that the rampart was missing here, none of the two side profiles of the excavated area yielded any complementary information on the fortification phases. However, it became obvious from the profiles that the hillside was once purposely dug down: on the

edge and in the uppermost part of the slope the original surface of the hill (i.e. a thin turf layer) was clearly observable beneath the remains of the rampart's bank, but at a certain point it was sharply cut off, and both burnt timbers and larger stones lay directly on the gravel of the hillside. The large man-made depression at the northern foot of the hill fort begins exactly from this place, and there is no doubt that the fort was destroyed by the digging down of the hillside by the besiegers for the purpose of hollowing the hillside and dropping the rampart. A test pit dug on the slope of this depression (near its bottom; Fig. 1.1) proved the claim: the slope was covered with stones, black soil and pieces of charcoal, i.e. characteristic material of the rampart on the hill. Such material was completely absent, for instance, on the hillside close to excavation area I with preserved rampart.

After the uncovering of excavation area II, an irregular stone cover consisting mostly of small limestone slabs with traces of burning became visible (Fig. 1.7). No constructions could be observed; nevertheless, the character of this stone cover differed from one part of the excavation area to another. Thus the stone cover was quite thin and incomplete in the north-eastern part of the area (the stones were also smaller there); it is likely that these stones were remains of the part of the rampart that was dropped by the besiegers. After the removal of stones, smaller and larger spots of burnt sand containing pieces of charcoal



Fig. 1.7. Excavation area II after removal of turf cover, taken from the north-east. Photo by Valter Lang.

became visible in this area. The stones in the south-western part of the excavation area were most likely ruins formed during the collapse of the still standing and remaining side rampart towards the north-east, that is, on the place that became 'empty' (i.e. much lower) after the dropping of one part of the rampart. In the central zone of the excavation, the stone cover, which was remarkably thick and dense, was connected with the partly collapsed gateway beneath the rampart (see below). It was observed throughout the excavation area that many stones had been on fire, and as there were also smaller and larger pieces of charcoal, smelted pieces of iron and potsherds that had crumbled in the heat found between the stones, it is clear that the last fort was destroyed by fire.

As the rampart itself was dropped in this excavation area, the only features discovered were some post holes wedged with stones, but it is almost impossible to connect them with any particular fortification phase. One of these post holes was located on an interior edge of the rampart (1.3 m north-east of the hidden gateway), and it was noticed that the place for a post had been there during several fortification phases (the stones for wedging were situated on different horizons). Another post hole was located at the outer edge of the rampart, at a distance of 3.5 m from the former. Both posts had been ca 30 cm in diameter.

The hidden gateway

In the central part of excavation area II there was a depression, ca 1 m wide, running almost crosswise through the line of the (missing) rampart (Fig. 1.7). This depression was already visible before the excavations and was recognizable as an area with much denser and thicker stone cover when investigating the two uppermost stone layers. It was after the removal of these layers of stones and deeper excavation that the uppermost stones of the walls of a gateway came to light. It became evident that we were dealing with a very narrow and deep-reaching gateway that passed crosswise through the rampart (the outer mouth slightly inclined towards the north) to the slope of the hill (Figs 1.8 and 1.9). The walls of the gateway were piled up of limestone slabs; up to 15 layers of stones (1.2–1.3 m in height) were preserved at some places. The width of the gateway, as measured from the lowermost stones of the walls, varied between 65 and 70 cm; however, the upper parts of the walls had slightly sunk inwards. The bottom of the gateway lay at least 1.6–1.8 m below the original ground surface. Thus it became evident that this gateway had been built not *through* the rampart but *beneath* it.

However, it became obvious during the excavations that the gateway had quite a complicated structure and consisted of two or even three building stages. In the first stage(s), preceding the gateway with stone walls, there was a wooden gateway. Remains of burnt timbers lying lengthwise to the gate were discovered at the bottom of the trench dug for the gateway (Fig. 1.10), and both under and behind the stone walls of the later stage. The timbers on the bottom of the gateway were covered with a layer of burnt sand and smaller stones, which most likely originated from the collapsed ceiling of the later stage of the gate. The



Fig. 1.8. The hidden gateway, pictured from the south-east. Photo by Valter Lang.



Fig. 1.9. The hidden gateway, pictured from the north-east. Photo by Valter Lang.

