



Excavations of besieging constructions from 1223 and Final Iron Age occupation layers on the Ski-jumping Hill in Viljandi

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INTRODUCTION

Although Viljandi (Germ. *Fellin*) belonged to the Hanseatic League in the Middle Ages, there are no cultural layers from the pre-crusade period known from the medieval town area. Late Iron Age cultural layers have been found only in the Castle Hills (Est. *Lossimäed*), 45–150 m south of the ruins of the High Castle of the Teutonic Order, and ca. 600 m south of it, on the slope of Lake Viljandi valley.¹

Former excavations in the Castle Hills – on the Ski-jumping Hill (Est. *Suusahüppemägi*), Pähklikmägi (Engl. *Hazelnut Hill*), and Musumägi (Engl. *Kissing Hill*) (Fig. 1) have taken place in 1999, 2001–2002 and 2005–2007 (Valk 2000; Haak & Valk 2002; Valk 2003; Valk 2006; Juurik *et al.* 2007; Smirnova *et al.* 2008). These investigations showed that the top part of all these hills was created during the siege of the Estonian hill fort of Viljandi in 1223 (HCL XXVII: 2), to make platforms for the crusaders' trebuchets. The cultural layers of the Viking Age and Final Iron Age (ca. 1050–1225 AD) settlement site and natural soil from the vicinity were used as construction material.

The Ski-jumping Hill that got its name from a ramp which existed there since the 1930s until the 2000s is a high hillock at the western edge of Lake Viljandi valley. It is bordered in

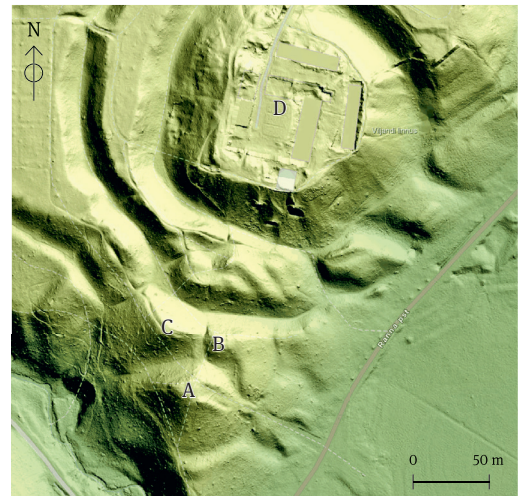


Fig. 1. The location of the Ski-jumping Hill in the Castle Hills of Viljandi. A – Ski-jumping Hill, B – Hazelnut Hill, C – Kissing Hill, D – High Castle.

Jn 1. Viljandi Suusahüppemäe asukoht Lossimägedes. A – Suusahüppemägi, B – Pähklikmägi, C – Musumägi, D – pealinnus.

Map / Kaart: Maa-amet / Land Board

¹ In the autumn of 2024 one more Final Iron Age settlement site was discovered at the southern end of Lake Viljandi in the course of construction activities.

the south by the ca. 35 metres deep glacial valley of Valuoja Stream, and in the north and west by valleys of the glacial delta of Valuoja – a huge river at that time. When constructing the ramp, the eastern part of the hill was destroyed.

Most of the preserved part of the Ski-jumping Hill was formerly studied during earlier archaeological excavations. The only areas which remained unexcavated were the zone of roots around the big oak tree on the hilltop, and the south-western part of the plateau. Earlier excavations also showed that the trebuchet platforms had been levelled on the hill when the park of Viljandi manor was founded. Resulting from this earthwork a layer of disturbed soil, partly consisting of cultural layers of Iron Age settlement, had formed on the flat hill plateau.

In 2023, excavations took place on the south-western part of the Ski-jumping Hill with the aim to finish digging in the area where work was possible (considering the oak roots) and to create preconditions for the synthesis of information. The work was budgeted by Viljandi municipality and performed as the fieldwork supervision practice of Raivo Suni, MA student at Tartu University. The excavation area (32 m²) was bordered by the trench of 2005 in the east and by the trench of 2007 in the north. All soil was sieved on meshes with the eye diameter of 6 mm.

