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# STONE-CIST GRAVE AT KASEKÜLA, WESTERN ESTONIA, IN THE LIGHT OF AMS DATES OF THE HUMAN BONES

The article discusses new AMS dates of the human bones at stone-cist grave I at Kaseküla, western Estonia, in the context of previously existent radiocarbon dates, artefact finds and osteological studies. There are altogether 12 radiocarbon dates for 10 inhumations (i.e. roughly a third of all burials) of the grave, provided by two laboratories. The dates suggest three temporally separated periods in the use life of the grave(s): the Late Bronze Age, the Pre-Roman Iron Age and the Late Iron Age. In the latter period, the grave was probably reserved for infant burials only. Along with chronological issues, the article discusses the apparently unusual structure of the grave and compares two competing osteological studies of the grave's bone assemblage from an archaeologist's point of view.

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## Introduction

The main aim of this article is to present and discuss new radiocarbon (AMS) dates of the human bones collected from stone-cist grave I at Kaseküla, western Estonia. The stone-cist grave was excavated by Mati Mandel in 1973 with the purpose of specifying the settlement history of the region (Mandel 1975). So far it has remained the only excavated stone-cist grave in mainland western Estonia (Mandel 2003, fig. 20). Excavation also uncovered a Late Neolithic settlement site beneath the grave, which was further investigated by Aivar Kriiska in 1997 (Kriiska et al. 1997). His 22 $m^2$ excavation on the southern and south-eastern side of the grave also exposed the ruin stones of the grave. Based on artefact finds, the construction of the grave is currently dated to the IV or V period of the (Nordic) Bronze Age and the presence of Pre-Roman Iron Age burials has been considered likely (Lang 1996, 297). The human bones of the grave were examined by Jonathan Kalman (2000a) and Raili Allmäe (2010), which offers a rare opportunity to compare two expert views on the same osteological data.

Radiocarbon dating of the grave's human osteological material was part of a more extensive project designed to investigate the chronology and burial practices of stone-cist graves, in particular the well-known issue of protracted use of stone graves. Before 2009 there were only four radiocarbon dates of human skeletons from three graves and charcoal dates were hardly more numerous (Lang 2007, fig. 97), although the number of excavated stone-cist graves in Estonia is well over a hundred and dating them on the basis of grave goods is notoriously difficult. Without a good chronological framework, however, palaeodemographic and social inferences would hardly make any sense. To improve the situation, bone samples for AMS dating were selected from several stone-cist graves from which the human osteological assemblage had undergone sex and age determination and which contained burials both in the cists (assumed to date from the Late Bronze or Early Pre-Roman Iron Age) and outside cists (assumed to date from later periods). The grave at Kaseküla meets these criteria perfectly.

There already exist three AMS dates for this grave, published by Raili Allmäe in 2010. It is necessary to note that her samples were collected before mine, and I was unaware of her research; otherwise my selection of samples would probably have been slightly different. The new dates, however, significantly enhance the existent chronology of the grave and also shed some light on the discrepancy between the osteological studies by Kalman (2000a) and Allmäe (2010). To provide a comprehensive discussion, I publish the dates for this grave in a separate article, while the dates for other stone-cist graves involved in the aforementioned project will follow shortly.

In what follows, the description of the grave itself, i.e. its structure, find assemblage, burials, as well as its neighbouring sites come first. This is essential for the interpretation of radiocarbon dates; also, the find assemblage, particularly pottery, has undergone no thorough examination previously and thus deserves extra attention. After that the radiocarbon dates are presented and discussed, including their correlation with artefact finds and osteological estimations, as well as their representativeness and relevance in the wider context of prehistory in Estonia.

## Context of the grave

The stone-cist grave under review is located three kilometres from the western coast of mainland Estonia, 600 m south-west of Kaseküla village (Fig. 1). Here a north–south aligned elongated ridge, a former coastline formation that is today called Pärnamägi [Linden Hill], rises 1–1.5 m above the surrounding fields and pastures. The ridge is densely topped with a row of stone graves, probably stone-cist graves. Altogether seven graves have been registered, but the actual number of graves is larger (see grave descriptions in the National Registry of Cultural Monuments). The grave discussed in this article (grave I) is the northernmost on the elevation, and the only excavated grave of the group. Beneath the grave(s)

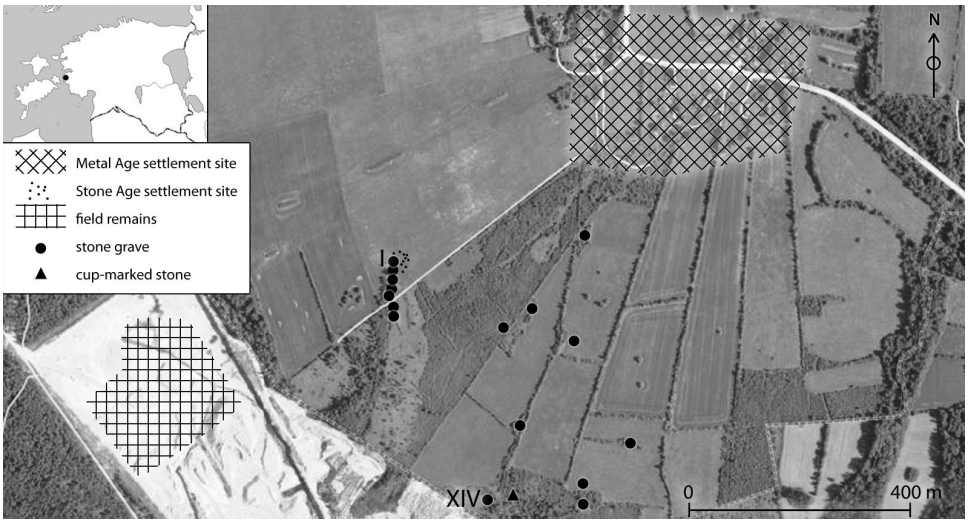


**Fig. 1.** Archaeological sites at Kaseküla (map: Estonian Land Board; location of the sites after National Registry of Cultural Monuments and Lang 2000a). Excavated graves are marked with Roman numerals. Note that boundaries of the Late Neolithic settlement site and cremation grave XIV are undefined on the map and the field remains have been destroyed by dolomite mining.

lies the cultural layer of a Late Neolithic (Late Comb Ware) settlement site, the extent of which is unknown.

East and south-east of this grave group are at least nine other stone graves scattered between the fields. Many of them are possibly stone-cist graves, a few are *tarand* graves, and one (grave XIV) is an extensive low stone grave-field with cremation burials, roughly 100 × 40 m in area. Small-scale excavations at this site in 1973 and 2001 yielded cremated bones and a few artefacts from the 11th–12th centuries AD (Mandel 2003, 108). Originally there may have been graves also west and north-west of the village (Mandel 1973, 2).

Other archaeological sites at Kaseküla include a 55 cm tall boulder with 39 cup-marks not far from the 11th–12th-century grave-field. Excavation around the cup-marked stone in 1973 yielded a burned enamel bead and a bronze spiral, which appear to associate with the nearby grave, while the original context of cup-marked stones is the Bronze Age and Pre-Roman Iron Age (Lõugas 1975). The settlement site north of the graves, at the heart of the present-day village, is probably as old as the stone-cist graves. It has also yielded finds from later periods, which has encouraged opinions that the site may have been continuously inhabited from the Late Bronze Age until today (Lõugas 1975; Mandel 2011, 110 f.). 200 m west of the grave group at Pärnamägi once lay ten hectares of 8th–12th-century cairn fields, today destroyed by dolomite extraction (Lang 2000a).

## Structure of the grave

The grave had been bounded by a circle of large granite stones, the measurements of which reached 50–60 cm (Figs 2–3). The circle, not perfectly ring-shaped, was 12.1–12.8 m in diameter. There was no evidence that the circle had been topped with additional stone layer to form a higher stone wall. The walls of the cist within the stone circle had been built of boulders as large as the boulders of the circle. The floor of the cist had been made of limestone slabs and the roof probably of granite stones. One of the latter had been preserved at the southern end of the cist and was visible even before excavation, suggesting that the cist had been easily accessible. The inner measurements of the cist were 2.2 × 0.5 m, the depth approximately 0.5 m. The space between the cist and the circle was filled with slightly smaller granite stones and limestone, the latter being less frequent than granites. The overall impression was that the stones were slightly larger in the western and southern parts of the grave than in the eastern and northern parts, which can perhaps be explained by the fact that the northern and eastern parts had recurrently been used for burial, while the western part of the grave had not. The thickness of the stone pile of the grave averaged 55 cm (Mandel 1973; 1975).

This quite a typical stone-cist grave adjoined to a rather puzzling structure at its northern side. Three metres north of the stone circle were three big granite stones that appeared to form a southern end of a limestone-floored stone cist, while the middle and northern part of the probable cist had been completely destroyed. The space between the cist remains and the stone circle to the south was full of stones, slightly smaller in size and with a greater proportion of limestone than within the stone circle. Photographs taken during excavation suggest that the granite stones clustered mostly around the cist end while closer to the stone circle limestone became more abundant. This was possibly due to the inhumation burial found 0.9 m north of the stone circle (for detailed information, see the following subsections).