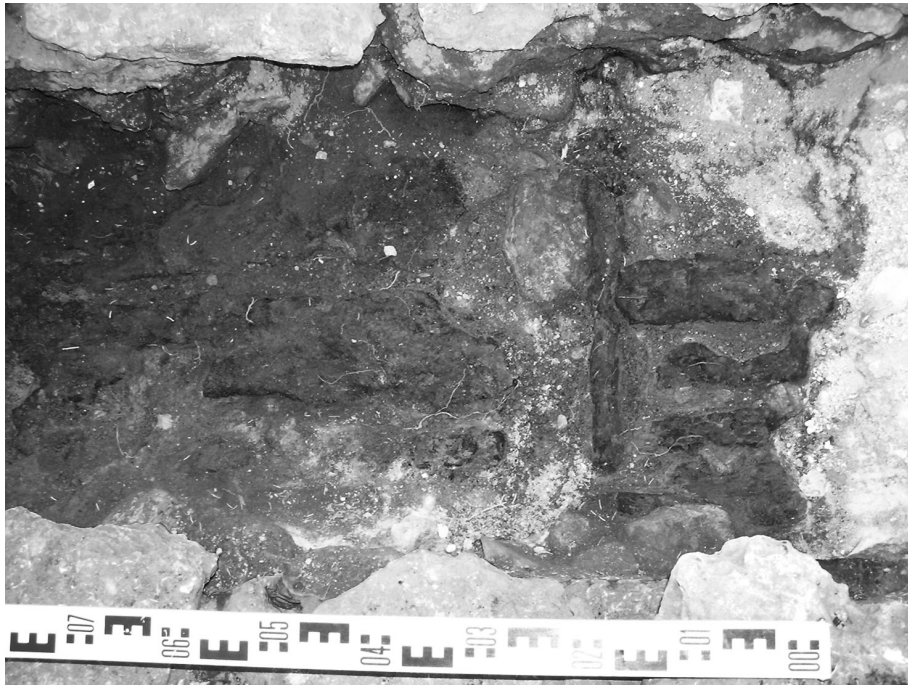


Fig. 1.10. Remains of burnt timbers at the bottom of the trench dug for the gateway. Photo by Valter Lang.

dating of the wooden gateway is, however, complicated. No artefactual finds can be connected with it, and the radiocarbon dates disperse over three centuries if calibrated. Two samples, which were taken beneath the lowermost stones of the walls of the gate (of the last stage), were dated to the 11th–12th centuries (TIn-2870 and 2873; Fig. 1.11). The sample from between the wall-stones yielded a date from the 10th – early 11th centuries (TIn-2869), and approximately the same results were also obtained from the rest of the samples taken from the timbers on the bottom of the gateway (TIn-2875 and 2823). Charcoal found between the

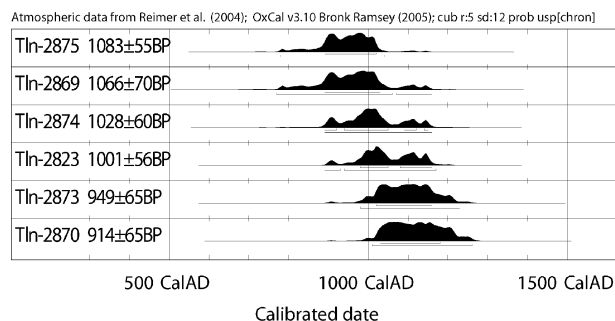


Fig. 1.11. Radiocarbon dates from area II at the hill fort of Keava.

wall-stones may originate from the remains of burnt timbers found behind the stone walls (as mentioned above). These dates coincide with forts III and IV as established in excavation area I. Therefore it appears that it is not at all impossible that the first wooden gateway was already made by the builders of fort III, i.e. in the 10th–11th centuries, and was rebuilt in stage IV. As not all remains of burnt wood were removed during this rebuilding (and not before the building of the later stone gate either), they were mixed and this mixed situation was not visible during the excavations.

After the destruction of the (second) wooden gateway, a new gate, this time already of stone, was built. The latter consisted of two structural elements; one of these (the uppermost) was situated on the edge of the plateau of the hill, where the surface of the ground was only slightly sloping towards the hillside. The length of this part of the gate was 3.5 m, and the ends of both side walls were laid up straight. The stones of this part were not bound with the stones of the other, i.e. the lowermost part of the gate. This second (lowermost) part of the gateway was located on the steep slope of the hill and was at least 2.5 m long (it had evidently once been longer, but the outer mouth of the gateway was not preserved). It was noted that the stones of the walls of the uppermost part of the gate rested almost on the natural sand (there was only a thin layer of burnt remains of timbers from the earlier stage covering the ground); the walls of the lowermost part, however, were placed on the ruins of stones that probably originated from the destruction of an earlier fortification (alternative explanation: stones were placed there intentionally with the purpose of raising the edge of the slope). Four post holes wedged with stones were discovered, which were most likely connected with the construction of the gate. The posts had stood at both sides of the gate, behind the walls' stones; the distance between the inner- and outermost posts was 3–3.5 m, which was likely also the width of the rampart at this location.

The external mouth of the gateway was not found, because the hillside was dug down, and during the dropping of the rampart the outermost part of the gate also collapsed. Therefore the original length of the whole gate cannot be determined, but it most likely exceeded 7 m. One can assume that this narrow gateway was once covered with a roof of timbers, whereas the entire structure was built under the rampart, which consisted of stones and earth and wooden defensive buildings above it.

No datable material was found to date the stone gateway. There cannot, however, be much doubt that it must be connected with the last fortification phase (V), when stones were much more widely used for the building of fortifications.