THE CULTURAL LAYERS

The excavations confirmed the knowledge from former investigations that soil and stones were heaped up on the hill to make trebuchet platforms. As in earlier years, the investigated soil was of uneven character. It partly consisted of natural reddish-brown soil taken from the hill slopes, and partly of Viking Age and Final Iron Age settlement cultural layers. Dark soil with numerous fragments of burnt stones in it occurred mainly in the central part of the hill, while reddish-brown soil had been added to the edges of the plateau and the top part of the hill slopes. The thickness of the cultural layer varied in different parts of the trench, being ca. 50 cm on the flat plateau, but increasing on the slopes. At the southern end of the trench the layer of added brownish soil was 1.2–1.3 m thick. By adding soil, the flat plateau of the hill had been extended for at least 3 metres towards the south.

The excavated soil contained a large number of stones of different size – mainly granite, but also some rocks of spring marl. In the depth of ca. 20–40 cm there appeared a stone setting which covered most of the trench and was especially compact on the flat top of the hill (Fig. 2). Many of the stones, often with traces of fire, evidently originate from the relocated cultural layers of the settlement site. The diameter of bigger stones on the flat top of the plateau was from 30–40 to 50–60 cm. Some of them were strongly fire-cracked and seemed to originate from the stoves of the settlement site. The stones were probably brought on the hill to make the trebuchet platforms more resistant to the vibrations caused by the blowback of the machines. Evidently, they had to compress the cut bushes and branches which must have formed the inner, binding structures of the trebuchet platforms.



Fig. 2. Layer of stones on the Ski-jumping Hill.

Jn 2. Kivistik Viljandi Suusahüppemäel.

Photo / Foto: Heiki Valk

Also, several animal and bird bones were found from the added soil. As identified by Eve Rannamäe (2024), domestic animal species were represented by cattle, sheep, goat, pig, horse and dog, wild animals by rare finds of hare, ferret (or maybe marten), bison, beaver, and *Cervidae* bones. From tiny mammals remains of *Cricetidae* and hedgehog were found. The bones were fragmented, some of them burnt or with cut marks. Bird bones belong to chicken, and in single cases to heath or wood grouse, and to representatives of *Galliformes* and a maybe of *Anseriformes* family. The soil contained also bones and scales of perch, pike and *Cypriniformes* family.

Traces of earlier, Late Iron Age *in situ* cultural layers were most scanty on the hilltop under the soil brought for the trebuchet platforms. Likewise in the trenches of earlier excavations, they had mostly been removed together with original grey soil under them until intact loam already during the pre-crusade life activities – before constructing the houses which perished in fire and the remains of which were discovered in 2002 (Valk 2003, 61–64; fig. 1). However, covered by added fill soil, six smaller charred brands with the length of 5–52 cm (mostly ca. 20 cm) and thickness of 1–4 cm, seemingly mostly remains of boards, were found from the slopes of the plateau. These brands evidently originate from burnt buildings in the central part of the hill. The original grey soil had partly preserved on top of intact mineral loam under the added layers only on the hill slopes, too slanted for human activities.

Excavations also revealed some traces of digging during the besieging activities. On the flat hill plateau a big post hole with the diameter of ca. 95 cm stretched for ca. 70 cm into intact mineral soil (Fig. 3). Judging by a depression in its bottom, a post of 25–30 cm diameter had stood in it. Within the post hole also some decayed remains of a vertical post and some wedge stones were found.² Since the layer of added stones and soil (i.e. cultural layers) was compact above the post hole, the post had been erected just before carrying the soil and stones on the hilltop. This fact also makes it possible to interpret the post as a part of trebuchet (platform?) construction. A big post hole of identical measures, but more wedged with stones, was found from the Castle Hills also when investigating the remains of another trebuchet platform site in 2015 (Valk 2016, 136).

At the sloping southern edge of the hilltop, a ca. 40 cm wide and 40–50 cm deep trench had been cut into the intact mineral loam during the construction activities. The trench ended with a post hole with the diameter of 70–80 cm at its top and ca. 35 cm in its bottom. A 3 m long and 0.9–1 m wide depression, up to ca. 40 cm deep on the hilltop side, was cut into intact loam with a slanting surface also ca. 1 m south-west of the edge of the flat hill top. Probably, these findings indicate some wooden structures which had supported the freshly added soil to prevent it from eroding. At the lower, southern edge of the trench also some bigger stones were found from the moraine gravel. Most likely, they, possibly with some timber structures between them, had the same purpose.



