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## The Lihulinn Stronghold in North-Western Saaremaa

### *Abstract*

The largest of the eleven strongholds of Saaremaa was investigated in 1992. Five cores were taken from two dwelling plateaux and from the eastern rampart with the help of a large mechanical drill. Judging from the cores there had been at least two fires in the fort. Three stages could be traced in the defensive constructions. In order to investigate the cultural layer and its phosphate content several trial pits were dug on both plateaux. No artefacts were found but the differences in the phosphate concentration probably indicate the location of dwellings.

### INTRODUCTION

There are at least eleven Iron Age forts on the islands of Saaremaa and Muhu (Fig. 1). At the present stage of investigation they can be divided into three chronological groups. The first one includes three forts with a low (c. 1 m) circular or rectangular wall built of earth and stones. All of them have a very thin cultural layer and they remind one of similar forts of pre-Roman and Roman Iron Age on Gotland. Trial excavations have been carried out by V. Lõugas only at Päälda fort on the island of Muhu. Analogical forts are also characteristic of the western part of mainland Estonia. There is no agreement among scholars about the age of these monuments, and they have been dated either to the Early Roman Iron Age (Lõugas and Selirand, 1989) or to the Middle Iron Age (A.D. 400-800) (Jaanits *et al.*, 1982).

The second group includes two forts of the Middle and Late Iron Age. Both have been partly excavated. One of them is situated at Asva, at the same place as a well-known Late Bronze Age fortified settlement. (There are also some traces of human settlement at Asva which probably belongs to the Late Pre-Roman Iron Age. It is uncertain, though, whether they indicate

have so far been partly excavated. As the case of the Põide stronghold proves, it is quite likely that some of these six forts may also have an earlier cultural layer. It is obvious that the data on the forts of Saaremaa are generally rather poor. Not much can be said about their socio-political function and even the chronology of most of them remains unclear. Consequently, there is an urgent need for further investigations. The interdisciplinary research project in northwestern Saaremaa includes an investigation into the largest stronghold on the island, called 'Lihulinn' by the local people (Photo 1).

#### THE LIHULINN STRONGHOLD

The enclosure of the Lihulinn stronghold is about 18 000 m<sup>2</sup>, which is at least 4-5 times greater than that of any other fort on Saaremaa or Muhu. The rampart is up to 10 m in height. Both the size of the stronghold and its somewhat peculiar location bring up several interesting problems concerning its function. Unlike most of the other large strongholds it was located about 7-8 km away from the densely populated agricultural areas of the Late Iron Age (9th-13th centuries). On the other hand, the Lihulinn stronghold was situated close to the iron production region of North-West Saaremaa and not far from the Tagalaht inlet, a natural harbour. No artefacts are known from Lihulinn, but there are two radiocarbon dates available: 1) Tln – 896 : 905 ± 30 BP (calibrated date A.D. 1030-1230); 2) Tln – 902 : 960 ± 35 BP (calibrated date A.D. 920-1205). Unfortunately, these samples were taken from trenches dug in the rampart of the stronghold during « military-patriotic » exercises in Soviet time and their scientific value is rather problematic.

Geoarchaeological investigations were started at Lihulinn in 1992. In order to obtain information on the character of the cultural layer, a total of five cores were taken from two putative dwelling plateaux and from the eastern rampart (Figs. 2 and 3), using a large mechanical drill of a type normally employed in geological investigations. This method was being used for the first time in Estonian archaeology.

#### *Cores I and I'*

The cores were taken in the middle of the northern dwelling plateau. The uppermost 40 cm consisted of sand mixed with rubble and pieces of charcoal, most probably representing the cultural layer of the plateau followed by an alluvial layer of about 20 cm. Down to a depth of 5.7 m there was clean, light yellow sand in which traces of tree roots could be seen. This dune sand overlies a sandy loam till containing a large quantity of marl and limestone pebbles.