The compound

The last habitation phase (fort V)

In the compound of the fort, immediately behind the rampart, had been residential houses, as indicated both by the remains of stoves and an occupation layer rich in finds (Fig. 1.12). The houses had at least a partial stone wall

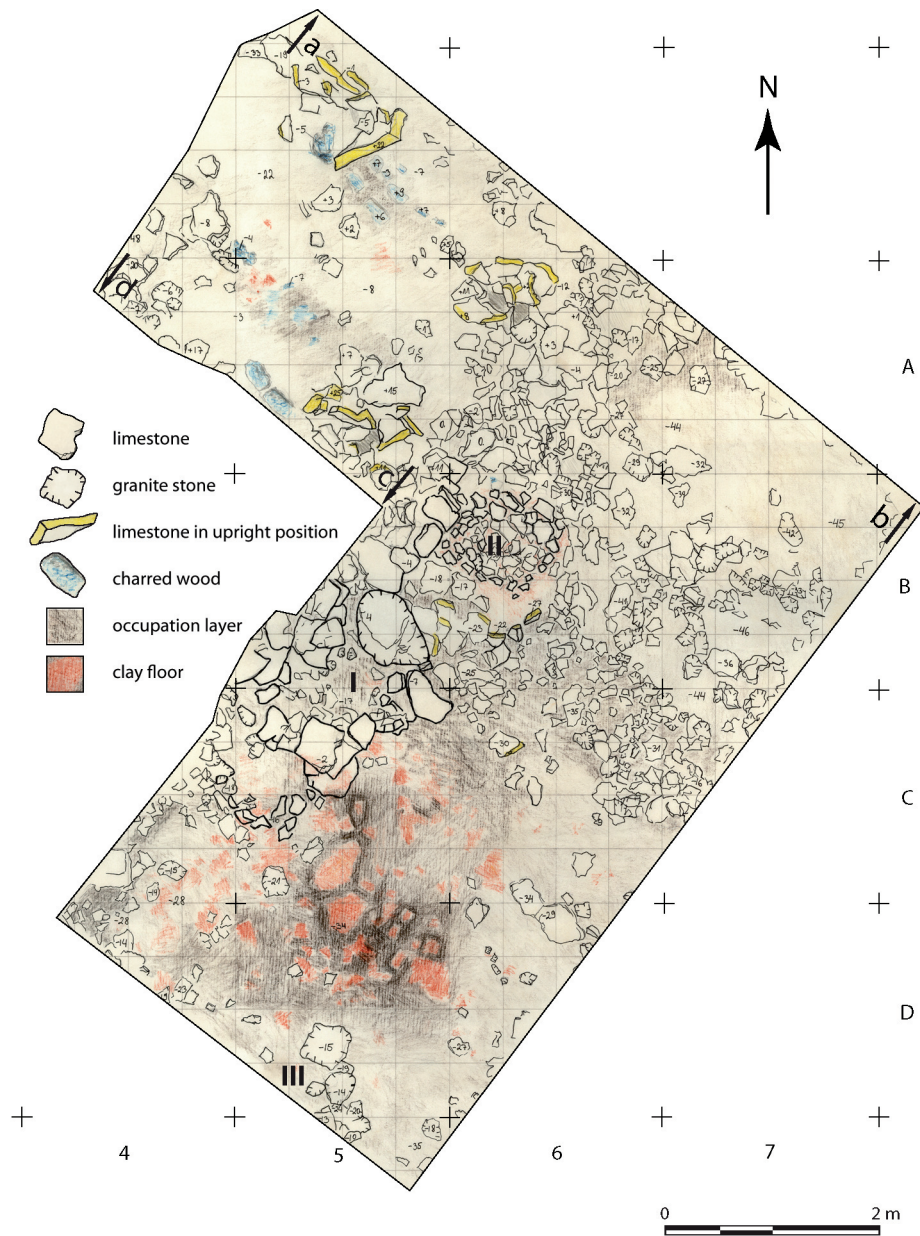


Fig. 1.12. Building remains behind the rampart, fort V (clay floor being from fort IV). I *keris* stove, II clay stove, III fire place. Drawing by Mati Uprus and Riina Vesi.

(or foundation) against the rampart; the other walls were probably built of wood. The stone wall was observable behind both stoves that were unearthed, and can be explained as a defence against fire hazard of the stoves. One of the stoves (I) was completely made of stones: the walls were laid of limestone slabs and covered

with a pile of cobblestones (Est. *keris*). The outer measurements of this rectangular *keris* stove were 1.8 × 1.1 m (inner ones 1.20 × 0.55 m). There was a large granite stone at one end, and an ash pit from a hearth (Est. *lee*) in front of the stove (70 × 50 cm). This stove stood by the side of the stone wall against the rampart, and in the corner of the house, as can be deduced from the location of another stove at a distance of only 60 cm; the two stoves definitely belonged to two different houses. Its location in the corner, as well as all other construction details, is characteristic of the stoves of Final Iron Age hill forts and settlement sites, while in earlier times stoves of more primitive construction were located in the centres of houses; see Tõnisson 1981b, 47 f.

The other stove (II) found 60 cm north-west of stove I is rather unusual: its round-shaped bottom (110 cm in diameter) was made of stones, but the heating-room on the top of it was made of clay. There were two large limestone plates beneath the bottom stones.