Fig. 3. Post hole from the construction of a trebuchet platform on the Ski-jumping Hill.

Jn 3. Kiviheitemasina alusplatvormi postiauk Viljandi Suusahüppemäel.

Photo / Foto: Heiki Valk

² A radiocarbon date from a mammal bone from grey cultural layer in the bottom of the post hole gave the result 820±30 BP, calibrated date (with 95.4% probability, computer programme OxCal v.4.4 using IntCal20 calibration curve) 1175–1273 AD (Poz-177204).

THE FINDS

The general character of the find assemblage³ greatly resembles that from former excavations. Most of the finds are sherds of pottery. Fragments of wheel-made vessels make about 2/3 and those of hand-made vessels, at least partly from the Viking Age, about 1/3 of the total of ca. 1500 fragments. Hand-made pottery was represented mainly by rather small sherds, including a few items with small holes at the edge of the rim (Fig. 4: 1, 2). The wheel-made vessels originate both from pots and bowls (Fig. 4: 3–18). In 320 cases they were decorated with line, in 21 cases with wave and in two cases with line and wave ornamentation (According to the classification of Pskov pottery, they represent the types 3.1 (Fig. 4: 11, 12) and 3.2 (Fig. 4: 13–18), dating, respectively from the second half of the 12th and first quarter of the 13th century, and from late 12th to the middle or third quarter of the 13th century (see Tvauri 2005, 45–53). Some fragments of wheel-thrown vessels were considerably big which might indicate their origin from the time just before the destruction of the settlement site in 1223.

The finds also include jewellery items, tools and utensils, and dress accessories. From the two rings with open ends one is broken, with a broad flat shield (Fig. 5: 7), the other has a thick and grooved middle part (Fig. 5: 8). A miniature penannular brooch (Fig. 5: 9) has rolled ends, and there is also a burnt fragment of another brooch of that type (Fig. 5: 10). From Late Iron Age jewellery a bracelet-like ring made of three wires (Fig. 6: 3), a flat bracelet fragment (: 1013), a tiny trapezoid pendant (Fig. 5: 6) and a twisted bead of black glass (Fig. 5: 4) were found. From the two bone pendants one was made of a beaver heel bone (Fig. 6: 1), the other of a lower jaw of a mustelid, probably a ferret (Fig. 6: 2). Metal accessories of the costume were represented by a fragment of bronze chain (Fig. 5: 1), two bronze spiral tubes (Fig. 5: 2, 3), and three bronze chain loops. A tiny bone disk (Fig. 5: 5) may have served as a button.

Iron objects are represented by two arrowheads – one meant for fur animals (Fig. 7: 1) and the other with a narrowing tip (Fig. 7: 2), also by an iron ring of flat rectangular section,

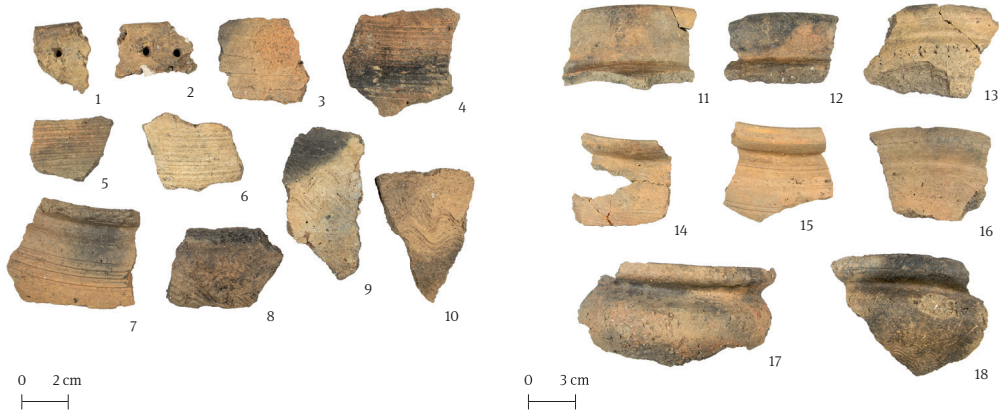


Fig. 4. Pottery from the Ski-jumping Hill in Viljandi. Fragments of hand-made vessels with holes at the rim (1, 2), sherds with line (3–7, 11, 15), wave (8–10, 18) and wave and line ornamentation (10, 14). From pots (11, 12, 14, 15, 17) and bowls (13, 16, 18).

