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VÄLITÖÖD  
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FIELDWORK  
IN ESTONIA**

**2003**

Koostanud ja toimetanud  
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*Back cover: Glass in lead frame (fragment of a stained glass window?) from Pirita.*

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# ARCHAEOLOGICAL INVESTIGATION AT THE BESIEGING CONSTRUCTIONS ON VILJANDI MUSUMÄGI

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In 2003, archaeological excavations were continued in Viljandi Castle Hills' area, between the ruins of the Order Castle and the valley of Valuoja Stream. Previous excavations in the same area have revealed remains of a household from the early 13<sup>th</sup> century, probably of a fortified manor, and traces of trebuchet foundations, related to the siege of Viljandi hill-fort in 1223 (Valk 2000, 2001, 2003; Vaba & Valk 2002). Excavations took place on a hill called *Musumägi* (Kissing Hill; see: Valk 2000, Fig. 1: B) where previously only some trial pits had been made. These preliminary results suggested that this hill, too, had been piled up to form a platform for the German besieging machines.

*Musumägi*, the highest of the 3 adjacent hills, has an absolute height of 83.97 m above sea level. Its relative height towards the east is ca. 8 m, towards the west - ca. 10 m, towards the south ca. 18 m and towards the north ca. 13 m. The top of

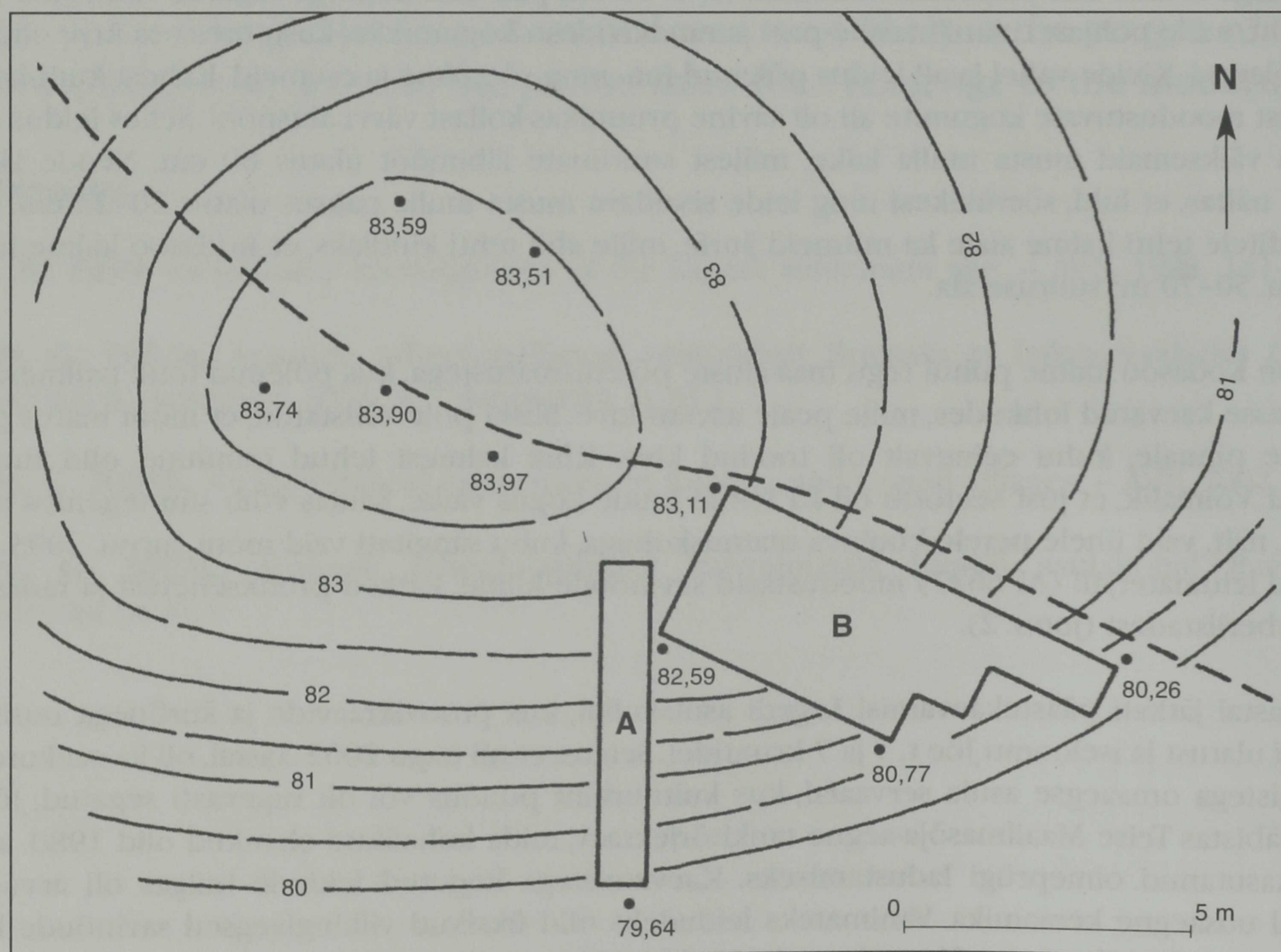


Fig. 1. Excavation plots on Viljandi Musumägi. A - southern plot, B - eastern plot.  
Joon. 1. Kaevandid Viljandi Musumäel. A - lõunakaevand, B - idakaevand.



