Archaeological research on Aakre Kivivare *tarand*-grave

Anu Kivirüüt and Maarja Olli

Tartu Ülikool, ajaloo ja arheoloogia instituut, arheoloogia osakond (University of Tartu, Institute of History and Archaeology, Department of Archaeology), Jakobi 2, 51014 Tartu, Estonia; anu.kiviruut@ut.ee

INTRODUCTION

Aakre Kivivare *tarand*-grave is a typical Roman Iron Age (50 – 450 AD in Estonia) burial place with large above ground stone constructions consisting of conjoined rectangular stone structures called *tarand*s. In 2014 and 2015, one of the *tarand*s (*ca*. 30 square metres) of Aakre Kivivare was fully excavated.[1]

Aakre Kivivare *tarand*-grave is located in the south-western part of Otepää uplands, in Rõngu parish, Palamuste village near the Kivivare farm (Fig. 1). The grave was partially excavated at the end of the 19th century by a student Johann Sitzka (1897). His finds and the grave area plan suggest that the grave had been preserved rather well and it is a good example of typical *tarand*-graves (Fig. 2).

The burial place is not solitary on the landscape. About 150 m south-east from the grave stands a hill fort that was excavated in 2011 by Heiki Valk and Maarja Olli. The hill fort had evidence of two usage periods – the Pre-Roman Iron Age and the Pre-Viking and Viking Age (Valk *et al.* 2012). On the lower plateau of the hill, south to the hill fort, is a Viking Age settlement site which was thoroughly excavated in 1972 and 1973 (Aun 1992, 25). In 2015, another settlement site, about

Fig. 1. *Aakre complex. 1 – Aakre Kivivare* tarand-*grave, 2 – Aakre Kivivare hill fort, 3 – Aakre Kivivare settlement site, 4 – Aakre Soopera settlement site, 5 – Kivivare farm.*

Jn 1. *Aakre muististe kompleks. 1 – Aakre Kivivare tarandkalme, 2 – Aakre Kivivare linnamägi, 3 – Aakre Kivivare asulakoht, 4 – Aakre Soopera asulakoht, 5 – Kivivare talu.*

Map: Estonian Land Board / Kaart: Maa-amet

Fig. 2. *The grave plan by J. Sitzka (1895). The excavated* tarand *B is indicated in red.*

Jn 2. *Kalme ala plaan J. Sitzka (1895) järgi. Kaevatud tarand B on märgitud punasega.*

[1] Finds: TÜ 2410.

300 metres north-west from the grave by the River Purtsi, was found (Olli 2015). It is not sure which period the new site dates to as the found pottery sherds were uncharacteristic and similar to the ones both from the hill fort and the grave.

Based on prior knowledge, the excavations of 2014 and 2015 had two main goals. The main objective was to date the grave – most of the bones and artefacts in *tarand*-graves are commingled and dating is problematic as closed complexes of finds are rare and no precise typologies based on artefacts can be produced (Lang 2007, 188ff). The hill fort's first usage phase dates, according to the radiocarbon date, to the Pre-Roman Iron Age (4th – 1st centuries BC), the common usage period of early *tarand*-graves (Valk *et al*. 2012; Lang 2007, 189). We wanted to know whether the grave was used at the same time as the other sites nearby and get a better understanding of the chronology of the complex.

The second goal was to study the position of the bones and artefacts. It is important to know whether there were any regularities in placing the bones and artefacts to the grave and whether any clear burial complexes or clustering could be distinguished. This would advance further interpretations of how people and items were connected.

EXCAVATION METHODOLOGY

The methodology was worked out based on the research goals and considering the building logic of the grave – a burial area was chosen to represent an entity that was also distinguished during the Iron Age. *Tarand* B was chosen as this was the section with the least visible disturbances, of reasonable size and good accessibility. The stones were removed one by one – each stone layer was recorded as a separate context and any cuts and backfills were recorded separately.

The excavated *tarand* area was divided into twelve rectangles sized approximately one square metre. All positions of the finds were recorded with a GPS coordinate or if the item or bone was found on the sieve, only the square and layer were identified. Each layer and context was documented and recorded with a set of photos which were later merged together for 3D models. Items and bones were marked post excavation on orthophotos exported from the 3D models. Finds that were recorded with the precision of the square and layer were counted for each square and the same number of randomly dispersed dots was created on the surface of each square, the dots were then randomly connected with the list of findings. This ensured that the material found from the sieves is recorded on the distribution plans.

By the end of the excavations, the inner filling of the grave was removed and most of the wall stones were either removed or rolled away from their initial location.