Jn 4. Keraamikat Viljandi Suusahüppemäelt. Servaaukudega käsitsikeraamilised (1, 2), joon- (3–7, 11, 15) ja laineornamendiga (8–10, 18) ning laine- ja joonornamendiga (10, 14) killud. Pottide (11, 12, 14, 15, 17) ja kausside (13, 16, 18) katked.

(VM 11663 A: 1160, 743, 666, 783, 434, 1091, 232, 503, 494, 311, 837, 322, 321, 912, 607, 408, 320, 507.)

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³ VM 11663 A 1–1321.



Fig. 5. Jewellery and dress accessories from the Ski-jumping Hill in Viljandi. 1 – a chain fragment, 2, 3 – spiral tubes, 4 – a glass bead, 5 – a bone disk (button?), 6 – a trapezoid pendant, 7, 8 – rings, 9, 10 – a penannular brooch and brooch fragment.

Jn 5. Ehteid ja rõivamanuseid Viljandi Suusahüppemäelt. 1 – kett, 2, 3 – spiraalitorukesed, 4 – klaashelmes, 5 – luuketake (nööp?), 6 – trapetsripats, 7, 8 – sõrmused, 9, 10 – hoburaudsõlg ja sõlekatke.

(VM 11663 A: 831, 393, 768, 1310, 188, 234, 12+26, 1299, 431, 1089.)

Photo / Foto: Heiki Valk



Fig. 6. Finds from the Ski-jumping Hill in Viljandi. 1, 2 – bone pendants, 3 – a bracelet, 4–7 – spindle whorls and their fragments.

Jn 6. Leide Viljandi Suusahüppemäelt. 1, 2 – luust ripatsid, 3 – käevõru, 4–7 – värt nakedrad ja nende katked.

(VM 11663 A: 1193, 1255, 222, 462, 561, 73, 310.)

Photo / Foto: Heiki Valk



Fig. 7. Iron objects from the Ski-jumping Hill in Viljandi. 1, 2, – arrowheads, 3 – a belt (?) ring, 4 – a crampon, 5 – a sickle, 6 – a fire steel, 7–9 – knives, 10, 11 – horseshoe nails.

Jn 7. Raudesemeid Viljandi Suusahüppemäelt. 1, 2, – nooleotsad, 3 – vöö(?)rõngas, 4 – jäänael, 5 – sirp, 6 – tuleraud, 7–9 – noad, 10, 11 – kabjanaelad.

(VM 11663 A: 1250, 520, 880, 97, 26a, 392, 432, 601, 1128, 289, 446.)

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maybe a belt ring or from a buckle (Fig. 7: 3), a crampon (Fig. 7: 4), a sickle (Fig. 7: 5), a fire steel (Fig. 7: 6), three miniature knives (Fig. 7: 7–9) and seven horseshoe nails (Fig. 7: 10, 11).

From the four spindle whorls three were made of sandstone. One of the sandstone whorls was represented by a fragment (Fig. 6: 4), the second was unfinished (Fig. 6: 5), the third was found in pieces (Fig. 6: 6). The fourth spindle whorl was made of bone (Fig. 6: 7). From utensils also four sandstone whetstones or their fragments (: 142, 599, 660, 1321) were found.

To the find assemblage belong also two pieces of bronze wire (: 691, 1032). Some copper alloy residues and two possible crucible fragments (: 485, 591) indicate coloured metal crafts.

There are also a few tiny flint finds indicating Stone Age human activities – two blades (: 330 and 587) and four flakes (: 35, 884, 1069, 1270). Four of the flint finds represent local Silurian flint and two are imports, of Cretaceous deposits.⁴

The rarest find is a coin from Friesland, type Scholten 23 from 1175 to 1225 (Scholten 1939, no. 23; Pelsdonk 2008, 180–181) – probably a denar of Stavoren (Fig. 8).⁵ Formerly only one coin of that type was known from Estonia – from plots 37 and 41 on Pärnu Road in Tallinn. Since there are no coin hoards from southern Estonia from the second half of the 12th and early 13th century, the Frisian coin might have been lost by some crusader during the besieging in 1223.