the hill is oval-shaped, measuring ca. 8 x 6 m. Musumägi lies on the same ridge with *Pähklimägi* (Nut Hill) where trebuchet foundations were studied in 1999–2001. Initially these were probably a single hill, but were separated from each other only in the course of the earthwork.

The two excavation plots (Fig. 1: A, B) were located on the southern and eastern slope of *Musumägi*. The thin profile between them with the thickness of up to 40 cm made it possible to observe stratigraphic connections between both excavation areas. As in former years, the soil was sieved using a 3–4 mm mesh.

## THE SOUTHERN PLOT

The plot on the southern slope (Fig. 1: A) was a trench measuring 1 x 6 m.<sup>1</sup> By the end of the fieldwork its northern end had reached the depth of ca. 3.5 m but, in spite of that, the bottom had not been reached yet. The location of the trench was determined by a trial pit which hinted at an intensive intact Viking Age cultural layer. The trench on a very steep, almost 40° slope, served as a “pilot” plot, providing stratigraphic information (Fig. 2: 1–15) for the second, larger excavation area. The erosion layer (1) and the mixed layer of gravel and Devonian sand (2) were followed by a greyish-black-yellow fill layer (4) – a mixture of clayish natural soil and an intensive cultural layer, originating from an Iron Age settlement. The disturbed cultural layer contained predominantly hand-made pottery. The following layer consisted in both plots of clean Devonian sand (5) with no finds, which was at first even regarded as intact natural soil, but the red sand was followed again by disturbed layers of Iron Age settlement (6–9). The finds resembled those from layer 4, including mostly hand-made, but also wheel pottery. From a patch of an intensively black layer (9) which had led to the choice for the trench location, but which still turned out to have been deposited on the hilltop, fragments of a small Viking Age bowl were found (Fig. 8).

From the edge of the former hill plateau, a low 1.3–1.4 m thick and ca. 0.5 m high wall-like structure made of head-sized granite stones was found. The “wall” which crossed the trench and was covered by a dark disturbed cultural layer (11) seems to have served as an enclosure for the hill plateau. Immediately on its outer side, on the intact yellow natural soil was a horizontal 65 cm wide cobblestone pavement (Fig. 3). From within the stone “wall”, sherds of wheel pottery of the 12<sup>th</sup> and early 13<sup>th</sup> centuries were found. Behind the enclosure, covered by a new layer of Devonian sand (13) up to 50 cm in thickness, there was a very intensive black cul-

<sup>1</sup>VM 10921: 1–666.



tural layer containing much charcoal and firebrand (14). Evidently this layer had not been disturbed but was preserved at the site of its formation. Traces of fire at the bottom of the Devonian sand indicate that the sand had been deposited on still glowing timber. The stone wall and the firebrand were left intact – in order to open the constructions next year in a broader area.

## THE EASTERN PLOT

The second excavation plot (19 m<sup>2</sup>; Fig. 1: B) was located on the eastern slope of the hill.<sup>2</sup> The top layer was formed of brownish eroded soil 10–50 cm thick. Below it there was a layer of reddish soil, also of a very uneven thickness (locally up to 80 cm). The finds and the consistency of these layers were rather similar; also, a definite interface between these layers was mostly missing. Within the brownish layer there was a NE–SW oriented zone of smaller stones, both burnt and unburnt. The zone had probably formed as a result of stones rolling down along the slope.

After the digging of the brownish and reddish soil, the excavation area formed two different parts. In the western, i.e. the upper part below the depth of 50 cm, a rather flat surface (“the plateau”) could be observed with a steep slope. The edge of the plateau was almost parallel to the above-mentioned zone of the rolled down stones.

The plateau consisted of different fill layers which could clearly be distinguished from each other – the disturbed Devonian sand (2), the black fill layer (4a), the yellow clay (4b), the greyish-black-yellow fill layer (4c) and the red Devonian sand (5). Upon digging further, the area of the plateau was seen to expand gradually towards the southeast. On the plateau there were traces of decayed timber which formed a rectangular structure (Fig. 4). Considering the disturbed character of the soil and the supposition that it had once been heaped up upon the hilltop, it seems most likely that the timber traces with a width of ca. 3–4 cm originate from some box-like structure which had once prevented the soil from falling down along the slopes. The timber could be observed within different layers and, to some extent, also in the profiles. The longer edge of the rectangular structure was parallel to the edge of the plateau and the shorter edge was exactly perpendicular to it (i.e. NW–SE directional). The two lines of decayed timber, in fact, did not meet – they both terminated ca. 20 cm before meeting at a corner. The finds from the fill layers were similar, indicating a disturbed character of the soil.