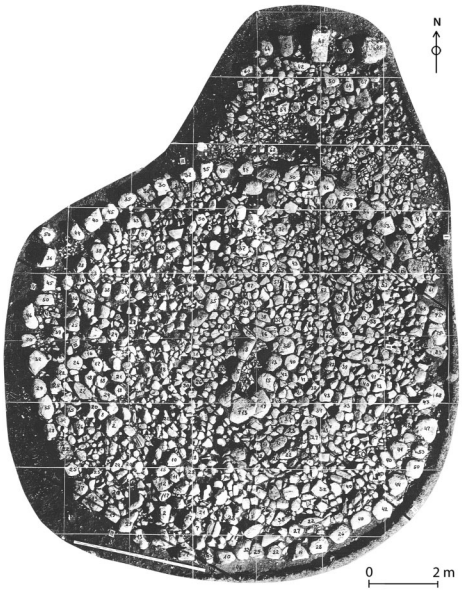


**Fig. 2.** Stone-cist grave I at Kaseküla after removing the uppermost layer of stones. Photo: Mandel 1973.

It is not clear how to interpret this part of the excavated area. Its ambiguous character has, for instance, instigated the suggestion that it was a structure for conducting

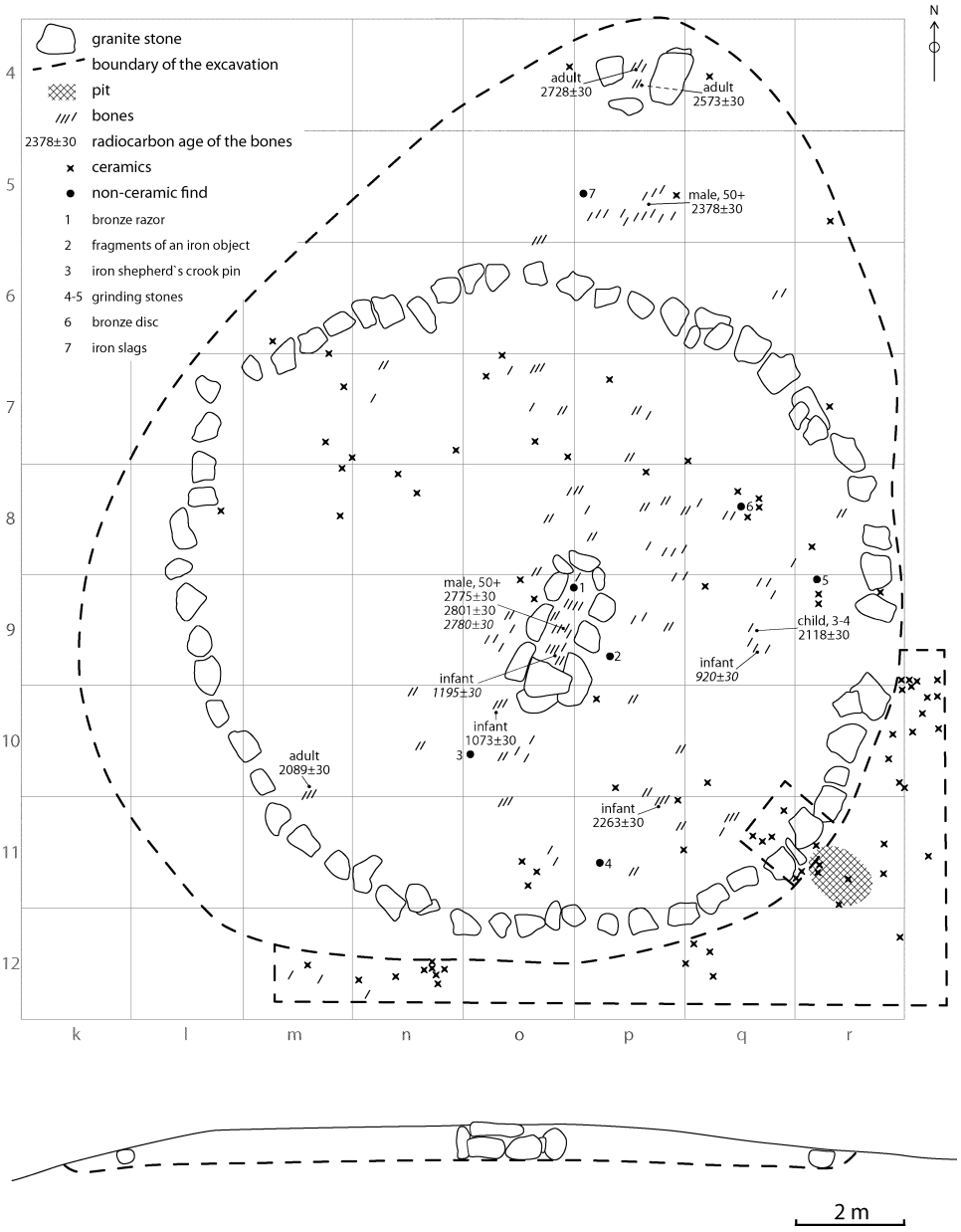


**Fig. 3.** Plan of stone-cist grave I at Kaseküla, showing excavated areas of 1973 and 1997 and location of artefact finds and bones, including the location of AMS-dated human bones (after Mandel 1973; Kriiska & Saluäär 1997; Kriiska et al. 1997). Radiocarbon ages from Allmäe 2010 are shown in italics. The figure does not include Stone Age finds, except for some of the pottery within the grave circle, since in some locations Stone Age and Metal Age potsherds were mingled and in many cases the sherds were indeterminable.

rituals with human bones, particularly skulls (Jonuks 2009, 176). The excavator of the grave simply refers to an 'extension' [of the grave] (Mandel 1973; 1975) but he does not exclude the possibility that it had been a separate stone-cist grave the majority of which had at some point been destroyed (Mati Mandel, pers. comm. 23.03.2012). Indeed, there would have been enough space for a common stone-cist grave up to 8–9 m in diameter. The fact that no remains of a stone circle or ring wall were found can be explained by the presence of the above-mentioned inhumation, which may have destroyed the stone circle in this part of the grave. After all, stone-cist graves with no surrounding circle are possible, although such graves are very rare in Estonia (Lang et al. 2001, 41).

Considering the possibility that the structure in question was *not* a separate grave, one would expect it to have been clearly defined with a distinct stone border, in the manner of either a rectangular *tarand* (e.g. Lang 2007, fig. 103), or, less likely, a stone-cist grave that shares part of its ring wall with another stone-cist grave (e.g. Lang 2007, fig. 99). These possibilities are not entirely excluded at Kaseküla, although in that case the southernmost sections of the expected stone border must have been observable in the excavation area – but they were not. Ambiguous stone structures that are attached to a stone-cist grave, contain cists, and have no clearly defined stone surround have so far not been recorded in Estonia, although this fact does not exclude the possibility of their existence.

Although the following cannot offer a definitive statement on the character of the stone structure under review, one might nevertheless notice that some of the neighbouring graves at Pärnamägi seem to be accompanied by similar structures (see the descriptions in the National Registry of Cultural Monuments). For instance, grave IV (register no. 9838) has been described as featuring a low rectangular hump ca 3 × 4 m in size attached to its southern side, which encourages the inference of 'extending' the graves. On the other hand, the rather large grave III (9837) adjoins a smaller circular mound, 5.6 m in diameter, and a similar small hump was located 2 m south of grave I. The latter have been assumed to be separate graves (although not registered as such), suggesting a possible pattern of smaller graves located between larger ones.

Another peculiar feature worth mentioning was recorded on the south-eastern side of the grave (Fig. 3; Kriiska et al. 1997, 30 f., 38). It was a 25 cm deep oval pit dug into the subsoil, 140 × 85 cm in size. The pit was filled with soil and stones, which showed clear indications of burning: granites were fire-cracked and limestone had turned red or even calcified. The hollow contained a few pieces of animal bones and pottery, at least some of the latter most probably of a Bronze Age date (see below). A similar feature with fired stones and charcoal, over 30 cm in depth and 80 cm in diameter (tapering downwards), has been recorded on the southern side of one of the stone-cist graves at Karuste, Saaremaa (Vassar 1941; cf. Lang 2000b, 99). Vassar (1943, 17) compares the structure with similar features beneath *tarand* graves and proposes their association with rituals performed during the grave construction.

## Artefact finds and animal bones

Characteristically of stone graves, the finds were scattered between the stones and it was not possible to associate them with particular burials (Fig. 3). Here I discuss only the finds that are later in date than the Neolithic; for the find assemblage of the Stone Age settlement site, refer to Kriiska et al. 1997. The finds are stored in Estonian History Museum under registry numbers 476 and 807.

