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CHRONOLOGY OF A GROUP OF STONE-CIST GRAVES IN NORTHERN ESTONIA: RADIOCARBON DATES FROM LASTEKANGRUD AT REBALA

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Twenty-two radiocarbon dates of human bone were obtained to clarify the chronology of five stone-cist graves at Rebala, northern Estonia. The calibrated dates of the cist burials mostly span the Hallstatt plateau of the calibration curve, i.e. 800–400 BC. The cemetery was probably present around 600 BC at the latest, but there is no firm evidence to further constrict the date of the cist burials. The results do not overlap with the previously obtained radiocarbon dates of the charcoal from beneath the graves, which indicate the 13th–9th centuries BC. A few radiocarbon-dated burials outside the cists show that the cemetery was still in use after 400 BC, but it remains unclear whether the use was continuous from the Bronze into the Pre-Roman Iron Age or consisted of temporally separate episodes. Whether the latest interments in the Pre-Roman Iron Age coincided with the establishment or use of the block-shaped fields around the graves remains also undecided. The case exemplifies the difficulties in pinpointing the end of the stone-cist burial tradition in Estonia. In addition to the prehistoric burials, grave II contained at least nine infant skeletons, most likely from the 15th century AD, and thus served as an example of the well-known cultural phenomenon of secluded infant burial.

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Introduction

The stone-cist graves in Estonia are complex sites. The burials therein are difficult to date because well-datable finds are rare, and if present, can seldom be associated with individual burials. Particularly complicating the issue is that the graves frequently contain burials from subsequent periods in addition to the dominating Late Bronze Age burials. In recent years, radiocarbon dating of bones, i.e. the interred individuals, has been applied to tackle the issue. The most extensively sampled groups of stone-cist graves are those at Jõelähtme and Jaani at Väo (Laneman et al. 2015; Laneman 2021), while elsewhere the focus has been either on single mounds, sampled thoroughly (Laneman 2012; Laneman & Lang 2013), or on single individuals included in a research project with an aim other than the chronology (Saag et al. 2019). Focussing on whole groups is obviously a more informative strategy than focussing on single mounds or single individuals. However, the number of fully excavated grave groups is small, and in regrettably many cases the essentials of meaningful results, i.e. excavation reports and osteological analyses, are lacking.

In this paper, I present and discuss the radiocarbon dates of a group of stone-cist graves that almost meets the above-mentioned optimal criteria for radiocarbon dating, i.e. fully excavated graves with partial coverage of excavation and osteological reports. The site, locally called Lastekangrud [Children's Cairns], is situated on an alvar meadow between the Gulf of Finland, ca 2 km to the north, and Rebala village, less than a kilometre to the south (Figs 1–2). The grave mounds, five of them more or less intact and the sixth almost completely destroyed, were identified as a prehistoric burial site in 1974. In 1982, the graves were subjected to rescue excavations to make room for phosphate mining. Graves IV and V, and the remains of grave VI, were fully excavated, whereas at graves I–III only the topmost parts were removed and the central cists were emptied (Lõugas 1983). At this point, excavation of the graves stopped and the focus of interest shifted to the extraordinary discovery of block-shaped fields enclosed by stone baulks around the graves. The need to preserve the fossil fields, at the time the oldest of their kind in Estonia and in the entire northern part of the USSR, put an end to the mining expansion and granted the survival of the landscape (see Kraut 2007 for a detailed account of the strenuous struggle for this end). Regrettably, the once sensational fieldwork has not been appropriately recorded nor reported.

In 2000, another team of archaeologists finished the excavation of graves I–III, mapped the fields, and cut a small trench of 6 m^2 through one of the field baulks (E in Fig. 1; Lang et al. 2001b). In 2004, a similar trench of 10 m^2 was made in another field baulk (F in Fig. 1), and a slightly larger one (15 m^2) was dug at the north-eastern margin of grave I through a low pile of stones resulting from the grave's disintegration over time (Laneman 2006; 2007).[1] The rest of the stone-packed areas surrounding the graves have not been excavated.

Vello Lõugas, the first excavator of the site and an authority on the so-called Early Metal Age at the time, ascribed both the graves and the fields to the second

[1] In 2000, two sherds of Corded Ware were found under the northernmost part of grave I. The soil blackened with tiny charcoal particles also suggested the presence of a Late Neolithic settlement site (see Kriiska et al. 2016 for a general date of the Corded Ware in ca 2800–2000 BC). The radiocarbon date obtained from the charcoal collected from under the grave did not support this hypothesis (see below), and neither did the 2004 excavation next to the grave produce any firm evidence of a Late Neolithic settlement site (see Laneman 2006; 2007). Because the hypothetical Neolithic settlement has no direct link to the Late Bronze Age burials, I refrain from discussing it further in this paper.