<sup>2</sup> VM 10952: 1–1077.



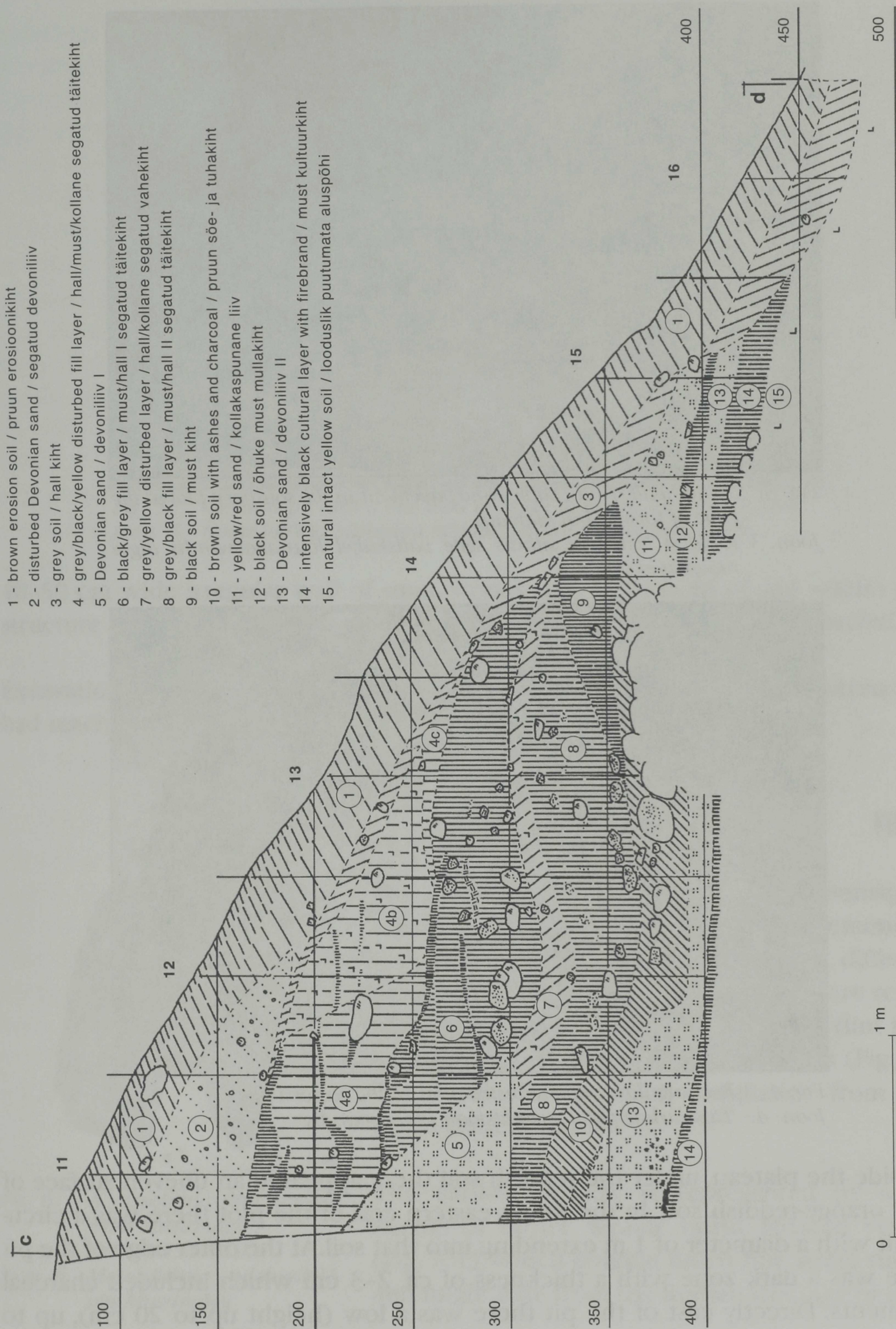


Fig. 2. The eastern profile of the southern plot.

Joon. 2. Lõunakaevandi idaseina profiil.





Fig. 3. Stone "wall" and cobblestone pavement in the southern plot at the edge of former hill plateau.

Joon. 3. Kividest "vall" ja sillutis selle välisküljel lõunakaevandis algse mäeplatoo serval.



Fig. 4. Rectangular timber construction in the eastern plot.

Joon. 4. Täisnurkne palkkonstruktsioon idakaevandis.