The only artefact find in the central cist was a **bronze razor** with a broad handle, concave back and a small rounded protrusion on the blade side (Fig. 4: 2). Such items probably originate from Jutland, Denmark, and date from period IV or the beginning of period V of the Nordic Bronze Age (Baudou 1960, 36 f.). The item most similar to it found in Estonia was at the cist of grave 19 at Jõelähtme, Harjumaa, along with the remains of an adult male (Kraut 1985, pl. V: 8). The bones of the male have been radiocarbon-dated to approximately 930–800 BC (unpublished data in the possession of author). Stone-cist graves in Estonia have yielded altogether eight bronze razors or small knives: besides Kaseküla and Jõelähtme 19, there are an additional three from Jõelähtme, one from Kangru IV

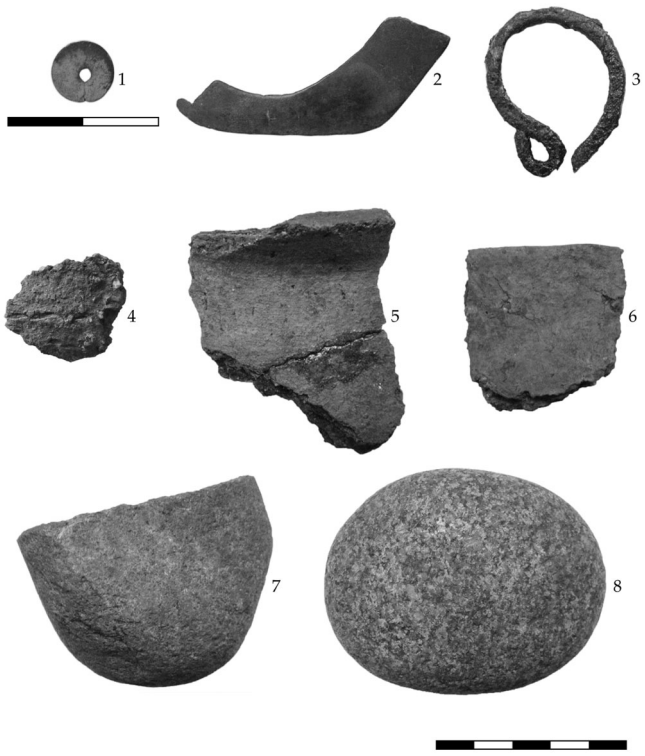


**Fig. 4.** Artefacts from stone-cist grave I at Kaseküla. 1 a tiny bronze disc with unknown function, 2 bronze razor, 3 fragment of an iron shepherd's crook pin, 4–6 selected fragments of clay vessels, 7–8 grinding stones (AM 476: 6, 5, 4, 3, 1; 807: 422; 476: 25, 32).

at Väo, Harjumaa, one from Sepa at Kaarma, Saaremaa, and one from Karuste (Suurevare), Saaremaa. Three of the respective graves at Jõelähtme were burial places for adult men and one of them also contained scant remains a 10–12-year-old child; the fourth grave, however, contained an 8–9-year-old child and an infant (Kalman undated). The bones of all three men were AMS-dated; the result for one of them was mentioned above, while the calibrated (95.4%) dates for the remaining two range from 1260–940 BC (unpublished data of author). Although commonly referred to as 'razors', the function of the items is disputable and may have differed by region (see Thedéen 2003).

The head of an **iron shepherd's crook pin** (Fig. 4: 3) was unearthed ca 1.3 m south-west of the central cist at a depth of ca 30 cm; the shaft of the pin was broken and was absent. The pin had been made of an iron rod with a rectangular cross-section, while the majority of such pins appear to have circular or lozenge cross-sections. The most common context for iron shepherd's crook pins are early *tarand* graves, which sometimes contain dozens of such pins. The peak of their occurrence falls within the Late Pre-Roman Iron Age (200 BC – AD 50), although some may have a slightly earlier date and most certainly this pin type continued in use through the subsequent centuries (Lang 1996, 288 f., 301 ff.; 2007, 183 f.; Laul 2001, 126). The Pre-Roman Iron Age shepherd's crook pins were worn by both men and women, both singly and in pairs (Lang 2007, 183 f.); no child burials with such pins can be mentioned, but this may be due to shortage of osteologically examined bone assemblages. It is thought that the pins were used for fastening clothes, probably at the shoulders (Schmiedehelm 1952, 17; Lõugas 1984a, 349, pl. I: 2); later pins also functioned as chain holders (Laul 2001, fig. 50). The frequency of the iron shepherd's crook pins indicates their local production.

Among the excavated stone-cist graves of Estonia (including disputable cases of circular graves with no (i.e. destroyed?) cists), around twenty contain shepherd's crook pins; at least five of them yielded a bronze pin. The former figure makes up less than 15% of the above-mentioned grave category. A few of the pins are younger than the Pre-Roman Iron Age, while the majority probably fall within the Late Pre-Roman Iron Age. Making more precise estimations is problematic, however, and would require the compilation of a new special study of this pin type (Lõugas 1971 is outdated). It is, however, clear that shepherd's crook pins in stone-cist graves represent burials (or offerings?) interred many centuries after the construction of the graves. It is common that they occur outside cists and cannot be associated with a particular burial (with only one firm exception, and even then it was not the original cist of the grave, see Lõugas 1984a). In many cases there is only one shepherd's crook pin in a stone-cist grave, but graves with a greater number of pins also occur.

At 1973 excavation 110[1] **pottery sherds** were collected (Mandel 1973), at least 80 of them with a Metal Age date. The great majority of the sherds were

[1] All the numbers of potsherds in this article are according to the excavation reports. Counting of the sherds today would result in a different number due to their continuous fragmentation in museum stores.

found singly or paired; only two larger clusters were observed, one in the north-western periphery of the grave (30 sherds) and the other in the southern periphery of the grave (10 sherds). The sherds are mostly small fragments from the vessels' walls, while rim fragments are rare and bottom fragments are altogether absent, which makes the reconstruction of shape and dating of the vessels very complicated. The 1997 excavation south of the grave yielded 83 Metal Age potsherds from a minimum of five vessels (Kriiska et al. 1997, 31 ff.), but some of them may be associated with the grave less than 2 m south of grave I. The pottery assemblage was examined by Prof. Valter Lang (except for the sherds collected in 1997, which were browsed in a cursory manner).

Within the stone circle, four vessels could be distinguished relatively well. One of them had been next to (originally on top of?) the stone circle in the north-western margin of the grave where a cluster of 30 potsherds was found, with two more sherds of the same vessel slightly apart, one of them outside the stone circle (squares 6–7/m, see Fig. 3). It was a coarse ware clay pot with somewhat everted rim and a decoration of elongated, slightly oblique grooves on its shoulder (Fig. 4: 4). A similar, although not identical vessel is shown in Lang 1996, fig. 9: 8. Such vessels have usually been dated to the Pre-Roman Iron Age, but a Late Bronze Age date cannot be excluded (Lang 1996, 43). Another coarse ware clay vessel was found a few metres south-east, but it was represented with only five or six wall fragments, which were scattered 1–2 m apart from one another (squares 7/n and 8/m–n) and do not enable the shape of the vessel to be reconstructed. The latter applies also to the third vessel, which was located in the southernmost periphery of the stone circle (11/o) and was represented by roughly a dozen coarse-grained sherds. A Pre-Roman Iron Age date is likely for this vessel. The fourth vessel was located a few metres north-east of the latter (11/p, perhaps also 10/p–q) and was represented by less than ten scattered sherds. This vessel had once had a smoothed surface and concave neck, but the shape of the rim could not be determined. The date of the vessel within the Late Bronze Age and Pre-Roman Iron Age cannot be specified.

The rest of the Metal Age pottery within the stone circle, mostly in the north-eastern sector, consisted of indefinite sherds often mingled with Stone Age sherds. Worthy of separate mention is a tiny single rim fragment at the western side of the cist that shows cord impressions on its lip. Vessels with various imprints on the flat parts of their rims are relatively numerous in the Pre-Roman Iron Age contexts (Lang 1996, 143).

Only one sherd out of six found north of the stone circle deserves more attention (Fig. 4: 5). It was found near the inhumation burial in square 5/p, although from a slightly higher context. The relatively large sherd originated from a coarse ware pot with a smoothed surface, curved walls 5.5 mm in thickness and a slightly everted flat-topped rim (similar in terms of shape to a pot in Lang 1996, fig. 12: 5). This pottery type is common in early *tarand* graves, and Lang confidently dated the sherd in question to the Late Pre-Roman Iron Age through the Roman Iron Age.

The pottery found south of the grave is apparently similar to the pottery within the stone circle, representing coarse-grained vessels with thick walls and often with smoothed surfaces (Kriiska et al. 1997, 31 f.). Two fragments, however, deserve more attention, because they are more clearly attributable to the Bronze Age than any other potsherd in the excavated area. The sherds are suggestive of a relatively large vessel with a smoothed surface and striated interior; the rim was rather straight (Fig. 4: 6) and the shoulder probably smoothly curved. Such vessels have been classified as the 'Asva-style coarse-grained ceramics' and can be dated to the end of the Early Bronze Age through the Late Bronze Age (Lang 2007, 127 f.). The sherds were found in the pit at the south-eastern side of the stone circle.

To sum up, the excavated area contained pottery from both the Late Bronze Age and Pre-Roman Iron Age, but the respective proportions are fairly difficult to establish. A look at other stone-cist graves reveals that pottery is not an unusual find category in them. The cists sometimes contain the so-called Lüganuse-style pots, which have been dated to the Late Bronze and Pre-Roman Iron Ages, although the few available radiocarbon dates favour the earlier part of the time range (Lang 2007, 129 f.). Outside cists, the pottery is considerably less well-preserved and a pattern similar to Kaseküla is not unusual. It nevertheless seems that the pottery found outside cists in many cases belongs to the same Lüganuse style (see Lang 1996; in the latter study this pottery is classified as type BII: b) and in a few cases represents Asva-style coarse-grained (BIII) or Asva-style fine-grained ceramics (AI). The latter styles have been dated by Lang to the Bronze Age (rather than Pre-Roman Iron Age) with a greater confidence than the Lüganuse-style pottery (Lang 1996; 2007, 127 ff.).