CONSTRUCTION OF THE GRAVE

Aakre Kivivare grave had six or seven NW–SE oriented *tarand*s (Fig. 2). The grave itself is oriented NE–SW, it is about 30 metres long and 15 metres wide. It was clear that *tarand* B was constructed after *tarand* C and before *tarand* A – the later built *tarand*s used the existing walls as one of their borders. As the northeastern part of the grave has been excavated and partly destroyed by Johann Sitzka's excavations, the building order of the *tarand*s is not evident and it is not certain which usage period of the grave is represented by the excavated *tarand* B. The difficulties in dating the grave are discussed below.

The grave boulders were covered with a minimal amount of turf indicating that the stones were either not meant to be covered with soil or the builders did not manage to finish the task

of covering or sealing the *tarand*s. The grave was mostly filled with fieldstones and the area of the excavated *tarand* B was surrounded by large fieldstone boulders that had been set in line to form a rectangular shape. The inner filling of the *tarand* area consisted of a layer of smaller, watermelon-sized stones covered with a thick layer of smaller fist-sized stones. The smaller stones were not placed in the grave as uniform layers as the thickness of the layer varied in the studied area. The space between the stones was filled with soil and only a few smaller changes in the colour and composition of the ground were indicative of a few refilled pits. It seems that the soil has mostly ended up between the stones due to natural processes rather than due to intentional backfill.

Only one feature stood out – an oval area filled with dark sooty soil, small stones and animal bones. The feature was older than the grave as it extended towards *tarand* C below the wall. At first, it was hoped that the feature represents an older stage of the grave or a cremation place, but the lack of human bones and abundance of animal bones suggests that it was a hearth which was probably not used for very long due to the small quantity of charcoal inside the pit.

BONES

The dead buried in Aakre Kivivare *tarand*-grave were either cremated or inhumed, but all of the bones were severely fragmented and no anatomically correctly placed skeletons or clusters were identified. Different characteristics of the human individuals were assessed according to the standards by Brickley and McKinley (2004) and the ATR FT-IR[2] analysis results were interpreted according to Ellingham and colleagues (2015).

None of the bones were cremated at very high temperatures based both on their visual appearance and the ATR FT-IR analysis (Ellingham *et al*. 2015; Fig. 3). The ATR FT-IR results suggest that the bones were cremated at the temperature of 700–800° C. Analysis of FT-IR ATR spectra showed peaks to the left of 1200 cm^{-1} that is characteristic to bones cremated at a temperature less than 800° C, but there were split peaks at 1086 cm^{-1} and 628 cm^{-1} which is indicative of bones burning at the temperature of at least 700° C.

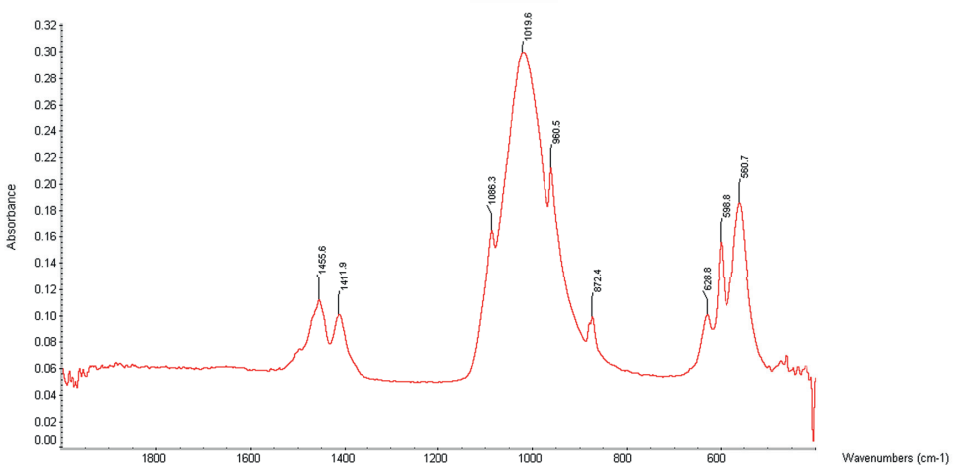

Fig. 3. *The results of ATR FT-IR analysis of a white and calcined cranial vault fragment from Aakre Kivivare bone context no. 747.*

Jn 3. *Aakre Kivivare luukontekstist 747 pärineva valge ja kaltsineerunud koljuvõlvifragmendi ATR FT-IR analüüsi tulemus.*

[2] Attenuated total reflectance Fourier transform infrared spectroscopy.

Material collected in 2014 and 2015 has been repackaged, indexed and analysed. The find material consisted of both human and animal bones. Among the animals, there were bones from horse, hare, cow, pig and small rodents[3], but as the animal bones have not been analysed in the laboratory, the list of faunal remains and taxa is not complete. In general, the amount of animal bones was smaller than the number of human bones and most of faunal remains were not cremated.