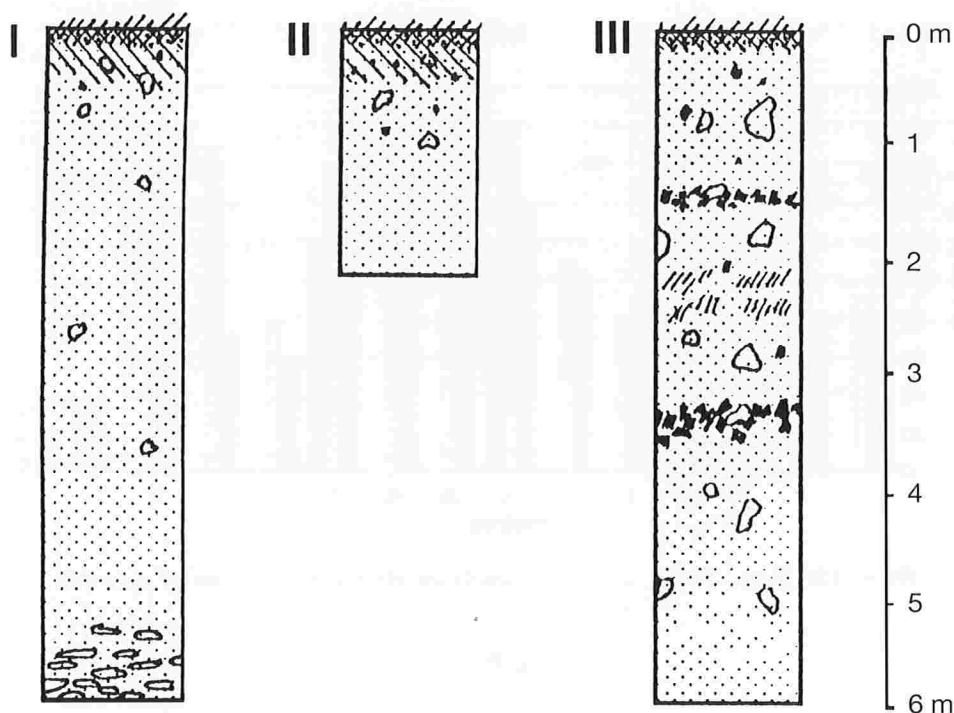


Fig. 3. Core profiles I-III from Lihulinn.

some stones. A charcoal layer of 5-8 cm was discovered at a depth of 160 cm below which the sand had acquired a red colour as a result of a fire. Beneath the charcoal layer was mixed sand with some larger stones. The sand at 175-200 cm was similar to that of the cultural layer, but that found further down contained some darker stripes. At a depth of 330 cm there was an intensive fire layer of 10-12 cm containing charcoal and pieces of charred wood. Below this were 2-5 cm of red burnt sand and then a layer of mixed sand. The original ground was traced at a depth of 530 cm, where the sand became abruptly lighter and a podzolized horizon 2-3 cm thick could be seen. Two more assumed podzol layers lay at 10 and 15 cm below this, followed by clean dune sand. Judging from these cores the rampart of the stronghold must have been built in three stages. The first sand bank was heaped up to a height of 2.00 m, the second one to 3.70 m and the third one to 5.30 m. Sand was taken from the western side of a dune oriented N-S and, as a result, an even plateau was formed. The stones discovered in the rampart must have been taken there from quite a long distance away.

In order to examine the cultural layer of the northern and eastern plateaux several trial pits were dug along two separate lines, each of 60 m length (L I, L II), setting out from the same point (Fig. 2). The cultural

Despite the rather large number of trial pits no artefacts were found. Samples for phosphate analysis were also taken from each trial pit at depths of 10, 30 and 50 cm. The classical Arrhenius method was used for the analyses, with 2 % citric acid as the solvent. The results are presented on two figures (Figs. 4 and 5). The differences in phosphate concentration probably indicate the location of dwellings.

The phosphate analysis of the samples which were taken from the northern plateau (L I) indicates that the phosphate concentration (and consequently the intensity of the cultural layer) is highest between 15 and 60 m (Fig. 4). On the eastern plateau the concentration is highest between 25 and 50 m (Fig. 5). Future excavations should be made at these two locations. The concentration anomaly in the middle of the sample line where values are more than twice the median figure (over 500 mg  $P_2O_5$  per kg of soil) most likely indicates some decomposed organic material (Fig. 5). As a rule the content of phosphate is higher in the deeper layers. This can either be explained by the earlier exploitation having been more intensive or by the fact that the upper layers are mixed with blown sand.