One might conclude from this that pottery outside cists may in many cases be of a Bronze Age date. Despite this, usually a Pre-Roman Iron Age date is preferred, because finds and burials outside cists are believed to be of a younger date than finds and burials inside cists (Lang 1996; 2007, 160). The latter assumption is generally true, and one cannot deny that a few graves do contain pottery that clearly dates from the Late Pre-Roman Iron Age or the later periods, yet the case with pottery may be more complicated than previously thought. First, dating finds on the basis of their location in the grave is an insecure method and second, the connection between the (later) burials and pottery is not entirely clear. In many graves (even at Kaseküla) the locations of potsherds and bones do not overlap; there are graves where pottery is found in the very margins, which means that the vessels may have had no direct connection with funerary rites. Further, there are graves that contain pottery but no burials outside the cist, and there are graves where the situation is reversed, which again indicates that a clear-cut relation between pottery and burials does not exist. There is also an opinion that pottery outside the cists is mainly associated with cremation burials (e.g. Lang 2007, 160), a view challenged by the evidence from Kaseküla. All things considered, we are left with the conclusion that the dating of the pottery outside the cists of stone-cist graves is based on insecure grounds, and ascribing the fragmentary pottery at Kaseküla to a firm Pre-Roman Iron Age group should rather be avoided.

Excavation yielded three stones that may have been used as **grinding tools** (Fig. 4: 7–8). At least two[2] of them were found at a considerable depth, 55 cm or even deeper (Mandel 1973), which means that they either belong to the Stone Age context or were put in their place at the time of grave construction at the latest. A Stone Age origin, however, seems unlikely (Aivar Kriiska, pers. comm. 17.04.2012), although such stones may have had various functions apart from grinding grain (Vassar 1938, 361; 1943, 234 f.; Lidström Holmberg 1998). They have also been found in several other stone graves, for instance a Late Bronze Age ship grave at Lülle, Saaremaa (Lõugas 1970) and several Early Iron Age *tarand* graves (Vassar 1943, 231; Lang 2000b, 123; 2007, 109; Laul 2001, 163), which shows that they are not extraordinary for a grave context. I nevertheless know of only two stone-cist graves beside Kaseküla that have yielded grinding stones: grave 6 at Lagedi, Harjumaa, where a grinding stone was found together with Roman Iron Age artefacts (Spreckelsen 1927, 19; Lang 1996, 217), and grave 70 at Muuksi, Harjumaa, where a few grinding stones were found in the ruin of the grave, slightly outside the stone circle (Vassar 1938; cf. Vedru 1998, 52). Here, however, one must consider that grinding tools (as well as other stone items) in stone graves tend to be rarely published, let alone discussed, as the case of Kaseküla also demonstrates. These circumstances hardly allow anything beyond a very broad generalisation, as presented in Lang 2007, 109 f. A special study on grinding stones in graves, including use-wear analysis, may produce interesting results (cf. Lidström Holmberg 1998).

A small handful of **iron slags**, altogether six pieces, was found near the skeleton north of the stone circle, at a depth of 35 cm. This is another unspectacular find category that is easy to neglect both at excavation and in publication of excavation results, which makes it difficult to relate such finds to the prehistoric grave context. Artur Vassar, however, argued that iron slag in graves functioned as a grave good or offering (Vassar 1943, 230). The slags found in the Roman Iron Age *tarand* grave at Nurmsi, central Estonia, originated from iron working (forging), but the presence in graves of slags as a result of iron smelting cannot be excluded (ibid.). As for stone-cist graves, iron slag has been reported for instance from Pihla II at Kõpu, Hiiumaa, where it was found above the northern end of the central cist (Lõugas 1984b).

The grave yielded a few other ambiguous finds with unknown date and function. Two small **fragments of an iron object** were found near the eastern side of the central cist at a depth of 22 cm, and the eastern part of the grave yielded a tiny thin **bronze disc** with a hole in its centre. The latter was found at a depth of 40 cm from the grave surface.

Finally, a short note should be made on **animal bones**, although the bones from the grave and from the much older settlement site are difficult to differentiate. It

[2] The details of the find context for the third item (AM 476: 55) are unknown, except for the fact that it came from the north-western part of the grave (Mandel 1973). Also, it was not present in the museum at the time the finds were studied for this article. Excavation report claims this to be fragment of a grinding stone, which suggests that it may have been similar to the item in Fig. 4: 7.

could nevertheless be established that the grave material was clearly dominated by cattle, followed by goat or sheep, while dog, pig and horse bones were less numerous (Mandel 1973, 6; Kriiska et al. 1997, 37 ff.). Part of the bones of terrestrial wild animals and various fish species found in the stone ruin south of the grave were also primarily associated with the grave rather than the settlement site, although the relatively numerous seal bones were mainly attributed to the settlement site (Kriiska et al. 1997, 38).[3] A largely similar pattern of animal bones, including seal bones, is known from Late Bronze Age fortified settlements, Late Bronze–Early Iron Age stone graves and also from coastal Estonian stone graves from later periods of the Iron Age (Vassar 1938, 332; Lang 2000b; 2007, 110 f.; Maldre 2000; Tvauri 2012, 106, 285 f.). Interestingly, the central cist has been said to have contained bones from a paw of a large animal, which was interpreted as an animal hide placed over the deceased (Mandel 2011, 112). The distribution of other animal bones in the grave has not been published and nor is it indicated in the excavation report of 1973.

## Burials

The human bones found in the grave were unburned. Characteristic of stone graves, the bones were highly fragmented and scattered (Fig. 3). At the excavations in 1973, archaeologists were able to discern a disturbed inhumation in the cist, probably lying with its head to the north, and a poorly preserved skeleton 0.9 m north of the stone circle. The latter was observed as lying on a limestone paving at a depth of 45 cm from the grave surface, with its head to the east and hands stretched over the head. A few human bones were recorded in the destroyed cist north of the stone circle and as scattered elsewhere in the grave, particularly in the vicinity of the central cist, but in these instances archaeologists were able to discern neither buried individuals nor clear-cut burial structures (Mandel 1973, 4 f.; 1975, 74).

Close osteological study of the human bones by Jonathan Kalman (2000a, 18 ff.) about quarter of a century after the excavation revealed that the grave had contained the remains of at least 23 individuals (Table 1). The central cist enclosed a male, at least 50 years old at death and approximately 178 cm tall, and a minimum of three infants less than one year of age. Reportedly, the man had suffered from osteoarthritis and severe osteophyte formation on thoracic vertebrae, which would have caused limping when walking and stiffness in the back. Among what were

[3] In this context a reference should be made to the isotopic values of bone samples (see Table 3), which apparently suggest a preference of the Kaseküla population for terrestrial food resources (e.g. Chisholm et al. 1983; Tauber 1983), although in the Bronze Age a narrow cove lay not much farther than a kilometre to the south-east of the contemporaneous settlement. Also, a relatively high rate of dental caries observed on the teeth of the buried individuals indicates a general reliance on agriculture (Kalman 2000a, 21). An in-depth discussion of the isotope values and diet of the sample population is, however, excluded from this article.

**Table 1.** Comparison of the results of two osteological studies (Kalman 2000a and Allmäe 2010) of the human bone assemblage from grave I at Kaseküla

| Context | Kalman 2000a | Allmäe 2010 |
|---|---|---|
| Central cist | 1 male, 50+ years<br>3 infants, 0–1 years | 1 male, 50+ years<br>4 infants, 0–0.5 years |
| Outside the central cist, within the stone circle | 1 child, 3–4 years<br>16 infants, 0–1 years | 1 child, 3–4 years<br>21 infants, 0–0.5 years |
| 'Extension' north of the stone circle | 1 male, 50+ years<br>1 adult | 1 male, 50+ years |
| Total | 23 | 28 |

recorded as scattered bones outside the central cist within the grave circle, Kalman was able to discern the remains of a 3–4-year-old child and at least 16 infants in their first year of age, with considerable probability that the original number of infants was even greater. North of the grave circle, Kalman detected at least two adults. One of them, represented by only fragments of fibula, distal right femur and radius, had apparently been lying in the destroyed cist; its age and sex were indeterminable. The skeleton found between the destroyed cist and the stone circle turned out to be a male over 50 years in age; the bones were fragmented but almost all parts of the body were present.

In her recent re-examination of the bone assemblage, Raili Allmäe (2010) concluded from the number of petrous parts of the temporal bones that the excavated area contained at least 28 individuals (Table 1). She agreed with Kalman with regard to the man in the central cist, but found four infants instead of three in this cist. The number of infants outside the cist by Allmäe is five more than Kalman's estimate. Her measurements of infant long bones show that the buried infants died within at most six months after birth, which is a more exact estimation than Kalman's twelve months. Allmäe also confirmed the presence of a child within the stone circle and a man older than 50 years outside the stone circle, but rejected the presence of the second adult in the latter grave area, arguing that this individual was distinguished by Kalman on the basis of only one piece of cranium (Allmäe 2010, 47).