The bones were analysed and recorded one by one, human bones were analysed thoroughly, whereas animal bones were merely identified as animal bones and are yet waiting for a complete analysis. Altogether there were 2434 bone fragments weighing slightly more than 2 kilograms (Table 1). The weight of the bones is approximate as the scales available during the analysis were unable to determine weight less than two grams. Nevertheless, the quantity of both inhumed and cremated bones is rather small and suggests that not many individuals or not all of the bones were buried in the *tarand* as dry weight of a skeleton constitutes up to 20% of a person's entire body mass and an average adult individual weighs 2–2.5 kg after the cremation process (Gejvall 1981, 16; Bass & Jantz 2004; White & Folkens 2005, 33).

The minimum number of individuals (MNI) was assessed by the number of recurrent bone fragments combined with age assessment and the MNI relied on the data from petrous portions of the temporal bone and teeth. Altogether, there were nine adult individuals according to the count of right petrous portions and one juvenile individual based on an immature right petrous portion (Table 2). Additionally, recurrent teeth indicated the presence of at least three children aged 1–5 years and several tiny bones belonged to a foetus aged 16–24 weeks, based on the size of the bone elements *(ibid.)*. This means that there were at least fourteen individuals buried in *tarand* B of Aakre Kivivare grave which is more than the overall bone weight indicated.

Despite the small bone weight, all body parts were present, even small bones, e.g. distal phalanges. In correlation with the fragmentation and the commingled state of the bones, the majority of the bones were determined as unidentified long bone fragments and fragments rarely fitted together. Also, the material contained cancellous bone fragments indicating the former higher presence of well decomposing porous bones, e.g. patellae and sterna. Therefore, there are no reasons yet to believe that only some body parts were chosen to be buried into the *tarand*, even though it seems that not all bones of all the individuals were present in this part of the grave site.

Men and women among the adult individuals were not distinguished as the bone material was extremely fragmented and based on several pieces with manly traits, it can be suggested that one of the nine adults was possibly male.

The bone material proposes that the grave has been used as a resting place for all age groups; all members of the community were

Table 1. *Human, animal and unidentified bone quantities in* tarand *B at Aakre Kivivare*.
Tabel 1. *Inim- ja loomaluude ning määramata luude hulk Aakre Kivivare tarandis B.*
Composed by / Koostanud: Anu Kivirüüt

	Human bone / Inimluud	Unidentifiable / Määramatu	Animal bone / Loomaluud
Number of contexts / Kontekstide hulk	1301	593	540
Approximate weight / Ligikaudne kogumass	1000 g	300 g	800 g

Table 2. *Age composition of individuals buried in* tarand *B.*
Tabel 2. *Tarandisse B maetud indiviidide vanuserühmad.*
Composed by / Koostanud: Anu Kivirüüt

Prenatal / Sünnieelsed	Children / Lapsed	Juvenile / Noorukid	Adult / Täiskasvanud
1 individual; aged 16–24 weeks gestation	3 individuals; aged 1–5 years	1 individual; subadult	9 individuals; 20 + years, exact age unknown

[3] Oral information of Màiri MacLean (MA from the University of Sheffield) and Eve Rannamäe (TÜ).

possibly buried there. Nevertheless, as the data was too fragmented to indicate the sex of all but one of the deceased, there remains a possibility that only male individuals were buried into *tarand* B. As all of the body parts were present, no definable pathologies were noticed and no patterns emerged from the placement of bones or body parts, it appears that there were no specific areas for placing different types of remains. Nevertheless, it must not be forgotten that *tarand*-graves are religious sites as well as burial sites and the possible actions on the grave site have not been defined yet (see Lang 2007, 202, 241; and Kivirüüt 2014).

ITEMS

In total, over 2600 items were found from the excavated *tarand*. The largest group of finds is pottery (over 2400 sherds), followed by personal ornaments (about 70 items) and in addition, some metal and stone finds were also found.

Many different types of pottery were found from the excavated *tarand*, the types were identified with the help of Anti Lillak. There were fine-grained, coarse-grained, textile-impressed, striated, nail-incisions, burnished and carinated ware fragments. The majority of the found ceramic types can be dated to the Roman Iron Age (Laul 2001, 166ff), but some forms as burnished and carinated pottery and ceramics with nail-incisions was also used during the Viking Age (Tvauri 2012, 69ff). Some darker colour pottery sherds[4] can also originate from the Viking Age and are not necessarily connected with the active use of the grave as a burying place.

The sherds were not very big but in two cases, they were large enough to create a profile drawing of the vessel (Fig. 4). One of the fragments belonged to a fine ware vessel, quite typical to *tarand*-graves (Laul 2001, 175–177) and it is likely that many other of the found sherds belonged to similar vessels. The other was a small plate-like vessel which is a rarer find from the *tarand*-graves (Laul 2001, 180). Five sherds of such types of vessels[5] were found from the excavated *tarand*.