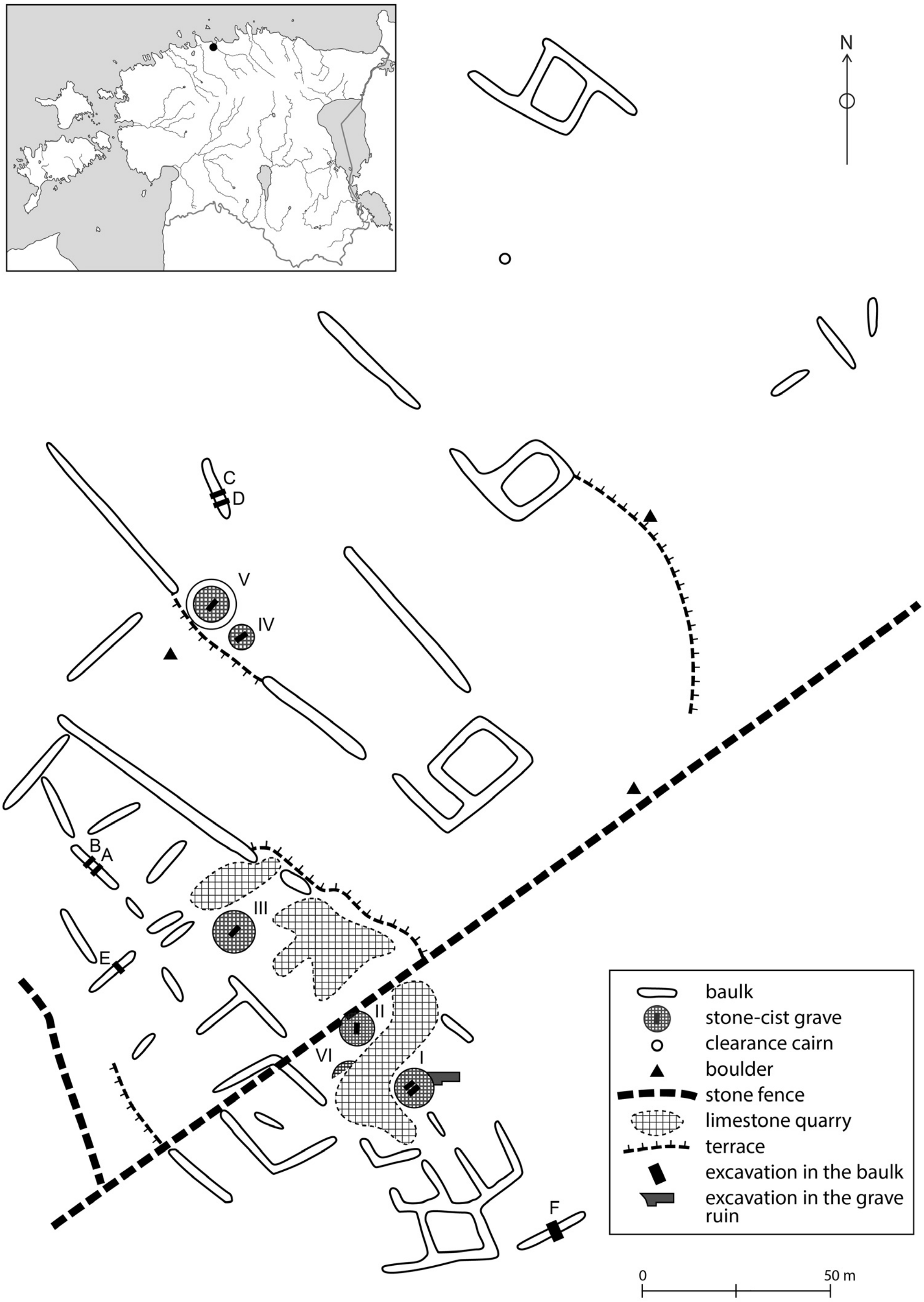

Fig. 1. Plan of the stone-cist graves and fossil fields at Rebala (based on the plan first published in Lang et al. 2001b, modified by the author).

Fig. 2. Excavation of graves II (in the foreground) and I at Rebala in 2000 (view from above grave III; photo by Valter Lang).

half of the first millennium BC, i.e. the Pre-Roman Iron Age (Lõugas 1983; 1985). He seems to have been confident that the graves and the fields were entirely contemporaneous. Although most of the conventions used by Lõugas for dating were abandoned in the 1990s, the date of the graves at Rebala remained largely the same, so that the cist burials were restricted to ca 500–300 BC and the remaining burials to a long and elusively defined period thereafter (Lang 1996, 295). In 2000, however, the charcoal collected from beneath graves I–III was radiocarbon dated to a much earlier time, the 13th–9th centuries BC. Cautious remarks about the possibly oldest known stone-cist graves appeared in the literature thereafter (Lang et al. 2001b; Lang & Kriiska 2001; Lang 2007, 162). The hypothesis was tested a few years later when a skeleton from the central cist of grave I was radiocarbon dated; the result, indicative of the 8th–5th centuries BC, was unsupportive yet not refuting (Laneman 2007; Lang 2007, 161 f.). As for the fields, they lost the title of 'oldest' in the 1990s. Although radiocarbon has confirmed their Early Iron Age origin (see below), several other field systems have been discovered and dated to the Bronze Age (e.g. Lang 2007, 96 ff.).