This reading of Kalman is, however, incorrect, as he clearly lists the present parts of the incomplete skeleton found in what was probably a destroyed stone cist (Kalman 2000a, 20; see also above). Also, a look at the excavation plan (Fig. 3) suggests that at least two different inhumations can be expected from the northernmost part of the excavated area, one from the destroyed cist and another south of it. Allmäe's negligence about these circumstances is perhaps due to her focus on the infant burials.

Allmäe collected three samples for radiocarbon dating in Poznan Radiocarbon Laboratory; the sample information and results are presented in Table 2.

**Table 2.** Radiocarbon dates of human bones from grave I at Kaseküla by Raili Allmäe (after Allmäe 2010, Table 1). Calibration by computer programme OxCal v4.1.7 (Bronk Ramsey 2009; Reimer et al. 2009)

| Context/ square | Sex/ age | Bone / register no. | Lab. no. Poz-… | Date BP … ± 30 | Date cal (95.4%) |
|---|---|---|---|---|---|
| Central cist | Male 50+ | Cranial vault 29 | 32 412 | 2780 | 1005–840 BC |
| Central cist | Infant | Femur 29 | 32 413 | 1195 | AD 720–940 |
| Eastern part of the grave 9/q | Infant | Temporal bone 40 | 32 414 | 920 | AD 1030–1185 |

## New AMS dates

In September 2009 when collecting the samples for radiocarbon dating, we proceeded from the skeletal study of Kalman (2000a), being unaware of Allmäe's research. Bioarchaeologist Martin Malve from the University of Tartu matched the bones in storing boxes with individuals distinguished by Kalman; a systematic revision of the bone assemblage was not undertaken.

The main question of interest with this grave was: what is the temporal distance between (1) the burials in the central cist, (2) burials outside the cist, and (3) burials outside the grave circle? Should they be considered in the same or different temporal contexts? Proceeding from this question, we collected nine samples for radiocarbon dating from different parts of the grave; the samples most probably represent eight individuals. The sample information along with the results of AMS dating is summarised in Table 3 (see also Figs 3 and 5). The samples were processed by the dating laboratory of the Finnish Museum of Natural History; along with $^{14}C$ analysis, carbon and nitrogen stable isotope ratios were also measured (though thorough discussion of the latter results remains beyond the scope of this article).

The **male in the central cist** is represented with two samples (Nos 1 and 2 in Table 3);[4] when including Allmäe's data, this number increases to three. Unsurprisingly, this inhumation turned out to be one of the oldest in the whole lot. All three radiocarbon estimations by two different laboratories agree that the

[4] Double sampling was not entirely intentional, however. When collecting the samples, it was impossible to locate the bone assemblage No. 63 within the grave area, because the respective information was missing in the excavation records. So I decided to test if radiocarbon dating could determine whether these bones of a ca 50-year-old male belonged to a man in the central cist, to a man on the limestone paving north of the grave circle or even to a third person unrecorded by anthropologists. Only later Mati Mandel, referring to his excavation notes from 1973, kindly confirmed that the bones in question came from the central cist (Mandel, pers. comm. 27.03.2012). Radiocarbon dates agree with this statement.

**Table 3.** Radiocarbon dates and stable isotope measurements of the human bones of grave I at Kaseküla. Calibration after OxCal v4.1.7 (Bronk Ramsey 2009; Reimer et al. 2009). The uncertainty in the stable isotope measurements is ±0.1‰, unless otherwise stated

| Context/ square | Sex/ age | Bone/ register No. | Lab. No. Hela-… | Date BP … ± 30 | Date cal (95.4%) | $\delta^{13}C$ (‰) | $\delta^{15}N$ (‰) |
|---|---|---|---|---|---|---|---|
| 1 Central cist (southern and middle part) | Male 50+ | Femur (?) 29 | 2418 | 2775 | 1000–840 BC | –20.1 | 10.2 |
| 2 Central cist | Male 50+ | Distal phalange 63 | 2423 | 2801 | 1040–850 BC | –20.1 | 10.0 |
| 3 Destroyed cist 4/p | Adult | Fibula 50 | 2421 | 2728 | 930–810 BC | –20.2 | 9.7 |
| 4 Destroyed cist (?) 4/p | Adult | Tubular bone N/A | 2420 | 2573 | 810–570 BC | –20.0 | 9.9 |
| 5 North of the stone circle 5/p | Male 50+ | Tubular bone 41 | 2419 | 2378 | 715–695 BC 540–390 BC | –21.1 | 9.9 |
| 6 SW part of the grave 10–11/m | Adult | Unidentified 4 | 2422 | 2089 | 200–40 BC | –20.8 | 9.3 |
| 7 Eastern part of the grave 9/q (central part) | Child 3–4 | Humerus 40 | 2424 | 2118 | 340–325 BC 205–50 BC | –20.6 | 10.6 |
| 8 SE part of the grave 11/p (northern part) | Infant 0–1 | Tubular bone 31 | 2426 | 2263 | 400–210 BC | –20.1 | 8.5±0.2 |
| 9 Near the SW corner of the cist 10/o (northern part) | Infant 0–1 | Tibia 14 | 2425 | 1073 | AD 895–1020 | –19.4 | 11.3 |

man had lived before 800 BC; the minor differences between the radiocarbon ages fall within the limits of statistical error. The radiocarbon dates are in accordance with the date of the bronze razor found in the cist.

Two samples are associated with the **destroyed cist** north of the stone circle. One of them (No. 3 in Table 3) originated from bones found directly from between the three large stones of the cist end and most probably represents the incomplete skeleton of an adult person discussed by Kalman (see above). Radiocarbon dating indicates that this person is more or less contemporaneous with the male in the central cist, i.e. earlier than 800 BC in date. The other sample (No. 4) comes, according to the label that accompanied the bones, 'from the limestone paving next to the remains of the cist', i.e. apparently slightly outside the cist end (from which side was not specified).[5] It was not possible to determine whether or not these bones belonged to the individual inside the cist end. Given that Kalman was rather ambiguous about the number of persons inhumed in this part of the grave, radiocarbon dating was ordered on the bones to see if they represent a different individual. Considerable difference in BP estimations suggests that they do, although

[5] Given that the square for the both samples is the same (4/p) and that the cist has been extensively destroyed, for the sake of simplicity I describe the context of sample No. 4 as 'destroyed cist' in the tables and figures, even if the skeleton was actually located next to and not inside the cist.

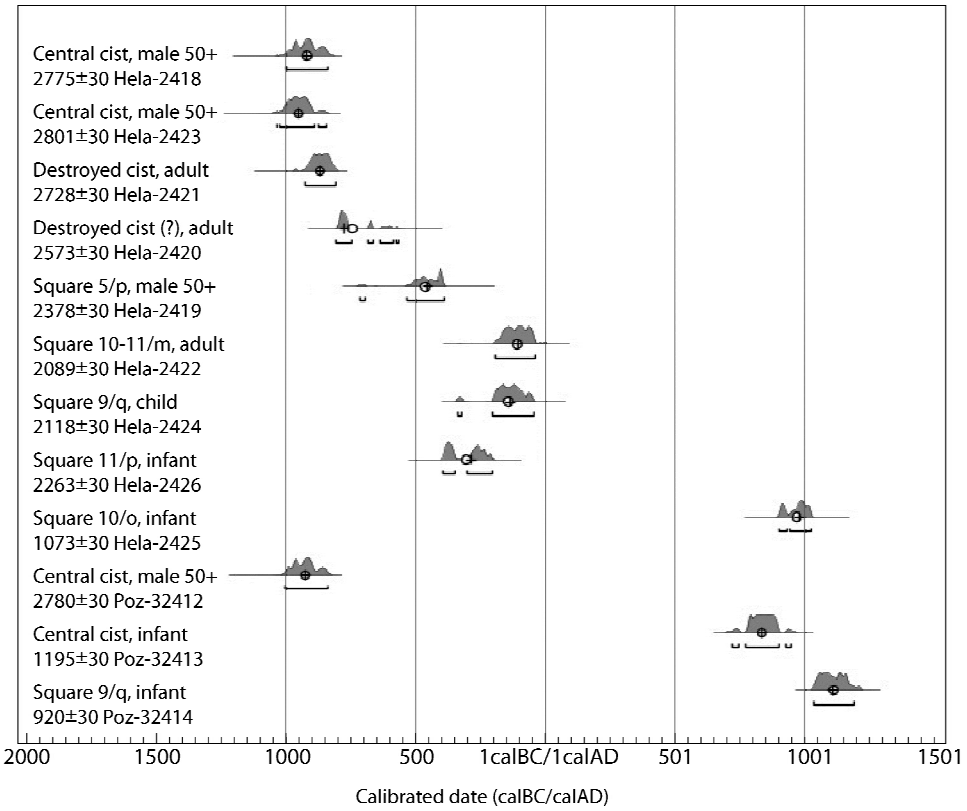


**Fig. 5.** AMS dates of the human bones from stone-cist grave I at Kaseküla as corrected to calendar ages, using OxCal v4.1.7 (Bronk Ramsey 2009) and the IntCal09 calibration data (Reimer et al. 2009). The figure shows calibration ranges of 95.4% probability, the mean (indicated with a short vertical line) and the mode (a circle). The lowermost three dates are derived from Allmäe 2010.

in reality this individual need not be much younger in date than the other individual in the destroyed cist.