Fig. 8. A coin from Friesland (1175–1225).

Jn 8. Friisimaa münt (1175–1225).

(VM 11663 A: 300.)

Photo / Foto: Heiki Valk

A few finds originate from the medieval or post-medieval period, indicating sporadic human activities on the hill in later times. To the Early Modern Period belong a schilling of Riga Free Town (1561–1582), a Swedish silver öre from 1651, and a black round bead from the 17th century (: 1305). Two *dengas* from 1736 and 1747 which were in circulation also later, and two fragments of clay pipes (: 141, 155) probably come from the context of building the Viljandi manor park. Then the remains of the trebuchet platforms were levelled to turn the hilltop into a place with flat surface – from there an excellent view opens on the large valley of Lake Viljandi.

The finds mostly originate from the disturbed cultural layers of Late Iron Age settlement site, removed from their original position and added to the hilltop for making trebuchet platforms. From the few remains of the original early 13th century cultural layers which had remained *in situ* on the hilltop only a ring (Fig. 5: 8) was found.

It also must be noted that no crossbow bolts were found, although there were 41 finds from the adjacent Pähklimägi Hill excavated in 1999–2001, two finds from Musumägi Hill and nine finds from earlier excavations on the Ski-jumping Hill (Valk 2015, 14–18). The lack of these finds in the south-western part of the Ski-jumping Hill seems to show that this area remained out of reach of crossbows used by the defenders of the Estonian hill fort in 1223 (HCL XXVII: 2). Probably, just because of safety the hill plateau was extended towards the south for at least 3 metres when making the trebuchet platforms.

⁴ Identified by Kristiina Johanson (TÜ).

⁵ Identified by Jos Benders (Belgium). Contact mediated and find commented by Ivar Leimus (AM).

CONCLUSIONS

The excavations of 2023 on the Ski-jumping Hill in Viljandi confirm the results of earlier investigations of the site. A considerable amount of soil, partly taken from the adjacent Late Iron Age settlement site, has been added to the hilltop in 1223 to make platforms and space for the crusaders' trebuchets. The excavations yielded new Late Iron Age finds with the upper date of not later than 1223.

The fieldwork of 2023 makes it possible to sum up the excavation results of the Ski-jumping Hill. However, drawing the final conclusions must remain for the future. The debris of a building discovered in the central part of the plateau in 2002, probably the main house on the hill and object of key meaning to interpret the site, can be opened only when the life cycle of the big oak tree growing on them has ended.

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KAEVAMISED VILJANDI SUUSAHÜPPEMÄEL 2023

Heiki Valk ja Raivo Suni

2023. aastal jätkusid kaevamised Viljandi Suusahüppemäel – künkjal, mis kuulub Viljandi muinastuule 1223. aasta augustipiiramise piiramisrajatiste kompleksi (jn 1). Varasemad uurimistööd toimusid seal aastatel 1999, 2001–2002 ja 2005–2007. Nüüd kae-

vati läbi mäe edelanurk – viimane seni uurimata piirkond alal, kus kaevamine oli võimalik. Künka keskel takistab seda suur tamm.

Sarnaselt varasemate kaevamistulemustega koosnes 32 m² suuruse kaevandi pinnas künkale toodud

viikingiaegse ja hilisrauaaegse asulakoha intensiivse kultuurikihi ja nõlvadelt kooritud loodusliku punakaspruuni leiuväse mulla segust. Tasasele mäelaele kuhjatud u 50 cm paksune kultuurkiht sisaldas peamiselt 20–40 cm sügavusel rohkesti 20–60 cm läbimõduga raudkive ja üksikuid suuremaid allikalubja tükke, mis moodustasid üsna tiheda ja mäelael kompakse kivilademe (jn 2). Kivistikus leidis ka suuri, hävinud ahjustest pärit põlenud kive. Kivid olid mäele toodud ilmselt selleks, et tihendada piiramismasinat alusplatvormide pinnast ja kokku suruda seda siduvaid oksid. Nõlvadel, eriti lõuna suunas, pakses uuritav kiht märgatavalt: kaevandi lõunaservas oli täitepinna kiht kuni 1,3–1,4 m paksune. Selles, linnuselt lastavate ammunoolte laskeulatusest nähtavasti väljapoole jäänud piirkonnas on piiramise ajal tasast mäeläge nõlvale pinnase lisamisega laiendatud vähemalt 3 m võrra.