Outside the plateau, under the reddish soil there appeared an uneven surface of hard orange-reddish soil. In the lower, eastern end of the plot there was a circular pit with a diameter of 1 m extending into that soil. At the outer edge of the pit there was a dark zone with a thickness of ca. 2–3 cm which included charcoal fragments. Directly east of the pit there was a low (height up to 20 cm), up to





Fig. 5. Circular pit and a low wall of small stones in the eastern plot.  
Joon. 5. Ümar lohk ja väikestest kividest madal vall idakaevandis.

40–50 cm wide irregular wall of small stones (Fig. 5). In front of and within that structure wall was a similar dark layer, which included fragments of charcoal.

Excavation of the eastern plot was stopped when the depth in its western end had reached ca. 1.60 m from the ground level.

## FINDS

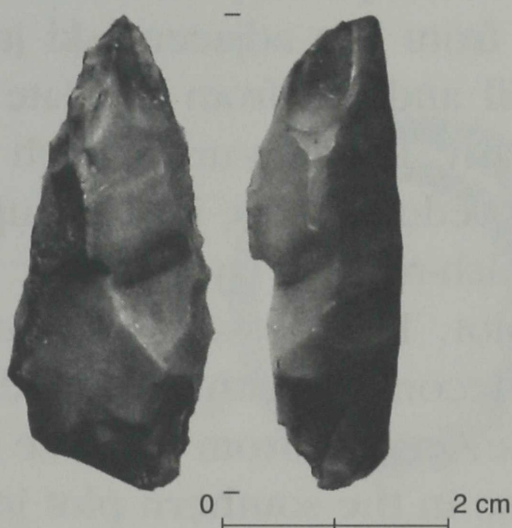


Fig. 6. A Mesolithic flint scraper  
from Musumägi  
(VM 10952: 519.)

Joon. 6. Mesoliitiline tulekivikõõ-  
vits Musumäelt.

The cultural layer heaped up on Musumägi is rich in finds and indicates human settlement on the hill and in close surroundings at different periods. The earliest settlement phases are represented by scattered finds of Mesolithic flint fragments and 4 scrapers with sharp edges (Fig. 6).<sup>3</sup> The local flint probably originates from the Kolga-Jaani drumlins.

The earliest pottery is represented by some sherds of rather weakly burnt striated vessels (Fig. 7: 1), which contain much fine stone rubble and might date from the Roman Iron Age or from

<sup>3</sup> Identification by Aivar Kriiska (University of Tartu).



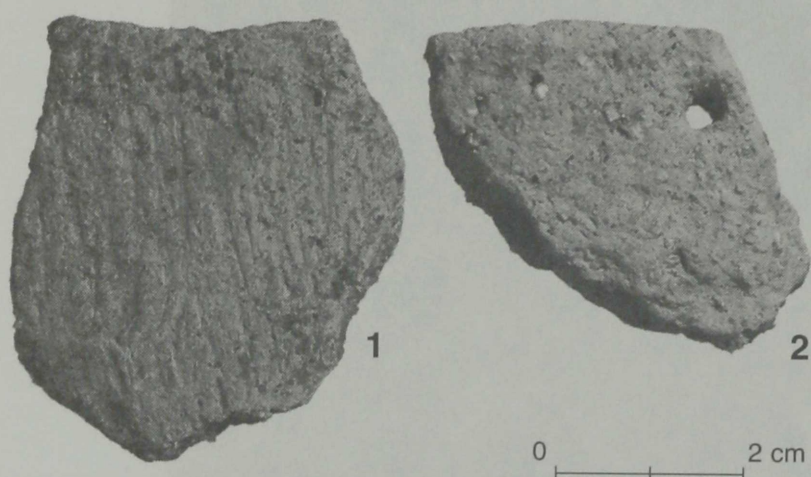


Fig. 7. Pottery from the first half of the Iron Age from Viljandi Musumägi. 1 - sherd with striated surface; 2 - sherd with hole (VM 10921: 78; VM 10952: 922.)

Joon. 7. Rauaaja vanema poole keraamikat Musumäelt. 1 - riibitud pinnaga kild, 2 - auguga kild.