The radiocarbon dates from this part of the grave thus support the osteological determinations of Kalman rather than Allmäe, since the latter was not able to discern any individuals associated with the destroyed cist (see above). The dates also show that the destroyed cist is not much younger, if younger at all, than the grave south of it, which perhaps supports the inference of a distinct (destroyed) grave rather than a later extension of the southern grave. Radiocarbon dates, however, cannot provide a conclusive solution for the latter problem.

The **male skeleton north of the stone circle** (between two graves?) recognised by both Kalman and Allmäe is represented by one sample (No. 5). Radiocarbon dating suggests that the man had been interred at least one hundred years after construction of the grave, although a much later date close to the boundary between the Bronze and Iron Ages appears to be more plausible. According to

Valter Lang, the fragment of a clay vessel found near the skeleton is not older than the Late Pre-Roman Iron Age, which clearly disagrees with the radiocarbon estimate. Iron slags, also found in the vicinity of the skeleton, cannot be dated, but they might be viewed as an appropriate grave inclusion in the earliest Iron Age when iron was a rarity. Neither of the finds can assuredly be associated with the burial under review, however. The grave also contained inhumations radiocarbon-dated to the Late Pre-Roman Iron Age (see below) and the presence of the potsherd in question is thus not entirely unaccountable.

A fragment for sampling (No. 6) was selected from the **bone cluster near the stone circle in the south-western periphery of the grave**. The bones had been lying no deeper than 25 cm from the grave surface (Mati Mandel, pers. comm. 07.04.2012). Neither of the osteological studies commented on this bone assemblage, despite its rather separate location in the grave. According to Martin Malve however, it was an extremely incomplete inhumation of an adult.[6] Radiocarbon dates the bones later than 200 BC, which confirms that they cannot be attributed to any other adult burial identified in the grave.

Three samples were collected from the bones of **subadults outside the central cist**.[7] One of them represents the 3–4-year-old child (No. 7)[8] and the remaining two represent infants (Nos 8–9). The bones of the infant near the central cist had been lying close to the grave surface, at a depth of less than 25 cm, while the remaining two youths had been unearthed from slightly deeper layers, more than 30 cm from the grave surface (Mati Mandel, pers. comm. 07.04.2012). Radiocarbon suggests that the child in the eastern part of the grave is roughly contemporaneous with the adult in the south-western periphery of the grave, i.e. younger than 200 BC, while the infant in the south-eastern part of the grave is of a slightly earlier date, between 400 and 200 BC. The infant near the cist corner, however, dates from the Viking Age and belongs with the same group of two Late Iron Age infant burials radiocarbon-dated by Allmäe.

The Late Iron Age use of the grave had not been indicated by any artefact find, whereas Pre-Roman Iron Age burials were expected due to the presence of an iron shepherd's crook pin and at least some of the pottery. These finds generally agree with the radiocarbon dates, which span almost the entire Pre-Roman Iron Age. Narrowing down this date range or specification of date of the artefact finds

[6] This bone deposit appears to be the only one that could be suspected to be a secondary burial, since other skeletons were either more complete or, if otherwise, severe damage or natural fragility of (infant) bones could be held responsible. However, the observed incompleteness of the skeleton could have resulted from a shallow grave, an explanation not less likely than the inference of a secondary burial.

[7] In view of the surprising results of Allmäe's dating, it would have been worthwhile to take a few samples from the infant skeletons found in the central cist. Considering the high cost of AMS dating, this was not done, as AMS dates for the stone-cist graves at Rebala, Harjumaa (unpublished data in the possession of author) had suggested that contrary to the subadult burials outside the cists, subadult burials inside the cists are of the same date with the adult burials in the cists.

[8] In addition to the child, the respective bone assemblage (No. 40 in the excavation records) included the remains of an infant, which were radiocarbon-dated by Allmäe (Table 2).

is difficult, partly because the relation of the finds to burials is ambiguous. The shepherd's crook pin probably dates from the second half of the Pre-Roman Iron Age, although a slightly earlier date cannot be precluded. Dating of the pottery within the Late Bronze and Pre-Roman Iron Ages was shown above to be extremely difficult. Although the radiocarbon dates suggest that at least part of the ambiguous potsherds found within the stone circle may now be dated to the Pre-Roman Iron Age rather than the Bronze Age, one should still be cautious with extending the date to the whole pottery assemblage.

## Burial sequence at Kaseküla

The results of radiocarbon dating show that both cists originate from the first half of the Late Bronze Age, while inhumations outside the cists are divided between the Pre-Roman Iron Age and Late Iron Age. Such a temporal distribution of the deceased clearly suggests discontinuity in burial. It is also obvious from this pattern that the social position of a deceased cannot be inferred from its location in the grave (cf. Jaanits et al. 1982, 200), because burials of separate periods must be addressed independently in the contexts of respective periods. However, in focusing on these periods one must consider that we cannot determine how those 15–21 infants that were not radiocarbon-dated distribute between the periods. Also, a group of stone-cist graves as a creation of a single community (i.e. a family cemetery or shrine) should be viewed as a whole, which means that many important questions cannot be answered unless at least the majority of the group has been excavated.

The most likely date of construction for grave I at Kaseküla can probably be located between 950 and 850 BC, while the destroyed cist, perhaps part of a separate grave, cannot be much younger. In view of the general chronology of stone-cist graves in Estonia it is safe to assume that grave I is one of the oldest stone graves at Kaseküla, i.e. there cannot be many graves that predate it. Based on the current evidence it seems most likely that burial in the excavated grave(s) stopped before 700 BC. Extension of this inference to the whole grave group at Pärnamägi, let alone farther graves is, however, much more questionable and should rather be avoided. One must also consider that some of the infant burials with no radiocarbon date, both in and outside the cist, may belong to the Bronze Age, a probability proved by evidence from other graves (unpublished data of author). Although such circumstances would probably not considerably alter the above chronological estimations, one should nevertheless avoid concluding that in Bronze Age Kaseküla only adults were eligible for burial in a stone grave and only cists were used for interment. In any case, evidence from only one grave of the group cannot determine whether all or only selected members of the community were accorded burial in a stone grave.

Burial in the grave began again in the Pre-Roman Iron Age. The radiocarbon dates of these inhumations span the whole period beginning at 500 BC, although

the actual period of use may have been shorter, for instance 400–150 BC. The buried individuals include both adults and children of different age categories, and it is notable that the number of burials is larger than just occasional one or two. Precise numbers remain unknown, since without further radiocarbon dating there are no means to establish how many of the infants have a Pre-Roman Iron Age date. In general, there are no obvious reasons to argue that the burials under review considerably deviate from patterns observed in early *tarand* graves, the most common stone grave type in Pre-Roman Iron Age Läänemaa. These graves also mainly contain inhumations of both adults and children, accompanied with no or a few grave goods (e.g. Lang 1996, 302 f.; 2007, 173 ff.; Kalman 2000a; Mandel 2000).

It is not easy to judge whether or not the Pre-Roman Iron Age burials at Pärnamägi represent the kindred descendants of the community that once built the graves and whether the graves served as their only, main or secondary burial ground. Although the available AMS dates suggest a few hundred-year-break in burial before the Pre-Roman Iron Age, it is still possible that burials of this interim are to be found in other graves at Pärnamägi.[9] In other words, one cannot entirely exclude the possibility that use of the cemetery and existence of the community were continuous from the Late Bronze through the Pre-Roman Iron Age, although the meaning of the grave structure perhaps altered with the passage of time.

On the other hand, discontinuity in burial may have been real, although this need not mean discontinuity in the existence of the settlement unit – there are many other graves in the neighbourhood that may have served in the interim period. The nearby settlement site was perhaps also continuously inhabited. In the Pre-Roman Iron Age the community possibly buried most of its dead in *tarand* graves, which are present at Kaseküla and most probably belong to the Pre-Roman Iron Age, since Roman Iron Age *tarand* graves are rare in western Estonia (e.g. Mandel 2000, 107 f.; Lang 2007, 91 f.). Old stone-cist graves were perhaps used for interment of only a few of the community members, although there are no signs to identify what the criteria for such a differentiation were. Scenario like this seems to have been at work at Rebala, where only two out of five graves contained Pre-Roman Iron Age burials and their number in relation to the Bronze Age burials was small (unpublished data of author). This can be viewed as providing additional grounds to assume that the case with Kaseküla is similar, although there are still too many indefinite variables to definitively exclude any other possibility.

[9] For the period of 700 years (e.g. 900–200 BC), a prehistoric settlement unit with on average seven members expectedly produces roughly 200 dead (for the argument, see Lang 1996, 354 f.; 2007, 223). At Pärnamägi this would make an average of roughly 20 burials per grave. This is not impossible theoretically, but it is still unlikely because this number of Early Metal Age burials would be unusually high for a stone-cist grave. On the other hand, the figure applies only if all the members of the community were interred in a stone grave – which need not have been the case and current opinions in the academia prefer the view that it indeed was not (e.g. Lang 1996, 354 f.; 2007, 223 ff.; cf. Lang 2011, 114 f.).