There was one more structure that can be connected either with heating or simply making fire. Its remains were found in the southern corner of the excavation area, but the main part of it was located outside the excavation (Fig. 1.12: III). Therefore the exact nature of this structure remained unknown. Numerous pieces of animal bone, burnt clay (some of them with traces of metal slag) and ceramics were registered around this structure. It can be presumed that this structure was somehow connected with production activities (metalwork). The exact date of this feature is unknown.

One may conclude that there were at least two contemporary residential houses (two different stoves) in excavation area I behind the rampart, both of which belonged to the last habitation phase (fort V). Unfortunately it was not possible to determine the exact limits and shape of these houses. On the basis of both the location of the stoves and the distribution of the sherds of two different clay vessels (chapter 2, Figs 2.19–2.20), one of these houses might have been situated in the south-western and the other in the north-eastern corner of the excavated area. There was a 1-m-wide and 2.4-m-long zone of stones running crosswise (in comparison to the line of rampart) from these two stoves towards the compound (Fig. 1.12), probably marking the location of the foundation of the wall between two houses. If this interpretation is correct, the width of the houses was around 4 m.

Building remains of fort IV

In the southern part of excavation area I, the remains of a clay floor (ca 3.5 × 3 m) were unearthed. During the excavations, we thought that this could be the floor of one of the houses described above (the one with the *keris* stove; see Lang et al. 2002, 68), yet the radiocarbon dating of burnt branches discovered in the pavement of clay yielded the date 1045±73 BP (890–1160 if calibrated), which rules out that possibility. Thus this floor had to belong to an earlier

habitation phase. The floor itself was not intact but rather fragmentarily preserved, because later rebuilding and living activities had touched it at many places. No remains of stoves that could be connected with this floor were discovered, indicating again that all remains of destroyed buildings of fort IV were removed when erecting the last (V) fort (see above). However, some remains of burnt timbers were found by the side of the rampart, forming the corner of a wooden construction whose timbers run both along the rampart and crosswise; the latter timbers extended in two directions – into the rampart and onto the compound, dividing the space there into two houses (Fig. 1.13). Radiocarbon dating of these timbers proved that they are contemporary with the clay floor (calibrated value: ca 1000–1160); the same can be claimed from the fact that both the timbers and the floor were situated on the same level. The corner of this construction clearly demonstrates that both the wooden construction of the rampart and houses behind it were built at the same time, i.e. during the same building phase, and they were physically connected with each other. The remains of these timbers were preserved due to the circumstance that they were covered with the ruins of the destroyed rampart. The location of the wall between two houses had been located ca 1 m south-westward from the location of the corresponding common wall between two houses of phase V.

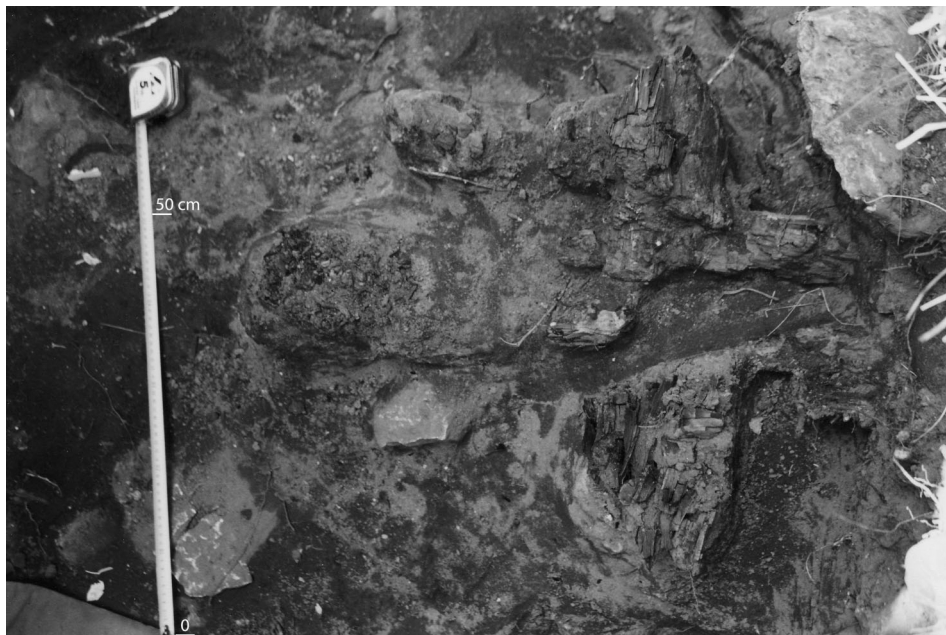


Fig. 1.13. Corner of a wooden construction. Photo by Valter Lang.

Other remains of habitation

Under the clay floor there was a thin layer of dark-coloured soil and beneath that a new layer of stones indicating the existence of an earlier phase or phases of habitation. There were remains of at least one stove (IV) in this lowermost layer beneath the clay floor; these remains were covering an area measured ca 1.8×1.5 m (Fig. 1.14). The stove was completely destroyed during the burning of the earlier fort and levelled before the clay floor was built. As a result, the structural details were no longer visible, but it seemed to be a rectangular stove of *keris* type, yet of more primitive nature than stove I in the uppermost layer. It was located 1–1.5 m southward from the location of stove I and at some distance from the rampart. Therefore it is possible that this stove was not located in the corner of a house, which was also characteristic of earlier buildings and more primitive stoves (see Tõnisson 1981b). The date of this stove is difficult to establish, because layers from different times were mixed in its surroundings. For instance, two charcoal samples taken from two different burnt timbers, which were located close to each other and on the same level, were radiocarbon dated to 885 ± 30 and 1500 ± 100 BP. The stove in question should most likely be connected with fortification phase III.