Four fibulae were found from the excavated *tarand* (Fig. 5). One of the two oldest

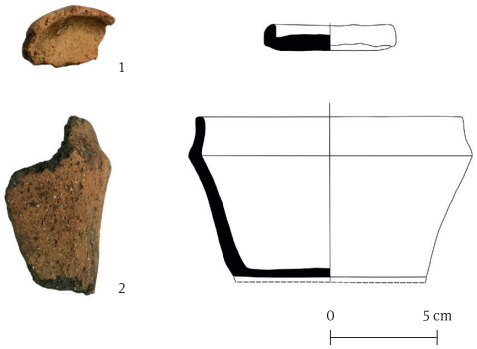

Fig. 4. *Pottery with reconstructions from Aakre Kivivare* tarand *B. 1 – fine ware and 2 – coarse ware vessels.*
Jn 4. *Keraamikat Aakre Kivivare tarand B-st. 1 – peen- ja 2 – jämekeraamilise nõu katke ja rekonstruktsioon. (TÜ 2410: 415a, 336.)*
Photos / Fotod: Maarja Olli, Anu Kivirüüt; drawing / joonis: Anti Lillak

Fig. 5. *Fibulae from Aakre Kivivare* tarand *B. 1 – Cross-ribbed fibula, 2 – early cross-ribbed fibula, 3 – head-shield fibula, 4 – disc fibula.*
Jn 5. *Sõled Aakre Kivivare tarand B-st. 1 – kärbissõlg, 2 – pahksõlg, 3 – peakilpsõlg, 4 – ketassõlg. (TÜ 2140: 568, 237, 283, 416.)*
Photo / Foto: Maarja Olli

[4] For example TÜ 2410: 368, 445, 453, 606, 729–732.
[5] TÜ 2410: 312, 336, 467, 501, 651.

dateable finds from the *tarand* B is an early type cross-ribbed fibula which can be dated to the turn of the 2nd and 3rd centuries (Laul 2001, 103). Such type of fibulae were widely used in Lithuania but from the *tarand*-graves in south-east Estonia, 15 have been found (*ibid*., 103). A burned fragment of a South-Estonian type of cross-ribbed fibula was also found. These types of fibulae are dated to the 4th century and are mostly distributed in the northern part of south-east Estonia (*ibid*., 106). From south-east Estonia, 38 fibulae of that type of have been found (*ibid*., 98–103). A unique find is a small head-shield fibula with a triangle shield. Similar fibulae, but with a round shield are dated to the 2nd century (Laul 2001, 97), but the triangle head could indicate that the fibula is a bit younger and could also originate from the 3rd century which makes it the second oldest dateable find. An enamelled disc fibula is the most spectacular find from the grave. It has an enamelled rhombus shaped centre part and openwork ornamentation on the edge. Rhombus was a quite popular motif on ornaments in Estonia as well as in the lands of east and south-east shores of the Baltic Sea (Olli 2013, 72; Vaska 2013, 102–104). Enamelled disc fibula can be dated to the 4th and 5th centuries (Laul 2001, 114).

10 finger-rings were found from *tarand* B of which 9 were spiral finger-rings and one was a closed finger-ring. The latter has signs of being in fire and has traces of use. Silvia Laul (2001, 145) has dated the main use of them to the 3rd and 4th centuries, but they have been used before and after. According to Laul, closed finger-rings can also be dated to the 3rd and 4th centuries in south-east Estonia and they are rather rare finds in that area (Laul 2001, 143).

Three bracelets were found, the diameter of two of them was very small (29 and 31 mm); they could have been ornaments of small children or they were not used as bracelets at all. Fragments of necklaces were also found. Some of them were big enough to understand their construction. Bronze spirals, different size of bronze beads were linked on an iron wire. The beads were dated to the 3rd – 4th century and of bronze spirals to the 3rd – 6th century (Vassar 1943, 160; Laul 2001, 135).

Altogether, eight iron items were found – a few fragments of chains, a hook and a spike, the majority remained unfortunately unidentifiable. Some flint and quartz sherds were also found, three of which showed signs of purposeful treatment.[6] A tin button and a chalcedony bead dating from the Post-Medieval Period were probably stray finds.

FINDINGS OF JOHANN SITZKA

The finds from the 19th century excavations are stored in the depot of the University of Tartu.[7] In comparison to the finds that were discovered during the excavations in the 19th century, there are some differences with the recent digs. For example, Sitzka found many knives but there was not a single knife in the present *tarand* B. Also, he found eight bracelets but there were only three in *tarand* B. One of the connections between the two *tarand*s was the fibulae. A unique, well-crafted quadrangular fibula with openwork ornamentation was found during Sitzka's excavations and an enamelled disc-fibula found from *tarand* B have identical openwork. This could refer to the same craftsman.