In the Late Iron Age, almost two thousand years after its construction, the grave was re-used as a burial place primarily for infants. The available three radiocarbon dates span over many hundred years from the Pre-Viking Age until the end of the Final Iron Age, although the actual burial period may have been limited to a century and half at the end of the Viking Age; a much shorter period is unlikely while a longer period plausible. The number of burials cannot be ascertained.

A similar situation was observed at Rebala where the north-western part of grave II, built before 800 BC, contained at least nine infants in their first year and one 8–9-year-old child (Lang et al. 2001). Radiocarbon dating of the bones of four infants locates their short lives in the 15th–17th centuries AD, perhaps exclusively within the 15th century (unpublished data of author). Other graves in this group did not yield such burials and subadults in their cists appear to be of a Bronze Age date.[10] Infant burials much later in date than the grave itself may also have been present in stone-cist grave IX at Lagedi, Harjumaa (Spreckelsen 1927, 24 f.). Other stone-cist graves in Estonia have not been found to have enclosed such a quantity of infant burials. Many of them have not undergone any close osteological study, but there are reasons to believe that the phenomenon of massive infant burials in stone-cist graves is rather exceptional.

It thus seems that we are observing a case of excluding a certain category of people – infants, perhaps newborns – from the common burial ground (or some other place(s) of disposal – see Lang 2011), while an old stone grave served as the alternative place for interment. If we consider cremation grave XIV a few hundred metres away (Fig. 1) as the main burial ground of the community, then even the mode of disposal appears to have been different (i.e. inhumation instead of cremation). The practice of differential burial of infants need not have been uncommon in Late Iron Age Läänemaa, as thoroughly studied cremation graves appear to yield child burials in considerably less numbers than expected (Allmäe 2010, 46, 49, and references therein). The case of Rebala suggests that the practice was much more widespread both in space and time, yet the respective boundaries would be difficult to establish. Apart from Kaseküla and Rebala, there are no proved cases in Estonia, and the under-representativeness of child burials which, by the way, has been observed from the Pre-Roman Iron Age *tarand* graves at the latest (Kalman 2000a, 33; 2000b, 389; 2000c, 429) to the mediaeval rural cemeteries (Valk 2001, 65), does not necessarily imply separate burial places for subadults. Also, infants have rarely been considered separately from older children, a circumstance that tends to obscure potential age-based distinctions in mortuary

[10] It is in fact questionable even at Kaseküla whether the Viking Age infant burial reportedly found in the central cist had deliberately been placed in the cist. Three thousand years after their construction, the cists of stone-cist graves are usually found to be full of soil and stones, and this may at least partly have been the case also a thousand years ago. People of the time need not have been aware of the presence of a stone cist, i.e. the infant in question may have been interred in the area of the cist unintentionally. It is impossible, however, to verify this hypothesis, because the infant burials were distinguished only during the later study of bones and no stratigraphic peculiarities were noticed at excavation (Mati Mandel, pers. comm. 25.03.2012).

treatment (Finlay 2000, 413, 418 f.; see also Murail et al. 2004). The subject has thus potential for further research which should perhaps begin from reviewing the *tarands* where subadult bones predominate (e.g. Kalman 2000c, 425; Lang 2000b, 132) and graves such as Iru II, which was an irregular heap of limestone with 11th-century artefacts, one adult burial and a quantity of infant remains (Lõugas 1976). Also relevant are sites such as clearance cairn 8 at Iru, which enclosed the remains of an infant and a slightly older child (ibid., 51). It must be considered, however, that old stone monuments need not have been the only places to seclude dead infants (e.g. Finlay 2000, 411).

Cremation of children is known to be arduous due to their great moisture content, but apart from practical consideration there were most probably religious or ideological grounds for their distinctive treatment in death. It is well known that in many cultures all over the world infants that had not gone through certain initiation rites were not considered fully legitimate members of the community and were thus entitled to a different mortuary treatment, often including exclusion from the community cemetery (Jürgenson 1998, 32 f.; Finlay 2000; see also Paulson 1997, 133; Borić & Stefanović 2004, 542). In many cases it was some long-abandoned monument that was used instead, and it is not uncommon that the site was also used for burying other people whose life course deviated from the norm or who were strangers. Estonian oral tradition also holds that in the final stage of their life-cycles non-consecrated rural cemeteries were used to inter only small children, old people, the poor, beggars, unknown wanderers, Jews and Gypsies (Valk 2001, 91).

At Kaseküla, it would be impossible to establish which crucial milestone the deceased infants presumably failed to reach. Christian baptism is unlikely, particularly if the connection with the cremation cemetery is correct, but there are other similar rites or events that may have been critical for being accepted into a society (see Jürgenson 1998, 32). It must also be noted that a separate burial need not necessarily imply a careless or insensitive attitude towards infant deaths in the society (Murail et al. 2004; cf. Kalman 2000a, 20 f.) and one should be cautious with ascribing prehistoric infants the status of outcast. An additional reason for avoiding this perhaps lies in the fact that some Early Iron Age stone graves also contain richly provisioned Viking Age adults, both inhumed and cremated, who could hardly be viewed as outsiders (Tvauri 2012, 255 f.). The best example is perhaps a 10th-century male inhumation with weapons and ornaments in the early *tarand* grave at Iila, Virumaa (ibid.). On the other hand, there is no reason to believe that all old stone graves had a similar meaning or importance in the Late Iron Age ritual landscape.

There are other interpretations to consider (see Kalman 2000a, 21). Hypothesis of an epidemic is unlikely, one of the reasons being that the radiocarbon dates span too long a period and their overlapping is sparse. There is nevertheless a possibility that all the infants died as a result of a certain disease, perhaps feared as particularly dangerous, but this remains to be proved. Human sacrifice is thought to have been practised in prehistoric Estonia (e.g. Eisen 1996, 8 ff.; Lõugas 1996, 86 ff.; Jonuks 2002) but the character and extent of the practice are

unclear. Prehistoric child sacrifices are not mentioned in chronicles and the cases observed in the archaeological record (Jonuks 2002 and references therein; cf. Jonuks 2009, 178, 317) raise questions as why they should be viewed as sacrifices. Ambiguous reports on child sacrifices are known from historical period and the motifs also occur in folklore (e.g. Eisen 1996, 10 f.; Lõugas 1996, 87), but recorded instances of actual child sacrifices are unknown. If it was infanticide based on some other grounds then the practice must have been accepted in the society, otherwise the great number of infanticide victims in one location would be difficult to explain. A wide range of reasons would apply for such practice, including preference for children of a certain sex, birth defects or other features regarded as abnormalities (e.g. newborns with teeth, twins), birth out of wedlock, shortage of food supplies, etc. (Jürgenson 1998, 31 f.). Perhaps further biological studies, for instance with the aid of DNA studies, would reveal evidence to support the hypothesis of infanticide, but until then and in view of the high infant mortality rate of the time preference should perhaps be better given to other interpretations.

As for the mortuary practices at Kaseküla between the Early and Late Iron Age, there are enough graves to bridge the gap. Although registered as stone-cist or *tarand* graves, they may also include cairn graves and stone grave-fields characteristic of the Middle Iron Age; there is also a possibility for invisible underground (cremation) burials. What really happened remains to be discovered – or imagined.

## Conclusion

As a result of two independent studies, the number of radiocarbon-dated inhumations at Kaseküla is currently ten, which makes up roughly a third of all inhumations uncovered so far. For one of the inhumations there are three radiocarbon dates, which prove the method to be credible. Interpretation of the results is limited due to the fact that the great majority of the grave group has not been excavated, but the case no doubt provides solid material for comparison for other analogous studies which, judging from the case of Kaseküla, would potentially yield rewarding results.

Three of the sampled inhumations date from the Late Bronze Age, four from the Pre-Roman Iron Age, and three from the Late Iron Age. Two former periods of use had also been indicated by artefact finds which are in good accordance with the AMS dates, while the latter period was only revealed through radiocarbon dating. These were probably separate burial periods in the use-life of at least the excavated grave, but it is not impossible that the statement applies to the whole grave group at Pärnamägi. In any case the burials of different periods must be addressed independently, in their respective chronological contexts; in each of the periods the use and, respectively, the meaning of the grave had been different. Reaching the content of the latter is obviously difficult if not impossible, as there still are a lot of indefinite variables. For instance, the available data does not reveal whether or not all of the members of the community were eligible for

burial in a stone grave – a central concern in the research of stone-cist graves. For this the length of use and number of burials of the whole cemetery must be known, but at Kaseküla we even do not know how many of the infant burials originate from the Pre-Roman Iron Age and how many from the Late Iron Age; determining the proportions of their chronological distribution would require many more radiocarbon dates than are currently available.

Perhaps the greatest contribution of the discussed radiocarbon dates is to the research into the Late Iron (particularly Viking) Age. The use of an almost 2000-year-old grave for burying exclusively infants opens up a range of (much exploited) perspectives, such as the Viking world view, social construction of childhood, stepwise childhood, missing prehistoric children, past in the past, activating the monuments, etc. It should, however, be noted that in regard of the quantity of infant burials the grave at Kaseküla is rather an exception than a rule, and further studies are expected to reveal more about the Bronze and Early Iron Age use of the graves. It is in any case advisable that scientific dating of the bones becomes a more regular practice in the research of prehistoric graves and, also, that osteologists have patience to pay attention and clearly discuss the observations of archaeologists made during excavation.