#### DISCUSSION

The preliminary results of the geoarchaeological investigations at the Lihulinn stronghold provide a basis for further archaeological excavations. The use of a coring method to obtain information about the construction of the ramparts of Estonian forts proved to be rather promising. Compared with the archaeological excavations of walls, which are often very laborious and, in the case of very high walls, both complicated and dangerous, coring is, without doubt, much faster and cheaper. Even if more cores were taken it would still damage the monument less than excavations do.

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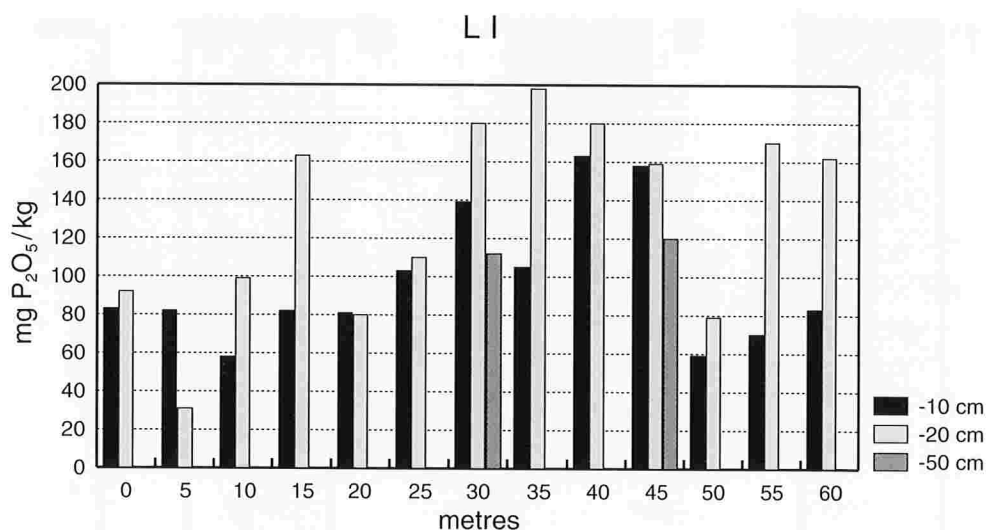


Fig. 4. Phosphate content along the transect on the northern plateau of Lihulinn.

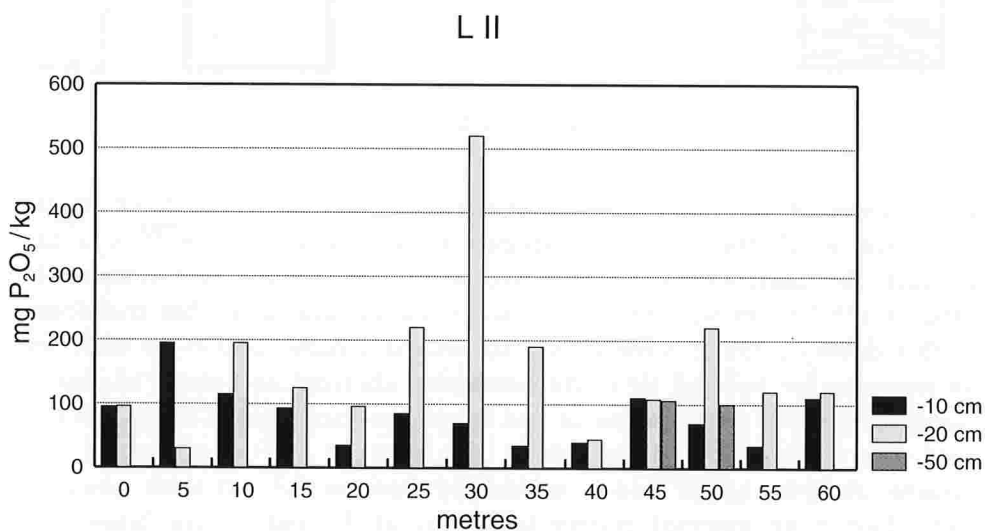


Fig. 5. Phosphate content along the transect on the eastern plateau of Lihulinn.

layer was thin on the edges of the plateaux but reached thickness of 30-60 cm in the middle parts. On the northern plateau (L I) the cultural layer was most intensive between 25-50 m from the starting point where it contained charcoal, charred stones and rubble. A few pieces of charred bone were discovered as well. The cultural layer of the eastern plateau was more intensive and was up to 70 cm thick. At least two fire layers could be traced there.