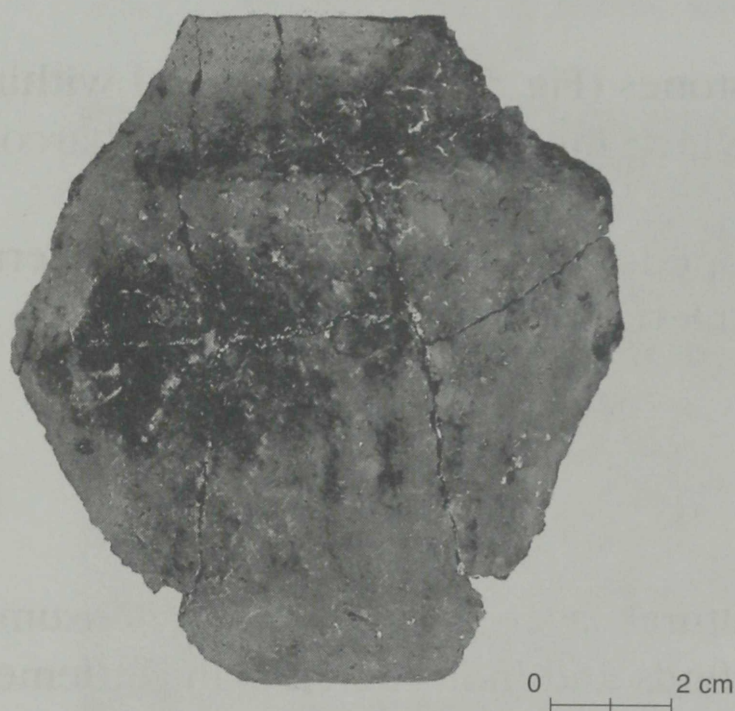


Fig. 8. Finds from Viljandi Musumägi. Fragment of Viking age bowl.

Joon. 8. Leide Viljandi Musumäelt. Viikingiaegse kausikese katke.

the Migration Period.<sup>4</sup> To the same group might belong also a non-striated sherd of similar consistency but having a hole in the upper edge (Fig. 7: 2).

Most of the hand-made pottery is hard to date as most fragments are small. Noteworthy is a rim sherd of a so-called Rõuge type vessel, having small holes in the upper part (VM 10921: 78). Other sherds of vessels with small holes at the rim were also found, but, due to their poor preservation, their belonging to the Rõuge type remains uncertain. The Viking Age is represented also by the above-mentioned bowl fragment (Fig. 8), by some fragments of rimmed vessels (VM 10921: 115) and by some fragments of fine pottery, including those with a smooth surface (VM 10921: 121, 161, 243 etc).

Many of the pottery finds resemble those from the adjacent ski jumping hill and are from the late 12<sup>th</sup> and early 13<sup>th</sup> centuries. Such pottery predominates in the upper brownish-reddish layers of the eastern plot. The vessels have often been decorated with wave and line

ornamentation. There were no finds from the Middle Ages, i.e. from the time after the German conquest. Wheel pottery was found also in the southern plot in the dark brown layer above the stone wall and in the layer of charred logs (Fig. 2: 11).

The metal finds are not numerous and belong mainly to the very end of the Iron Age. Their dating and stratigraphic relation correlate well with the contempora-

<sup>4</sup> Identification by Valter Lang (University of Tartu).



neous pottery finds. Most of the metal finds were obtained from the top layer of the brown eroded soil or from the reddish soil below it. The only exception was a fragment of a spiral ring (Fig. 9: 5) which was found from the plateau, from the surface of the greyish-black-yellow fill layer. The other ornaments involve a slightly ornamented bell, a B-shaped bronze pendant and a trapezoidal pendant (Fig. 9: 1, 2, 6). There are parallels to the B-shaped pendant from the hill-forts of Naanu, Lõhavere (both northern Viljandimaa) and Varbola, which also belong to the end of the Iron Age, but there are similar finds also from Northern Latvia (Vilka 1996, Fig. 23). Among other metal items different bronze spirals (Fig. 9: 3, 4) and chain fragments were most numerous. The finds also include 3 tooth pendants, including a bear fang (Fig. 10: 1, 2), and 3 bones with a drilled hole (Fig. 10: 3).

The only artifact relating to military activities is a crossbow bolt from the eastern plot (Fig. 9: 7). The find which belongs typologically between groups CII and CIII (Mäesalu 1991, 174) might date, considering the present state of research, from the 1240s, but (also) an earlier origin cannot be excluded.<sup>5</sup>