In the case of more spectacular fibulae and the advanced technology of enamelling, Anna Bitner-Wróblewska (2011, 20) has suggested that there were travelling enamellers who crafted more complicated ornaments and because of that, the fibulae were a bit different in style and

[6] Identified by Kristiina Johanson (TÜ).
[7] AI 2011.

make in every region. Simpler works were made in local workshops (*ibid*.). The two fibulae from Aakre Kivivare *tarand*-grave could have also been made by a travelling craftsman who worked mainly in the area of the *tarand*-graves (Estonia, North-Latvia), as suggested by the similar stylistic features like enamelled rhombuses (*ibid*., 16, fig. 3).

As for bones, Sitzka did not analyse or preserve them. For some reason he has labelled and stored a few adult teeth and uncremated bone fragments. How many bones there were, and what state they were in, remains unknown. It is possible that the bones are still in the grave – most of them were not collected and were reburied with the backfill.

DATING OF THE GRAVE

As one of the main goals was to determine the chronology of the Kivivare sites, conventional ^{14}C dating of charcoal and an AMS dating from bones found from the excavated *tarand* were subscribed. In addition, typologies of fibulae and other artefacts were used to date the usage period of the grave site.

The earliest artefacts from the grave were probably the flint and quartz sherds with use-wear marks. This may suggest the presence of a Stone Age site in the vicinity, but as these mineral sherds were found from the top layers of the grave together with Iron Age finds, assumptions about a possible Stone Age settlement seem arbitrary.

The conventional ^{14}C dating from charcoal found from the bottom layers of the grave gave the end of the Bronze Age or the Pre-Roman Iron Age (725–199 BC; Table 3) as the result. The AMS dating made from bovine tibia, found under one of the large boulders inside the grave, gave also the result of Pre-Roman Iron Age (351–60 BC) (Table 3). As those dates were from charcoal and bone found from the bottom of the grave, several interpretations are possible.

Table 3. *Radiocarbon dates from Aakre Kivivare* tarand*-grave. The analyses 1 and 2 were made in the radiocarbon laboratory of Tallinn University of Technology; samples 3 and 4 were analysed in ^{14}CHRONO laboratory in Queen's University Belfast.*

Tabel 3. *Aakre Kivivare tarandkalme radiosüsiniku dateeringud. Analüüsid proovidest 1 ja 2 on tehtud Tallinna Tehnikaülikooli radiosüsiniku laboris; 3 ja 4 Belfasti Ülikooli ^{14}CHRONO laboris.*

Composed by / Koostanud: Anu Kivirüüt, Maarja Olli

No. / Nr	BP and isotope values / Radiosüsinikuaastad ja isotoopväärtused	Sample no. / Proovi nr	Calibration ranges[7] / Kalibreerimisvahemikud (Reimer *et al.* 2013)	Context / Kontekst
1	2306±60 BP	Tln 3593	BC 541–199 (94.8%) BC 725–721 (0.2%) BC 703–696 (0.4%)	Charcoal, squares F and L, on top of the natural layer / Süsi, ruut F ja L, loodusliku pinnase pealt
2	155±55 BP	Tln 3594	1661–1894 AD (78.8%) 1904–1952 AD (16.6%)	Charcoal, square G, between stone layers II and III / Süsi, ruut G, kivikihtide II ja III vahelt
3	2140±26 BP $\delta^{13}C$ -21,9 $\delta^{15}N$ 6,0 C:N 3.27	UBA-27959	BC 351–299 (18.2%) BC 227–223 (0.48%) BC 211–90 (79.55%) BC 73–60 (1.72%)	Bovine tibia, on top of the natural layer, under a big stone / Veise sääreluu, loodusliku pinnase pealt, suure kivi alt
4	2051±27 BP $\delta^{13}C$ -21,3 $\delta^{15}N$ 11,3 C:N 3,30	UBA-27961	BC 164–128 (11.6%) BC 122–8 AD (87.5%) 11–16 AD (0.9%)	Fragment of adult human lumbar vertebra, between stone layers III and IV / Inimese nimmelüli katke, kivikihtide III ja IV vahelt

[8] Calibration here does not include the possibility of a (partly) marine diet of the dated individual as there is no comparative data from the area.

1. The stone grave was built there already in the Pre-Roman Iron Age.
2. Before the *tarand*-grave, there was a different type of grave on the site.
3. Before the grave, the place was used either as a settlement or a camp site of which a hearth remained under the grave.

Taking into account the possible hearth that had been deepened into the ground (in order to date the possible hearth, charcoal found from the pit must be AMS-dated), the lack of human bones and metal finds from the bottom part of the cultural layer under the stone layers, and the above-mentioned radiocarbon datings, the most plausible interpretation is that before the stone grave, sometime during the Pre-Roman Iron Age, there could have been a dwelling. However, other interpretations cannot be ruled out.