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**Margot Laneman**

## KASEKÜLA KIVIKIRSTKALME LÄÄNE-EESTIS AMS-DATEERINGUTE VALGUSES

*Resümee*

Kaseküla I kivikirstkalme Läänemaal kaevati läbi 1973. aastal. See oli üsna tavaline suurtest raudkividest ringi ja kirstuga kivikirstkalme, millest põhja pool täheldati veel ühe kivilasust ümbritsetud ja suuremas osas lõhutud kirstu jäänuseid (joon 2–3). Viimast on tõlgendatud kui "juurdeehitist", ent tegemist võib

olla ka omaette kalme jäänustega. Kalme(te)s olid laibamatused, kusjuures üks kalme osteoloogilist ainest analüüsinud antropoloog määras maetute minimaalseks arvuks 23 (Kalman 2000a) ja teine 28 (Allmäe 2010) (tabel 1). Eripärane on Kaseküla I kalme suure hulga imikumatuste poolest, mida oli seal paarikümne ringis. Esemeleidudest (joon 3–4) saadi kaevamistel pronksiaja IV–V perioodi habemenuga (kesksest kirstust), eelrooma rauaaegne rauast karjasekeppnõela pea, kolm arvatavat jahvekivi, väike peotäis rauašlakki, mingi tuvastamatu raudeseme tükid, tilluke teadmata dateeringu ja otstarbega pronksikettake auguga keskel ning alla paarisaja savinõukillu, mille dateeringut on enamasti võimatu noorema pronksiaja ja eelrooma rauaaja piires paika panna.

Selle kalme matuste loodusteaduslik dateerimine oli osa ulatuslikumast projektist, mille eesmärgiks on radiosüsinikudateeringute abiga täpsustada kivikirstkalmete kronoloogiat ja uurida matmiskombeid, eriti kalmete pikaajalise kasutamise temaatikat. Kaseküla puhul oli põhiliseks küsimuseks kirstumatuste, kirstuväliste matuste ja kalmeväliste matuste ajaline suhestatus. Sellest lähtudes võeti kalme erinevatest osadest kaheksast erinevast maetust üheksa luuproovi, mis dateeriti AMS-meetodil Soome Loodusmuuseumi dateerimislaboris. Koos Raili Allmäe (2010) hiljutiste dateeringutega samast kalmest on Kaseküla dateeritud matuste arvuks kümme (s.o umbes kolmandik maetutest). Dateeringuid on koos Allmäe omadega kokku 12, sest keskse kirstu mehematus on dateeritud kolme erineva prooviga, mille omavahelised erinevused jäävad statistilise vea piiresse ja mis üldiselt kinnitavad meetodi usaldusväärsust. Dateeritud matuste hulgas on viis täiskasvanut, neli alla aastavanust last ja üks 3–4-aastane laps; kolme maetu dateeringud langevad nooremasse pronksiaega, neljal eelrooma rauaaega ning kolmel nooremasse rauaaega (joon 3, 5; tabelid 2–3).

Vanimaks matuseks oli ootuspäraselt kalme kesksesse kirstu maetud mees, kelle järgi võiks Kaseküla kivikirstkalme rajamisaja paigutada ajavahemikku 950–850 eKr. See sobib hästi kirstust leitud noa dateeringuga. Umbkaudu samaaegne, igal juhul mitte oluliselt hilisem, on tugevasti lõhutud kirst kalme ringmüürist põhja pool, millega võib arvatavasti seostada vähemalt kaks täiskasvanumatust. Praeguste andmete põhjal ei saa siiski teha järeldust, et pronksiajal maeti siinsetesse kivikirstkalmetesse ainult täiskasvanuid.

Eelrooma rauaaegsetele matustele näib olevat eelnenud vähemalt paarisajaaastane vaheaeg matmises. Eelrooma rauaajal (dateeringud katavad kogu perioodi) maeti kalmesse nii lapsi kui ka täiskasvanuid, kusjuures on võimalik, et selleks ajaks oli kalme struktuur kaotanud oma endise tähenduse: kirstudesse enam võibolla ei maetud, küll aga mujale kalmekuhjatisse ja tõenäoliselt kiviringist väljapoolegi. Selle perioodiga seostuvad rauast karjasekeppnõela pea ja vähemalt osa savinõukildudest, ehkki radiosüsiniku- ning esemedateeringud antud juhul üksteist ei täpsusta.

Kolmandast kasutusperioodist peaaegu 2000 aastat pärast kalme rajamist ei olnud mingeid äratuntavaid esemeleide ja see tuli ilmsiks alles radiosüsinikudateeringutega. Tõenäoliselt maeti sel perioodil kalmesse ainult väikelapsi, kõik surmahetkel võib-olla nooremad kui kuus kuud. Olemasolevad kolm dateeringut

katavad ajavahemiku eelviikingiajast hilisrauaaja lõpuni ja ehkki reaalselt võis matmine toimuda tunduvalt lühema aja jooksul, on selge, et tegemist ei ole ühekordse episoodiga kalme ajaloos. Matuste arvu ei saa antud juhul määrata, sest 15–21 dateerimata imikust võib osa kuuluda eelrooma rauaaega ja võib-olla ka pronksiaega.

Et kivikirstkalmete puhul peab vaatlema kalmerühma tervikuna – antud juhul eelkõige kompaktset kümmekonnast kalmest koosnevat rida Pärnamäe-nimelisel kunagisel rannavallil (joon 1) –, tuleb küsida, mil määral kehtib eespool visandatud kronoloogia teiste Kaseküla kalmete kohta. Arvestades kivikirstkalmete üldist dateeringut on üsna tõenäoline, et Kaseküla I kalmest palju varem rajatud maapealseid kivikalmeid Pärnamäel ega ka mujal ümbruses ei ole. Millal ehitati Pärnamäele viimane kivikalme ja kui pikk aeg – kui üldse – jäi viimase pronksiaegse ning esimese eelrooma rauaaegse matuse vahele, on juba palju keerulisem küsimus ja jääb siinkohal kindla vastuseta. Mitmesugustel põhjustel võiks pidada kõige tõenäolisemaks, et mingi katkestus matmises Pärnamäe kalmetesse pronksi- ja rauaaja vahel siiski oli, mis aga ei pruugi tähendada asustuse järjepidevuse katkemist Kasekülas. Selge on aga see, et praeguses olukorras, kus me ei tea, kas ja kui palju on teistes kalmetes eelrooma rauaaja matuseid, on väga raske isegi oletada, missugune osa kogukonnast ning miks eelrooma rauaajal Pärnamäele maeti – tõlgendusvõimalusi on palju. Rebala Lastekangrutes täheldatule (autori avaldamata andmed) tuginedes võib aga väita, et tuhandeid aastaid hilisemad lapsematused Pärnamäel võivadki piirduda ainult ühe kalmega ja kindlasti ei olnud matmine pronksiajast hilisrauaajani järjepidev. Võimalik, et viikingiajal kasutas vana kivikirstkalmet enne mingit kriitilise tähtsusega initsiatsioonirituaali surnud imikute matmiseks kogukond, kelle põhiline matmispaik oli madal põletuskalme mitusada meetrit eemal (joon 1), ent välistatud ei ole ka teised tõlgendused.

Radiosüsinikudateeringud andsid natuke täpsustavat teavet ka maetute arvu kohta. Kumbki eelmainitud antropoloogiline analüüs ei tuvastanud kalme edelaservas olnud väikest täiskasvanud inimese luudest (Martin Malve määrang) koosnevat kogumit omaette matusena, ent radiosüsinikuanalüüs näitab, et seda ei saa seostada mitte ühegi teise täiskasvanuga kalmes. Kui Kalmani järgi oli lõhutud kirstu kalmest põhja pool maetud minimaalselt üks inimene, siis Allmäe hilisem analüüs ei tuvastanud seal ühtki matust. Radiosüsinikudateeringud osutavad, et kõnealuse kirstuga võib ehk seostada isegi kaks täiskasvanud inimese matust; ka kaevamisandmestikust on selge, et kirstus oli luid, mis tõenäoliselt ei ole seotud ühegi teise matusega kiviringi sees või selle ääres.

Üldisemas plaanis võib nentida, et ilma loodusteaduslike meetoditeta ei saa kõiki kivikalmete kasutusperioode kindlaks teha ja seega võiks luude radiosüsinikumeetodil dateerimine edaspidi olla senisest natuke sagedamaks protseduuriks. Selge on ka see, et erinevate perioodide matuseid tuleb vaadelda eraldi kontekstides: eri aegadel on kalme kasutus ja ilmselt ka tähendus kogukonna jaoks erinev olnud. Ühe kalme dateeringute üldistusvõime on küll tugevasti piiratud ega võimalda vastata paljudele olulistele kivikalmete kasutusega seotud küsimustele, aga kindlasti on Kaseküla materjalil potentsiaali olla tulevastele uuringutele soliidseks võrdlusmaterjaliks.