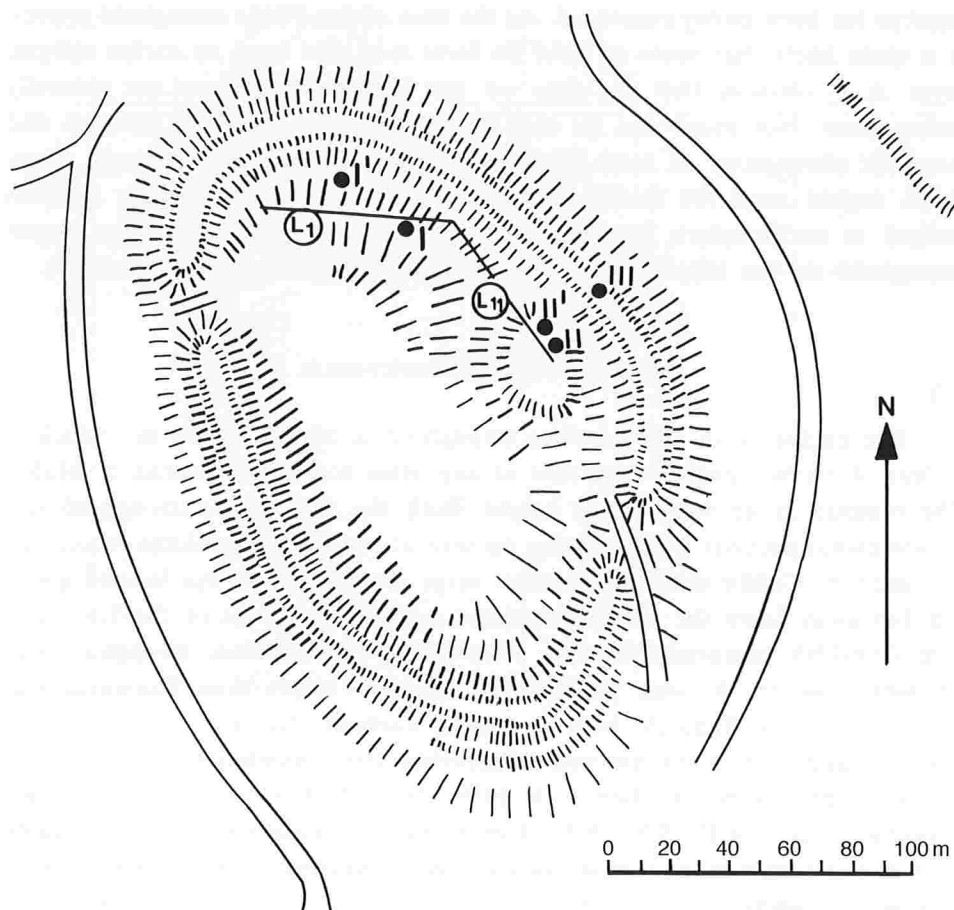


Fig. 2. Plan of Lihulinn stronghold (after SMM, 1924) indicating the location of cores (I-III) and the lines of trial pits (L I and L II).

#### *Cores II, II'*

The cores were taken in the middle of the eastern plateau. The uppermost 50-60 cm indicated a cultural layer containing burnt stones and charcoal. Layers representing at least two fires could be traced. The cultural layer overlies an alluvial one of about 20-30 cm. Down to the depth of 140 cm the sand was mixed and contained some charcoal, while even deeper there was clean dune sand. The plateau must have formed as a result of the construction of the rampart.