There was another concentration of stones that was initially interpreted as a lightly damaged stove floor (V) of an earlier habitation phase, located some metres north-east of stove IV (see Lang et al. 2003). More careful examination of excavation materials suggests, however, that this was a household pit that was filled in with (burnt) stones, charcoal, ash, pottery, pieces of clay daub and animal bones. The depth of the pit reached at least 90 cm; its diameter in the upper part was 75–80 cm, but somewhat smaller on the bottom. The bottom was paved with limestone slabs. The sample of charcoal taken from the bottom of the pit was radiocarbon dated to 878 ± 60 BP (1040–1220 if calibrated); thus it could belong to either fort IV or V. In the latter case, this household pit was located in the house with the vaulted clay stove, ca 1.5 m south-east of the latter. As the clay floor did not reach this part of the excavation area, it was not possible to observe the exact stratigraphic conditions of this pit.

In the south-south-eastern part of the excavation area, we discovered a round-shaped structure (Figs 1.14: VI and 1.15). In the upper part the structure was 125 cm in diameter. It was deepened into the natural ground (up to 85 cm) and surrounded (paved) with large stones (some of them measured up to 50–60 cm). At the bottom, the pit was 75–95 cm in diameter. The whole pit was filled in with smaller stones, while the excavations also yielded potsherds, many pieces of clay daub and a few animal bones. Some potsherds originated from the pot whose pieces were found in the horizon of the last fort. Pieces of charcoal found at the bottom of the pit were radiocarbon dated to 968 ± 50 BP (1010–1160 or 980–1210). This was most likely a household or cellar pit of the last fortification phase; it is not, however, certain whether it was located in the house or outside it.