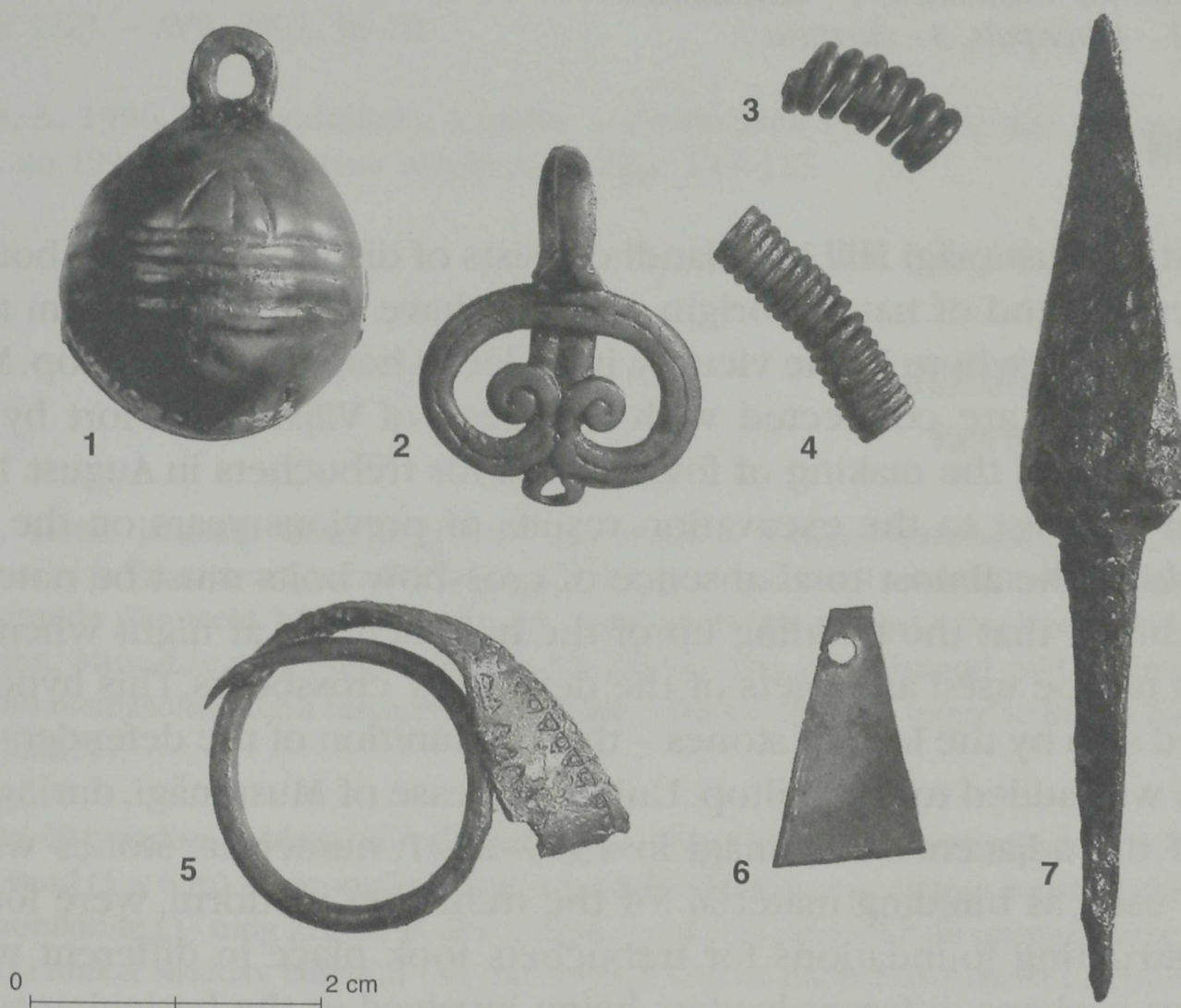


Fig. 9. Artifacts from the eastern plot of Viljandi Musumägi. 1 - bell, 2 - pendant, 3, 4 - bronze spirals, 5 - fragment of spiral ring, 6 - pendant, 7 - crossbow bolt (VM 10952: 373, 69, 319, 536, 786, 502, 317.)

Joon. 9. Leiud Viljandi Musumäe idakaevandist. 1 - kuljus, 2 kringlikujuline ripats, 3, 4 - pronks-spiraalid, 5 - spiraalsõrmuse katke, 6 - trapetsikujuline ripats, 7 - ammuõõlets.