#### *Core III*

The core was taken on the top of the eastern rampart which was piled up on top of a dune. The rampart consists of mixed sand and also contains



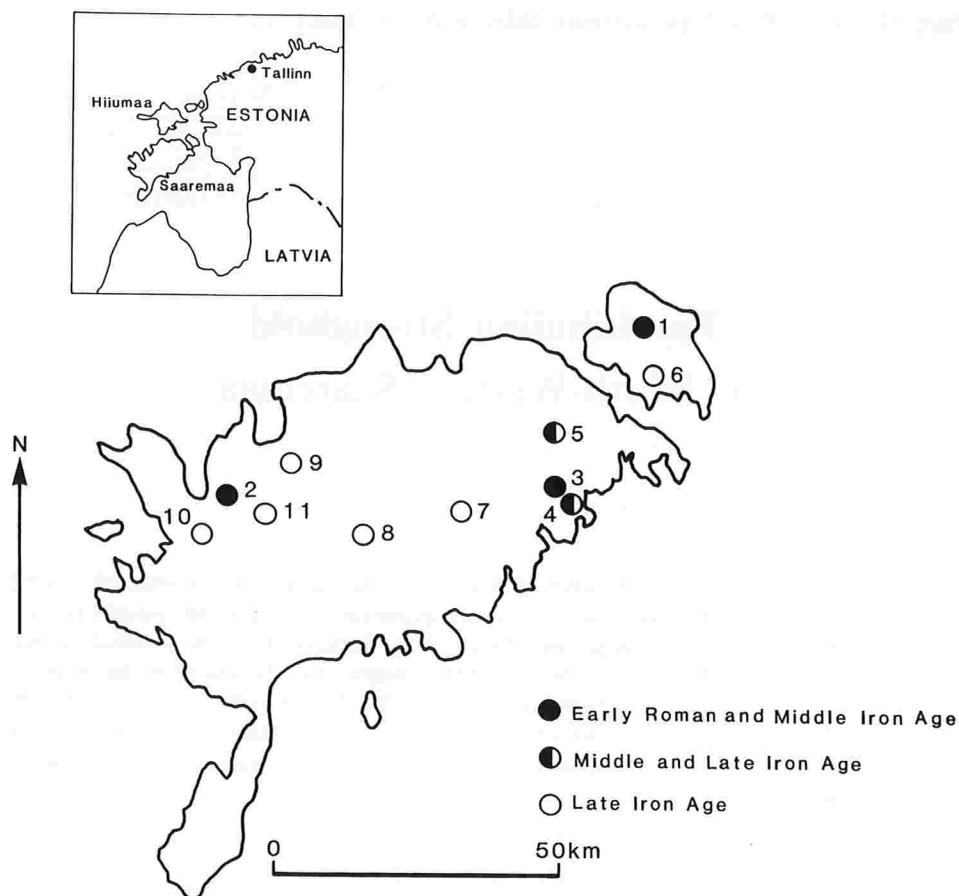


Fig. 1. Iron Age forts on Saaremaa and Muhu. 1. Päälda, 2. Pidula, 3. Mustla, 4. Asya, 5. Põide, 6. Muhu, 7. Valjala, 8. Kaarma, 9. Paatsa, 10. Kihelkonna, 11. Lihulinn.

a fortified settlement). The fortifications of this fortified settlement, of the 6th-9th centuries, were somewhat weak (Lõugas, 1967). The other fort in this group was discovered by V. Lõugas only lately, at Põide. The cultural layer from the 8th-9th centuries indicates that the fort which was earlier thought to have functioned only in the 12th-13th centuries, in fact has earlier roots, too. The early fort at Põide certainly had permanent habitation, but the character of its fortifications is not yet clear (V. Lõugas, pers. comm.).

The third chronological group includes six forts from the 11th-13th centuries which had strong circular ramparts built of earth and/or stones topped with wooden fortifications. The ramparts vary in height between 3 and 11 m (Kustin, 1959, 1967). Leaving aside some small-scale amateur excavations in the 19th century, only two of these forts, Valjala and Paatsa,



*Photo 1. Enclosure of the Lihulinn stronghold.*