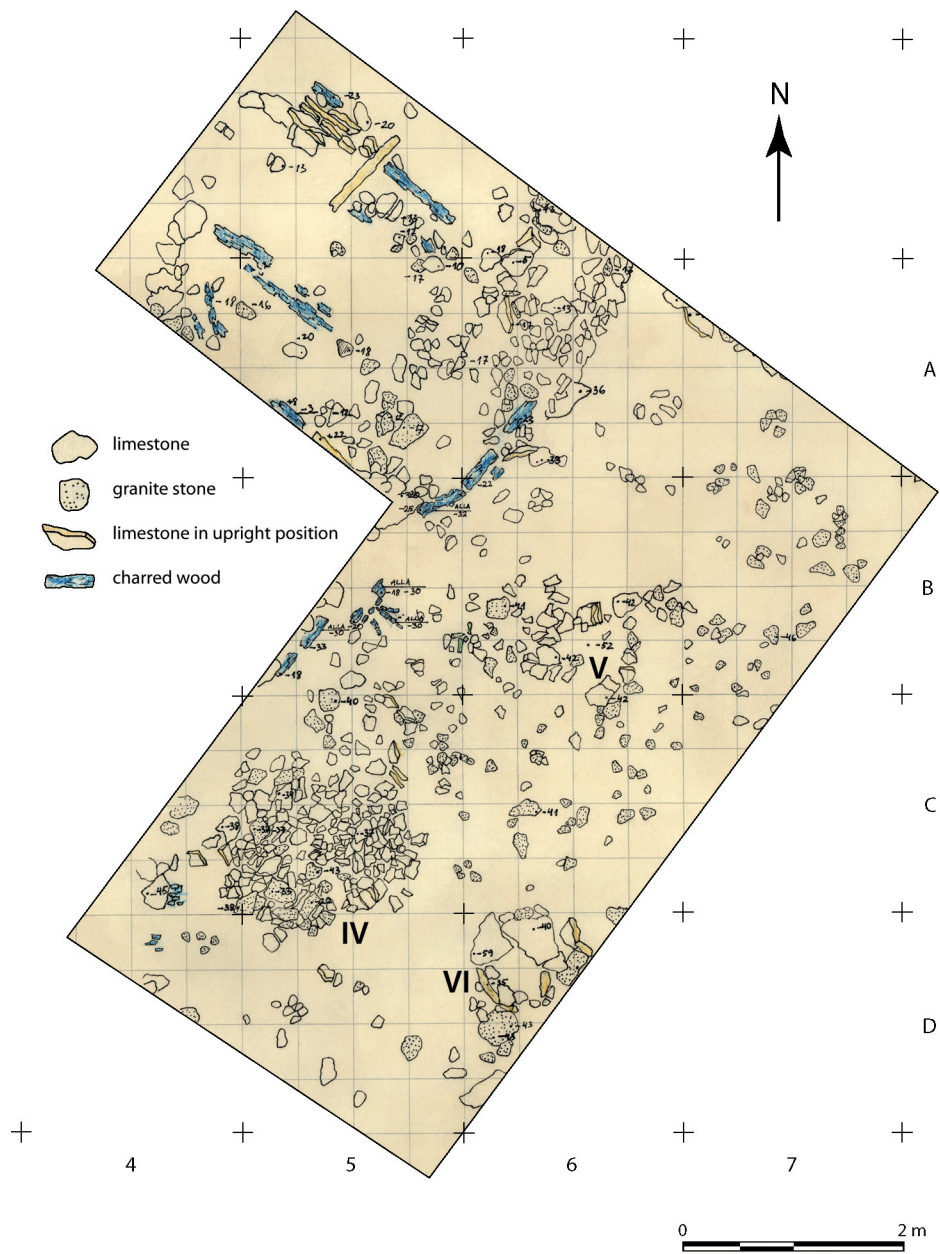


Fig. 1.14. Excavation area I with occupation layer of fort III in the compound and fortifications of fort IV or V on the rampart. IV *keris* stove, V–VI household pits. Drawing by Mati Uprus and Riina Vesi.



Fig. 1.15. A round-shaped structure. Photo by Valter Lang.

With the aim of acquiring some knowledge concerning the nature of the cultural layer in the central part of the compound, a 1.5-m-wide and 6-m-long trench was excavated by the side of excavation area I. Different horizons identified in the cultural layer close to the rampart were not observed in this part of the hill. No structures were discovered there, but animal bones, broken artefacts and potsherds were found in large numbers, suggesting that household refuse was at least partly thrown in the middle of the compound.

Discussion and conclusions

Chronology

As a result of the excavations, it became evident that there had most likely been five phases of fortification at this fort, and during three of these the edge of the hill was steepened by the elevation of the earth bank. Consequently, the fort was burned down five times, first in the Migration Period, and finally most likely in 1224. The dates of the fortification phases are as follows:

- | | | |
|----------|---|---|
| Fort I | – | 5th–6th centuries; |
| Fort II | – | (7th) 8th–9th centuries; |
| Fort III | – | 10th – early 11th century; |
| Fort IV | – | late 11th – mid-12th century; |
| Fort V | – | mid-12th – beginning of the 13th century. |

Forts I and II were only recognizable in the cross-sections of the rampart and by radiocarbon dates; no artefacts can be connected with those times, except perhaps one grinding stone and a double-spiral pendant of bronze (chapter 2). It is likely, therefore, that the hill fort lacked permanent settlement and was only used as a place of refuge in case of danger. There was a large open settlement south and west of the hill fort (i.e. Linnaaluste I and III, chapter 3), which was used for ordinary residence by the builders of the fort. The situation changed in the period of fort III: in addition to a fortification layer in the rampart and several radiocarbon dates, there is also a small amount of pottery, which can be dated to this time, and a fireplace – most likely a stove with a keris (IV). In addition, it is quite possible that the ‘first version’ of the hidden gateway was also built at this time in the northern corner of the fort. One can presume that a small group of people, perhaps a (leading) family or some guards, lived in the fort, at least for a while. If the Russian Prince Izjaslav really ‘visited’ Keava in the mid-11th century as mentioned in East Slavonic chronicles, it could only have been fort III he captured. The fortifications of forts I–III were relatively modest and consisted only of wooden constructions; thus they correspond well to the Russian term ‘osek’, which means a kind of wooden obstacle around the defended site (see Tynisson 1997, 357). No firm evidence on Russian troops was found during the excavations, however.

The situation changed completely in the late 11th century, when the fort (IV) was strongly fortified and permanently settled. Both the fortifications on the rampart and residential houses behind the rampart were erected simultaneously (in accordance with a certain ‘blueprint’) and connected with each other physically. In the northern corner of the hill fort, the hidden gateway was rebuilt at the same place where it had already existed during fort III. It is difficult to establish when this fort was destroyed; this most likely took place around the middle of the 12th century. Immediately after that event the fort (V) was erected again, and this time stone was predominantly used in the construction of the fortifications. Even the hidden gateway beneath the rampart was now built of stones. The hill fort of Keava was finally destroyed in the 1220s, most likely in 1224, by the crusaders (see below and chapter 11). To capture the fort, the besiegers had to dig down the hill slope and drop one part of the rampart in the northern corner, close to the presumably main defence tower located on the north-eastern end rampart.

Fortifications

The technique of building ramparts as described above in this chapter, i.e. the use of wooden cells or chambers, was quite widespread in prehistoric times; it has also been found at many places in Estonia (e.g. Moora 1939b, pl. IX; Moora & Saadre 1939, pl. XI; Jaanits et al. 1982, pls XVIII and XIX; Lavi 2002; Tõnisson 2008, 73 ff., figs 31, 36, 37), as well as in the neighbouring countries. The earliest traces of such defensive structures in Estonia were recently discovered