The most intensive period of use of the grave was the Roman Iron Age. Aakre Kivivare is a typical grave of the period and is constructed similarly to others in the region (Lang 2007, 198ff). One human bone was dated with the AMS method, but due to atypical nitrogen and carbon isotope values, it was possible to date the bone only broadly and to the Early Iron Age (Table 3). Unfortunately, the dating of the ornaments based on typologies is not very precise in Estonia, therefore no exact time frame for the use of the grave in Roman Iron Age can be determined. Based on the dating of the fibulae, the grave was broadly used from the 2nd to the 5th centuries AD.

After the Roman Iron Age, burying to the grave could have continued for a few centuries as it is known from other *tarand*-graves, e.g. Nurmsi (Vassar 1943; Tvauri 2012, 254ff), but to a smaller extent because we have no finds definitively dated to the period. In case of some pottery sherds, Viking Age dating is possible but the grave had probably a new function by then – it was no longer used as a burial site. The place must have remained in the memory of local people long after the end of its usage as a grave as there are medieval and post-medieval finds from the grave (chalcedony bead and tin button) as well as a ^{14}C date from charcoal found from the grave (1661–1952 cal. AD, Table 3).

WHICH IS OLDER – THE GRAVE SITE OR THE HILL FORT?

The first usage phase of the hill fort dates from the 4th to the 1st century BC (Valk *et al*. 2012, 43, table 1) which coincides with the earliest dating from the grave (8th to the 1st cc BC; table 3). It is possible that the two sites were simultaneous and the people using the hill fort were also using the grave area.

At some point in time, the hill fort was burned and abandoned (Valk *et al*. 2012, 41). It is not certain when the monumental *tarand*-grave was built, but the grave was used between the 2nd and the 5th century, the period when the hill fort was most probably abandoned. It is either not confirmed whether the Aakre Soopera settlement site was used during the same period as the *tarand*-grave, but it is likely that people who used the grave lived somewhere nearby and the site by the river seems a good spot for a settlement site relating to the grave.

Burying to the grave probably stopped with the end of the Roman Iron Age. A few centuries later, in the Pre-Viking Age, the hill fort was constructed and the settlement site south-west from it founded.

INDIVIDUALS AND ITEMS

Bone clusters or any other closed complexes were not found from the excavated *tarand*. However, certain types of finds seemed to concentrate in certain parts of the grave but without specific analysis (e.g. cluster analysis), it cannot be stated whether the disposition of the finds was the result of purposeful or indiscriminate actions.

The bones were scattered over the entire grave area. Expectedly, human bones were found from between the stones, but not from under the stones. Animal bones were found also from below the large boulders indicating either animal offerings or the presence of a pre-grave site relating to human occupation.

There were no bone clusters indicating undisturbed pit burials or any groupings of similar bones. It seems that the bones were scattered over the whole grave area, concentrating mainly on the central part of the *tarand* (Fig. 6).

The plan of the finds (Fig. 6) indicates that metal finds were concentrated more at the centre of the *tarand* and pottery at the sides. This may suggest that the centre of the *tarand* was the burying area and the sides were places for offerings/grave goods that may have been brought to the grave inside ceramic vessels. Another possibility is that offerings or grave goods were deliberately differentiated while placing them to the grave: metal items (mostly ornaments) were placed to the centre and pots to the sides. In the case of personal ornaments which were also concentrated mainly at the centre of the *tarand*, it is possible that they were personal belongings of the deceased as similarly to bones some bore traces of being in fire and others did not. However, it cannot be ruled out that some of these items were later put to the grave by the mourners.