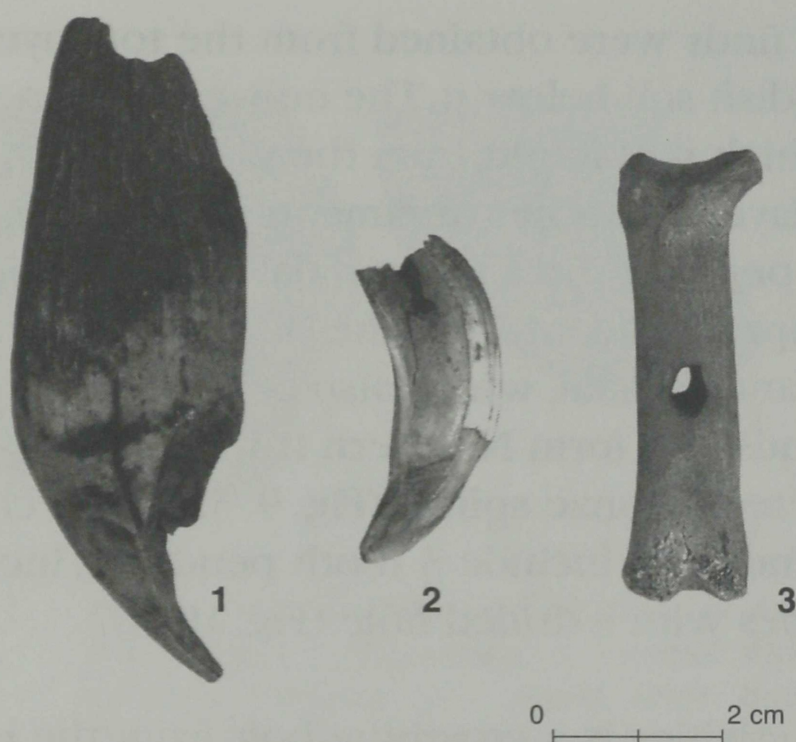


Fig. 10. Finds from Viljandi Musumägi. 1 - bear fang pendant, 2 - fang pendant, 3 - bone with drilled hole (VM 10921: 462; VM 10952: 655, 120.)

Joon. 10. Leide Viljandi Musumäelt. 1 - karukihvast ripats, 2 - kihvripats, 3 - vurriluu.

The analysis of animal bones from the settlement cultural layer<sup>6</sup> gave the following results: sheep and goat - 27.4%, elk - 22.1%, pig 21.6%, cattle - 12.0%, beaver - 5.8%, hen - 3.2%, horse - 2.1%, hare - 1.6%, rat - 1.1%, big wild bird - 0.9%, weasel - 0.9%, unknown predator - 0.5%, bison - 0.5%, hawk or falcon - 0.2%. Especially noteworthy is the big share of elk and beaver bones which have not been identified in so large quantities in previous years.

## INTERPRETATION

The upper part of Musumägi Hill in Viljandi consists of disturbed layers - both of Iron Age settlement and of natural origin -, which have been moved from their original location somewhere in the vicinity, in order to heighten the hilltop. Most likely, these activities are connected with the siege of Viljandi hill-fort by the German crusaders and the making of foundations for trebuchets in August 1223 (Valk 2001). In contrast to the excavation results of previous years on the two neighbouring hills, the almost total absence of crossbow bolts must be noted. It cannot be excluded that the building up of the hill occurred at night when the workers could not be used as targets of the defenders' crossbows. This hypothesis is supported also by the lack of stones - the ammunition of the defenders - in the soil which was added to the hilltop. Unlike the case of Musumägi, during the excavations of the adjacent Pähklmägi in 1999-2001, numerous stones which had also been used as building material for the trebuchet platform, were found. Evidently, constructing foundations for trebuchets took place in different ways, which indicates perhaps different leaders being involved in the besieging activities.

<sup>5</sup> Identification by Ain Mäesalu (University of Tartu).

<sup>6</sup> Identification by Eha Järv (Estonian Agricultural University).



The top of Musumägi at least for 3.0 m consists of layers which have been removed from their original location. It seems that only the dark layer with the charred logs at the bottom of the southern plot has been formed *in situ*. The nature of the burning layer, as well as of the wall-like stone structure will hopefully become clearer in the course of subsequent season of fieldwork for which the southern plot was protected by using timber constructions (Fig. 4).

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## UURIMISTÖÖD VILJANDI MUSUMÄEL

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2003. aastal jätkusid arheoloogilised kaevamised Viljandi Lossimägedes, linnusevaremetega Kaevumäe ja Valuoja oru vahelisel alal, kus eelnevatel aastatel uuriti 1223. a. piiramismasinat alusplatvormide jäänuseid, hilisrauaaegse ülikumõisa aset ja noorema rauaaja asulakoha teisaldatud kultuurikihti. Musumäe-nimelisele künkale, kus varasemad prooviaugud olid andnud tunnistust kultuurikihi olemasolust, tehti teineteise lähedusse kaks kaevandit – esimene künka lõuna-, teine idanõlvale (joon. 1).

Umbes 40-kraadise kaldega nõlvale rajatud ja ülaosas ligi 3,5 m sügavuseks kaevatud väike lõunakaevand (1 x 6 m) oli proovikaevand, mis andis ülevaate mäe ülaosa stratigraafiast (joon. 2: 1–15). Erosioonikihi (1) ning kruusa ja devoniliiva segule (2) järgnes halli-musta-kollase segune, valdavalt käsikeraamikat sisaldav täitekiht (4), mis kujutas endast rauaaja asulakoha intensiivse kultuurikihi ja loodusliku saviliiva segu. Järgnesid leidudeta devoniliiv (5) ja selle all segatud asulakihi ladestused (6–9), kus leidis rohkesti käsikeraamikat.