at the hill fort of Jägala in northern Estonia, which is dated to the Late Pre-Roman Iron Age (Lõhmus & Oras 2008); yet, on the lower reaches of the Daugava River, Latvia, such a building technique was already known in the Late Bronze Age (Graudonis 1989, figs 10–12, 35 f.). In comparison to other hill forts in Estonia, where the wooden cells or boxes in the rampart are usually measured by $2 \times 2.5\text{--}3$ m (see Lavi 2002, 255 and literature cited therein), the cells at Keava were somewhat smaller: $2\text{--}2.2 \times 1.25\text{--}1.85$ m in the last phase and even a little smaller than that earlier. The function of such cells or boxes at Keava was to keep together the mass of sand and gravel/stones in the rampart, i.e. they were filled in and not empty, as is known to have been the case with some earlier, Viking Age, hill forts. The cells of earlier ramparts often served both as defensive structures and living space, and some researchers (Lavi 2002, 255) believe that the change towards filled-in cells did not take place before the late 11th century. As for the hill fort of Keava, it is almost certain that the area of the rampart was never used for living. This is due to the fact that almost no datable finds are known from phases I and II, and only a few potsherds may have a fort III date, thus indicating that the fort lacked permanent settlement prior to the late 10th century. During fortification phases IV and V, the living space was clearly located behind the rampart and not in the cells.

The hidden gateway discovered in the northern corner of the hill fort beneath the rampart is quite unique. However, some narrow (and probably hidden) gateways to the slopes of hills have been discovered at some other hill forts, although they ran through rather than underneath the ramparts. For instance, two such gateways were found at the late Viking Age hill fort of Iru, in northern Estonia. One of these was built into the side rampart of the northern plateau so that its bottom was 80 cm deeper than the surface of the rampart's bank. The width of the gateway was 62 cm at the outer mouth and 1 m at the inner mouth; its length was at least 3.6 m; that is, it was longer than the width of the stone rampart (2 m). The walls of the gateway were made of limestone slabs and its bottom sloped strongly down towards the hill slope (Vassar 1939, 69, fig. 32, pl. VI). It is not clear, however, whether this gate ran completely beneath the rampart (in this case its height was no more than 0.8–1 m) or was built through it. Another narrow (1 m wide) gateway was discovered in the corner of the middle rampart of the hill fort, which was designed to defend the northern plateau from the south (Lang 1996, fig. 19). This gateway was not dug into the ground but clearly ran through the rampart. Both narrow gateways were contemporary (late 10th – early 11th century) and built in addition to the 'official' wider gateways located at both end ramparts; these have both been interpreted as means for escaping or attacking besiegers from the rear.

Another similar gateway was uncovered at the hill fort of Lõhavere, in southern Estonia, which was fortified at the same time with the last phases at the Keava fort (Jaanits et al. 1982, 326, pl. XIX; Tõnisson 2008, fig. 54). It was mainly wooden with minor use of stones, and was evidently built for obtaining water from the well located at the foot of the hill. There was obviously also a narrow gateway through the rampart of the hill fort of Tartu, which is mentioned in the

chronicle of Henry of Livonia (HCL 1982, XXVIII: 5). This opening was used by the defenders of the fort for throwing burning wheels at the besiegers.

These examples reveal how complicated the defence systems of late prehistoric hill forts really were. It is evident that the discovery of such narrow and hidden gateways beneath the ramparts is only a matter of luck.

Buildings in the compound

Evidence about residential houses at the hill fort of Keava is rather modest due to the limited scope of excavations. It is certain that the living space was concentrated directly behind the rampart, and the central part of the compound (yard) was empty of houses. It is not yet known how large the houses were, because only parts of two neighbouring houses were located in the excavation area. These two houses were physically connected with each other, which means that they shared a common wall between them. Such a feature was found to be the case both in fort IV and V; only the location of the common wall between the two houses differed slightly. The stoves were located in the corners of the houses, at least in the last phase of the hill fort, which was characteristic of the Final Iron Age houses in Estonia. In one house the stove was located in its northern corner, and in the other house in its southern corner. It is likely that both houses had a household pit; yet in one of these the pit was carefully built of stones.

The stoves were of two different types; one was a rectangular stone stove with cobblestones (*keris*) and the other a vaulted clay stove with stone pavement on the bottom. The *keris* stoves also differ from each other: one (IV) was seemingly rather primitive and one (I) more advanced. According to Tõnisson (1981b), the more advanced *keris* stoves were developed and became widespread not before the Final Iron Age, i.e. in the 11th–12th centuries. The chronology of the hill fort at Keava clearly supports this claim, as the more primitive stove was found beneath the clay floor of fort IV, i.e. it is older than the (late) 11th century.

The vaulted clay stoves like the one found at Keava (II) have been reported from many places in eastern Europe, among others from Staraja Ladoga and Rjurik's hill fort in north-western Russia (Nosov & Petrenko 1986), the Livonian areas of Latvia (Zariņa 1978) and also from a few places in Estonia: Pada (Tamla 1983), Tartu, Rõuge, Kääpa, and Ubina (Tõnisson 1981b, 52 f.; Tamla et al. 2006, 234). In certain details (the bottom paved with stones), the clay stove found at Keava resembles the stoves on the lower reaches of the Daugava River in Latvia, settled by the Livonians, where such stoves often occur together with rectangular stoves of *keris* type. Some authors have surmised that clay stoves were the outdoors' stoves for baking bread; yet, according to Tõnisson, all known vaulted clay stoves, both in the eastern Baltic region and north-western Russia, were connected with houses (Tõnisson 1981b, 52 f. and literature cited therein). The same can be claimed in the case of Keava, where the stove in question was located right by the side of the rampart, i.e. in the zone occupied by buildings.