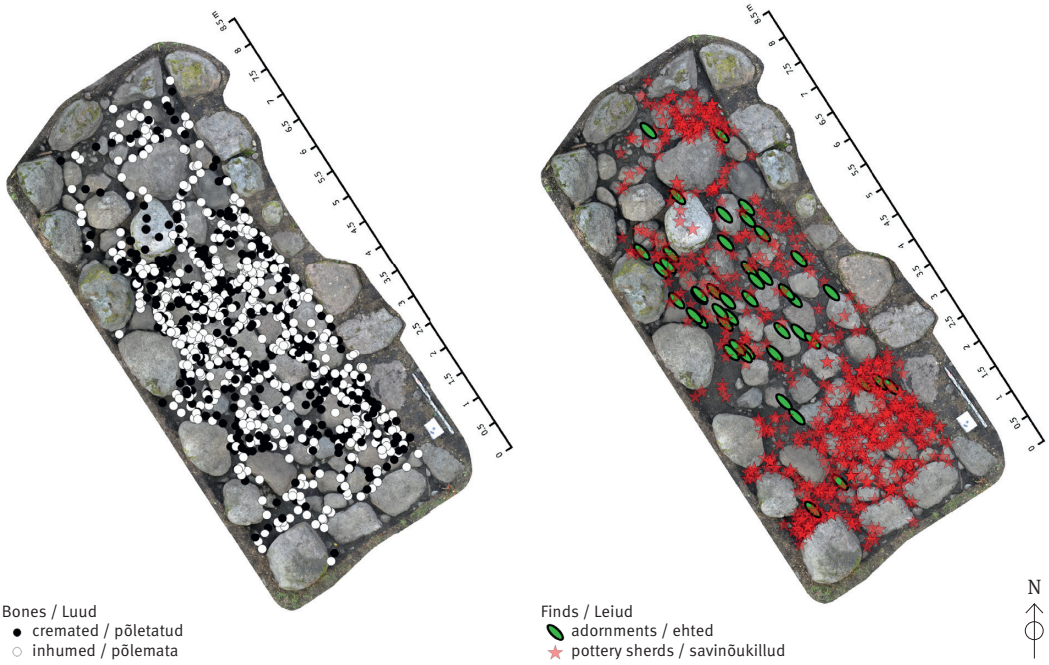

Fig. 6. *Plan of the finds and bones placed on the ortophoto of the layer with large inner filling.*
Jn 6. *Kalme leidude ja luude plaan sisetäite suuremate kivide kihi ortofotol.*
Figure / Joonis: Anu Kivirüüt

CONCLUSIONS

Aakre Kivivare *tarand*-grave has not yet been fully excavated or understood. It is certain that the grave was mainly used during the Early Iron Age and most of the items date from the Roman Iron Age. It seems plausible that the *tarand*-grave was part of a larger complex consisting of a hill fort and a settlement site.

The excavated *tarand* concealed the remains of at least 14 individuals of different age groups. The area was probably used by all community members. The found items were rather typical for a grave of this era.

Items and bones may have been placed into the grave in specific patterns – pottery sherds in the edges and other items and bones in the central area. It is still essential to analyse more *tarand*s and obtain additional information to confirm and understand the pattern.

The most recent results have provided us a thorough and well-documented set of data that can be used as comparison for other similar objects. In addition to that, the excavation shed more light on the local history of Aakre Kivivare area.

ACKNOWLEDGEMENTS

This research was supported by Estonian Science Foundation grant No. 8510, by the European Union through the European Regional Development Fund (Centre of Excellence CECT). The authors appreciate the contribution of Anti Lillak for working with the ceramics and the help of Teesside University with ATR FT-IR analysis. The excavations and analysis would not have taken place without the cross-border project 'Archaeology, authority & community: cooperation to protect archaeological heritage'.

REFERENCES

Aun, M. 1992 = Аун, М. 1992. Археологические памятники второй половины 1-го тысячелетия н.э. в Юго-Восточной Эстонии. Таллинн.

Bass, W. M. & Jantz, R. 2004. Cremation weights in East Tennessee. – Journal of Forensic Sciences, 49, 901–904.

Bitner-Wróblewska, A. 2011. East European enamelled ornaments and the character of contacts between the Baltic Sea and the Black Sea. – Inter Ambo Maria: Contacts Between Scandinavia and the Crimea in the Roman Period. Ed. by I. Khrapunov & F.-A. Stylegar. *Kulturhistoriske rapporter, 10*. Kristiansand; Simferopol, 11–24.

Brickley, M. & McKinley, J. I. 2004. Guidelines to the Standards for Recording Human Remains. *IFA paper no. 7.* Southampton; Reading.

Ellingham, S. T. D., Thompson, T. J. U., Islam, M. & Taylor, G. 2015. Estimating temperature exposure of burnt bone – A methodological review. – Science and Justice, 55, 181–188.

Gejvall, N. G. 1981. Determination of Burned Bones from Prehistoric Graves: Observations on the Cremated Bones from the Graves at Horn. *OSSA letters, 2*. Stockholm.

Kivirüüt, A. 2014. A comparative osteological and intra-site spatial analysis of *tarand*-graves. MA-thesis. Tartu. (*Manuscript in TÜAK.*)

Lang, V. 2007. The Bronze and Early Iron Ages in Estonia. *Estonian Archaeology, 3.* Tartu.

Laul, S. 2001. Rauaaja kultuuri kujunemine Eesti kaguosas (500 e.Kr – 500 p.Kr). *Muinasaja teadus, 9. Õpetatud Eesti Seltsi kirjad, 7.* Tallinn.