Algse mäeplatoo servalt kulges risti kraavikujulise kaevandiga tumeda kultuurikihi sees (11) 1,3–1,4 m paksune ja u. 0,5 m kõrgune kividest vallitaoline moodustis, mille seest leiti hilisrauaaja



lõpu kedrakeraamikat. Tõenäoline, et vall on küngast ka mujal piiranud. Rajatise välisküljel, vahetult kunagise mäeplatoo serval oli u. 60 cm laiune, kollasele looduslikule saviliivale laotud munakivisilutis (joon. 3). Kivipiirdest mäe südamiku pool tuli kuni 50 cm paksuse puhta devoniliiva ladestuse (13) all nähtavale intensiivselt must, rohkelt sütt ja tukke sisaldav kultuurikiht (14). Põlemisjäljed devoniliiva alaosas näitavad, et pinnas on toodud hõõguvatele tukkidele.

Idakaevandi (19 m<sup>2</sup>) ülaosa koosnes pruunist erosioonimullast ja selle all paiknevast ebaühtlase paksusega punase mulla kihist. Kaevandi alumisest otsast joonistus pärast nende kihtide mahakaevamist kõva oranžikaspruuni mulla foonil välja ümar, u. 1 m läbimõõduga auk, mille välisserva ümbritses õhuke tume kõduviirg (joon. 5).

Kaevandi ülaotsas tuli 50 cm sügavusel pärast pruuni ja punase mulla ärakaevamist nähtavale tasase pealispinnaga ning künkanõlvade pool järsunõlvaline platoo, mis koosnes horisontaalsetest ladestustest. Segatud devoniliivale (2) järgnesid must täitekiht (4a), kollane saviliiv (4b), hallikaskollane saviliiva ja teisaldate asulakihi segu (4c) ning punane devoniliiv (5). Platoo sees tuli kõduviirgude-na nähtavale täisnurkne tarandilaadne puukonstruksioon, mille pikem külg oli paralleelne mäeservaga (joon. 4). "Kasti" sise- ja välisküljel oli pinnas mõneti erineva koostisega. Ilmselt on puitkarkass mäele ehitatud selleks, et ära hoida kokkutassitava pinnase allavarisemist. Idakaevandi mäepoolses servas jõuti kaevamisega algsest maapinnast 1,6 m sügavusele.

Musumäele kuhjatud pinnasest saadud varaseimad leiud – kõõvitsad ja tulekivi töötlemisjäägid – pärinevad mesoliitikumist (joon. 6). Tegemist on kohaliku tulekiviga, tõenäoliselt Kolga-Jaani voorestikust. Vanimad, riibitud pinnaga (joon. 7: 1) ja suhteliselt jämeda purruga savinõukillud on I aastatuhande algupoolest või keskpaigast (samalaadne on ka auguga kild, joon. 7: 2), kuid enamuse käsikeraamikast on raskesti dateeritav. Samas leidub ka rõuge tüüpi keraamikast, mille ülaserwas on augukesed, kiilapinnalisi ja nivendiga kilde (sh. veerandik viikingiaegsest kausikesest, joon. 8). Suurem osa keraamikast pärineb 12. sajandi lõpust ja 13. sajandi algusest ning sarnaneb 2002. aastal Suusahüppemäelt leitud. Vähesed metall-ehed – eraldi mainigem piluga kuljust, kringlikujulist ripatsit, laieneva keskkeermega spiraalsõrmuse katket ja väikest trapetsripatsit (joon. 9: 1, 2, 5, 6) – on hilisrauaaja lõpust. Leiti ka pronksspiraale (joon. 9: 3, 4) ja pronkskettide lülisid, 3 kihvripatsit, sh. üks karukihvast ripats (joon. 10: 1), ning 3 puuritud auguga vurriluud (joon. 10: 3). Erinevalt eelmiste aastate leidudest naaberküngastel saadi Musumäelt vaid üks 13. sajandi algupoole ammunooleots (joon. 9: 7). Teisaldate kultuurikihist leitud loomaluude liigiline koostis oli järgmine: lammas ja kits – 27,4%, põder – 22,1%, siga 21,6%, veis – 12,0%, kobras – 5,8%, kana – 3,2%, hobune – 2,1%, jännes – 1,6%, rott – 1,1%, suurem lind – 0,9%, nirk – 0,9%, kiskja – 0,5%, piison – 0,5%, kull – 0,2%.

Musumäe ülaosa koosneb enam kui 3 m paksuselt mäelae kõrgendamiseks toodud pinnasest, mis sisaldab nii teisaldate asulakihti kui ka suhteliselt kompaktseid segatud loodusliku aluspinnase ladestusi – punast devoniliiva ja kollast looduslikku saviliiva. Tõenäoliselt tassiti mulda küngastele Viljandi linnuse 1223. aasta piiramise ajal kiviheitemasinate alusplatvormide ehitamiseks. Seni uuritud kihtidest on kohapeal ladestunud tõenäoliselt vaid nõgine tukkidega kiht algset mäelage ümbritsenud madala kivivalli siseküljel. Sarnaselt "valliga" võiks see kiht jätkuda ka idakaevandis. Kaevand konserveeriti talveks puitsõrestiku abil. Uurimistööd Musumäel jätkuvad 2004. aasta suvel.