Except for the hill fort and settlement site at Rõuge in south-eastern Estonia, clay floors have been quite rare in Estonia. They were more common in north-western Russia (e.g Pskov and Kamno) as well as in Latvia (e.g. Asote) (see Tõnisson 2008, 118 and literature cited therein). Thus, both the clay stove and the clay floor – rare features in Estonia – can be taken as evidence of the contacts between Keava and either southern- or easternmost neighbouring areas.

The last capture of the hill fort at Keava

As already mentioned above, the last fort at Keava was destroyed (definitely after 1219, as indicated by a coin; see chapter 2) by burning it down and dropping the rampart in its northern corner. For that purpose a large hollow was dug on the slope of the hill and beneath the rampart. Such a practice was often used by German crusaders in the wars of the early 13th century against the Estonians, and it was described in the chronicle of Henry of Livonia. We can use his story about the besieging of the hill fort of Lohu, the neighbouring fortification to Keava, in early 1224:

They went with all their army into Harrien and besieged the fort of Loal [Lohu]. They fought with them for two weeks, building machines, paterells, and a very strong wooden tower, which they pushed up near the fort, so that they could dig at the fort from below and fight more readily with the enemy from the top. [...] After this, indeed, many men were killed by the ballistarii and hit by the operators of the machines and the rest began to fall seriously ill and die. The sappers, moreover, were now approaching the top of the fortifications, so that the people in the fort thought that they and the earthworks together would now tumble down to the bottom. For this reason they at last besought the army to give them their lives and their freedom. The army allowed them to live and burned the fort (HCL 2003, XXVII: 6).

This description can well suit the archaeological finds at Keava: there is a large artificial depression at the foot and slope of the hill, part of the rampart has been dropped at this place, and the destroyed part of the rampart was located close to the higher end rampart, which most likely also had a tower-like structure (i.e. ‘the top of the fortifications’), and, finally, the fort was set on fire. However, it is astonishing that although such a severe besieging had to be quite time-consuming and labour-intensive (particularly in winter, as was the case), the hill fort of Keava was never mentioned by Henry. On the other hand, no clear signs in the form of depressions or destroyed ramparts are visible in the hill fort of Lohu (see more in chapter 11). One cannot, therefore, rule out the possibility that the event described by Henry at Lohu actually took place at Keava. This is because in the same chapter Henry describes the attack of the crusaders against three smaller hill forts in the vicinity of Lohu:

The Germans, meanwhile, sent some men from their army to three other lesser forts lying round about and threatened war upon them unless they gave themselves up. These three neighbouring forts gave themselves up to the Rigans and sent them tribute and a great many *waipas* in that same expedition (HCL 2003, XXVII: 6).

One of these forts could be the one at Keava; nevertheless, it seems more likely that actions around the different forts are confused by the chronicler (who did not participate in this campaign). His report also seems to be incorrect in the sense that there were no more contemporary ('lesser') hill forts in this part of the country that could have been besieged during this campaign: presumed forts at Voose and Seli (HCL 1982, XXVII: 6, note 19) have turned out not to be real man-made fortifications (chapter 11), and the fort at Varbola was much bigger than that at Lohu and was never taken during those wars.

Whatever the case, the hill fort at Keava was definitely destroyed by burning it down and dropping the rampart in its northern corner. And most likely it happened during the campaign of the Rigans in the winter of 1224. As there are no indications of any later use of the fort, it is certain that this event put the end to the 700-year-long history of this stronghold.

Summary

Archaeological excavations at the hill fort of Keava in 2001–2005 took place at two areas covering altogether 88 m². The investigations have revealed the remains of five fortification phases dating from the 5th–6th centuries to the early 13th century. The earliest two phases (forts I and II) were recognizable only in the area of the ramparts as definite fortification structures. The later phases (forts III–V) since the late 10th – early 11th century were observable both in the area of the ramparts (defensive structures) and in the compound (building remains), as well as in the find assemblage. The hidden gateway beneath the rampart in the northern corner of the hill fort was first built during phase III; in later times, however, it was repeatedly rebuilt. Stone material was widely used in the erection of the rampart and the construction of the gateway of the last fort, which dated from the late 12th – early 13th century. The fort was finally captured by the crusaders, most likely in 1224; for doing that they dug a large hollow on the northern hill slope and dropped the rampart.

It is likely that during fortification stages I and II the hill fort lacked permanent settlement. During the period of fort III, there probably was already a small number of people permanently inhabiting the hill fort; the population numbers increased remarkably since the late 11th century. The rampart consisted of wooden cells, which kept together the mass of sand and gravel (later also stones); wooden palisades were erected on the top of such earthen ramparts. Remains of two timber houses were unearthed immediately behind the rampart; they were physically connected both with each other and with the wooden constructions of the rampart. The bottoms of two *keris* stoves and one vaulted clay stove, a clay floor and some household pits were discovered in the area of these houses. The interior area of the compound had no residential houses.