Piiramisrajatistega seostub täitepinna alt leitud suur, u 95 cm läbimõduga ja 70–75 cm võrra looduslikku mineraalpinnasse ulatuv postiauk (jn 3), mille põhjas olnud kitsam süvend viitab ligi 30 cm läbimõduga postile. Postiaugu põhjas olnud hallist kultuurkihist leitud loomaluust tehtud ¹⁴C proov andis tulemuseks 1175–1273 pKr. Arvestades asjaolu, et auku katsid mäelaele toodud täitepinna ja selles olev kivilade (jn 3), on post pärast paigaldamist ulatunud maa sisse vähemalt 1,2 m võrra. Looduslikus mineraalpinnases leidis ka täitepinna toomisele eelnenud kaevetööde jälgi. Võimalik, et kallakule tehtud u 3 m pikkune ja kuni 40 cm sügavune sissekaeve ning postiauguga kraav, mis külgnesid tasase mäelaega nõlva ülaservas, on sisaldanud mingeid puitkonstruktsioone, mille eesmärgiks oli toetada piiramismasinat alusplatvormi serva. Mäele kantud pinnase erosiooni tõkestamiseks oli ka uuritud ala lõunanõlva madalamasse serva toodud suuri raudkive.

Kohapeal ladestunud hilisrauaaja kultuurikihti polnud peaaegu üldse säilinud – see oli sarnaselt vara-

semate kaevanditega eemaldatud enne 2001.–2002. aastal uuritud ja ristisõdades hävinud hoonete ehitamist. Siiski leiti täitekihi alt üksikuid väikseid tükke, mis tõenäoliselt olid sinna langenud nimetatud hoonete põlemisel.

Leiumaterjal koosneb peamiselt hilisrauaaja, vähemal määral viikingiaja asulaleidudest. Enamik neist on savinõukillud (jn 4), millest ligi 2/3 pärineb kedranõudest. Leiti nii joon- kui ka laineornamendiga kilde. Mõnede viikingiaegsete kildude servas oli läbivaid auke (jn 4: 1, 2). Ehetest leiti 2 sõrmust (jn 5: 7, 8), üliväike hoburaudsõlg (jn 5: 9) ja põlenud hoburaudsõle katke (jn 5: 10), väike trapetsripats (jn 5: 6), kopra kannaluust ripats (jn 6: 1), kärplase, oletatavasti tuhku lõualuust ripats (jn 6: 2) ja mustast klaasist vintjas helmes (jn 5: 4). Riietuse külge on kuulunud veel 2 spiraaltorukest ja ketikatke (jn 5: 1–3) ning 3 väikest ketilüli.

Raudesemeid esindavad 2 nooleotsa (jn 7: 1, 2), 3 miniatuurset nuga (jn 7: 7–9), sirp (jn 7: 5), tuleraud (jn 7: 6) ja 7 kabjanaela (jn 7: 10, 11). Töö- ja tarberisistadest leiti veel 3 liivakivist värtnaketra, sh üks toorik (jn 6: 4–6), luust värtnakeder (jn 6: 7) ning 4 luisku ja luisukatket.

Erilise leiuna tuleb ära märkida 1175.–1225. aasta vahelisest ajast pärinevat Friisimaa münti (jn 8). See Eestis haruldane leid võis mäele sattuda 1223. aasta augustipiiramise ajal.

Kaevamistel saadi ka üksikuid 16.–18. sajandi leide. 2 Vene dengat (1736 ja 1747) ja 2 savipiibu varre katket sattusid pinnasesse tõenäoliselt siis, kui piiramismasinat alusplatvormidest jäänud künkad mõisapargi rajamisel tasandati.

2023. aasta kaevamistega lõppes Viljandi Suusahüppemäel uurimistöde 1999. aastal alustatud etapp. Uuringud künkalaal on võimalik lõpule viia ja mäeplatoo keskel oleva hoone jäänused avada pärast nende peal kasvava suure tamme elua lõppu.