Olli, M. 2013. Rooma rauaaegsed ehted ja ornamendid Eestis. MA-thesis. Tartu. (*Manuscript in TÜAK.*)

Olli, M. 2015. Inspektsioon Aakre Kivivare muististe piirkonda (Rõngu kihelkond) 4. mail 2015. (*Manuscript in TÜAK.*)

Reimer, P. J., Bard, E., Bayliss, A., Beck, J. W., Blackwell, P. G., Bronk Ramsey, C., Buck, C. E., Cheng, H., Edwards, R. L., Friedrich, M., Grootes, P. M., Guilderson, T. P., Haflidason, H., Hajdas, I., Hatte, C., Heaton, T. J., Hogg, A. G., Hughen, K. A., Kaiser, K.F., Kromer, B., Manning, S.W., Niu, M., Reimer, R.W., Richards, D.A., Scott, E.M., Southon, J.R., Turney, C.S.M. & van der Plicht, J. 2013. IntCal13 and MARINE13 radiocarbon age calibration curves 0–50000 years cal BP. – Radiocarbon, 55: 4, 1869–1887.

Sitzka, J. 1895. Steinreihengrab von Ayakar. Kiwiware. (*Manuscript in TLÜ AT, AI 1-80-2; copy in TÜAK.*)

Sitzka, J. 1897. Die Steinsetzung von Ayakar. – Sitzungsberichte der Gelehrten Estnischen Gesellschaft 1896, 136–144.

Tvauri, A. 2012. The Migration Period, Pre-Viking Age, and Viking Age in Estonia. *Estonian Archaeology, 4*. Tartu.

Valk, H., Kama, P., Olli, M. & Rannamäe, E. 2012. Excavations on the hill forts of south-eastern Estonia: Kõivuküla, Märdi, Truuta and Aakre. – AVE, 2011, 27–46.

Vaska, B. 2013. Ornamentation on Roman Iron Age jewellery in Latvia made in openwork technique. – Archaeologia Lituana, 14, 88–110.

Vassar, A. 1943. Nurmsi kivikalme Eestis ja tarandkalmete areng. PhD thesis. Tartu. (*Manuscript in TÜAK.*)

White, T. D. & Folkens, P. A. 2005. The Human Bone Manual. Amsterdam.

UURIMISTÖÖD AAKRE KIVIVARE TARANDKALMEL

Anu Kivirüüt ja Maarja Olli

Aakre Kivivare kalme on tüüpiline rooma rauaaegne tarandkalme Lõuna-Eestis. Matmispaiga lähedal asub ka eelrooma rauaaega, eelviikingiaega ja viikingiaega dateeritud linnamägi, üks viikingiaegne ning teine täpse dateeringuta asulakoht.

Kaevasime Aakre Kivivare tarandkalmet 2014. aasta suvel ja sügisel ning 2015. aasta sügisel. Uurisime läbi tarandi B ning eesmärgiks oli teada saada, millal on see kalme osa rajatud ning kas see on olnud kasutusel mõne teise lähedalasuva muistisega samal ajal. Teiseks eesmärgiks oli uurida leidude ja luude asukohti kalmes ja vaadata, kas on võimalik eristada kogumeid või matuseid.

Kaevasime kihi- ja kontekstipõhiselt ning esemete ja luude asukohad dokumenteerisime GPS punkti või asukohaga ruudustikus. Kontekstid dokumenteerisime ka fotodega ning igast kihist loodi 3D plaan.

Kalme peamine kasutusaeg oli ilmselt rooma rauaajal, kuid leide on ka kalmest varasematest ning hilisematest perioodidest. On võimalus, et kalme ning kõrvalasuva linnuse kasutusaeg eelrooma rauaajal on kattunud ning rooma rauaaega võib jääda ka Purtsi jõe äärse asulakoha kasutus.

Kalmest leitud luud olid nii põletatud kui ka põlemata, kuid ühtegi kindlat indiviidi ei olnud võimalik eristada. Samuti ei olnud kalmes luu- või esemekogumeid, kuid võis näha, et keraamika koondus peamiselt tarandi otstesse ning teised leiuliigid pigem suletud ala keskpaika.

Esemeleiud on tarandkalmetele tüüpilised, enim leidus savinõukilde, seejärel ehteid ning vähesel määral ka raud- ning muid esemeid. Keraamika on mitmekesine, leidus nii peen- kui ka jämekeraamikat, sh riibitud, tekstiil-, küünejälgedega, nivendiga ning kiilapinnalist keraamikat. Ehetest leidsime sõlgi (pahk-, kärbis-, peakilp-, ketassõlg), käevõrusid, sõrmuseid ning kaelaehete katkeid. Emailitud ketassõle ja J. Sitzka 19. sajandi kaevamistel leitud sõlel on samasugune ažuurne ornament, mis ilmselt viitab sama meistri tööle.

Uurimistöö andis selgust Aakre Kivivare muististekompleksi kohta ning avas paremini tarandkalmesse matmise kommet ning tavade komplekssust.