Whereas a single bone date may be insufficient to assess the reliability of the charcoal dates, the set of additional radiocarbon dates presented in this paper potentially form a better basis for tackling the chronological issues of the site. One of the aims of the more extensive radiocarbon dating was a better-defined duration of the cemetery use, to assess the relation of the graves to the fields, and to see whether the various Iron Age artefact finds in the graves were a reliable indication of burial (see Laneman 2007 for a longer discussion). There was also a hypothesis that the infant skeletons of grave II, deviant from the general burial pattern, dated differently from the other skeletons and had to be excluded from the discussions of Bronze Age and Early Iron Age burial practices (op. cit.). In what follows, I first describe the most important features of the site to provide a necessary context for the radiocarbon dates, and then I report and discuss the dates.

The cemetery: structure, burial, finds

The first thing to note about the stone-cist graves in question is their spatial grouping: graves I–III and VI on the one hand, and IV–V on the other (Fig. 1). The grouping echoes in the choice of the building material: graves I–III consisted of limestone slabs, while in graves IV and V, including their ring walls, limestone rested on a base of granite stones. The diameters of the graves varied from 6 metres of grave IV to 15 metres of grave V, with the remaining graves exhibiting uniform diameters of 9–10 m. Grave V seems to have had two ring walls; grave III on the other hand had none, which is a rather peculiar feature for a stone-cist grave. The mounds rose to ca 80–90 cm above the limestone bedrock at the time of excavation, in some cases (I, III) the centre noticeably taller than the periphery. Each grave had an about two-metres-long cist of stacked limestone slabs in its centre. Grave I featured an additional cist, shallower and less solidly built than the central one next to it. Interestingly, the alignment of the cists, except for grave II, appears to concur with the alignment of the field baulks. The same is nevertheless true for the stone fence crossing the site, which is undoubtedly a much younger addition to the landscape than the graves and the field blocks. If not a coincidence, this alignment may have something to do with the direction from which the site had been approached.

The cists contained predominantly inhumations, interred with their heads to a northerly direction. Cremated bones were present in the cist of grave II where they were found lying under inhumed skeletons (Lõugas 1983, 296), although the absence of a proper excavation report makes it impossible to assess whether this had been the original arrangement of bones and bodies. A cursory inspection at sampling showed that the bones belonged to a young individual 10–20 years old and burnt at 400–750 °C (Martin Malve, pers. comm.). The inhumed skeletons had been osteologically studied by Jonathan Kalman (1999). The most basic results of his study concerning the number of individuals and sex and age at death data are summarized in Table 1.

As for the inhumations outside the cists, observed in graves II, III, and V, in only two cases was the alignment of the skeleton observable (Lang et al. 2001a; 2001b). One of them was a poorly preserved adult of indeterminate age and sex in grave III, who seemed to have been lying in a remarkably shallow hollow orientated north-west by south-east in the western part of the grave, with the head perhaps

Table 1. Individuals and artefact finds in the stone-cist graves at Rebala. Sex and age at death (in years) data is based on Kalman 1999 and Lang et al. 2001b; cremations have not been osteologically studied. For more details on radiocarbon data, see Table 2 and Figs 3 and 5. Information on the artefact finds is based on Lõugas 1983, Lõugas s.a., Lang et al. 2001a, and find assemblage AI 5229 stored in the Archaeological Research Collection at Tallinn University.[2] The artefacts cannot be associated with individual skeletons. ? – sex unknown, F – female, M – male, * – radiocarbon date published in Lang 2007, fr – fragment(s)

Grave, location within		Burials (sex and age)	^{14}C date BP	Finds
I	Cist A	? 0 ? 1 ? 4–5 ? 5–7 F 17–19 M 23–27	– – – 2465 ± 35 2480 ± 35* –	a bone pin (fr) a clay vessel
	Cist B	? 2–3 ? 8–9 F 25–35 F 35–45	– – 2518 ± 30 2510 ± 30	a clay vessel
	Outside the cists	–	–	a few potsherds a few flints
II	Cist	? 1–2 M 18–22 M 35–45 cremated bones	– 2485 ± 30 2481 ± 30 2734 ± 30	an iron object (fr)
	Outside the cist	? 0–1 ? 0–1 ? 0–1 ? 0–1 ? 0–1 ? 0–1 ? 0–1 ? 0–1 ? 0–1 ? 9–10	– – – 385 ± 35 400 ± 35 452 ± 30 460 ± 35 – – –	a bone pin (fr) 5 bronze spirals a bronze spiral finger ring a bronze trapezoid pendant an ice nail 2 tin plaques an iron nail a few potsherds
III	Cist	? 1 ? 1 F 50+	– 2420 ± 35 2485 ± 30	3 clay vessels
	Outside the cist	? 4–5 ? adult cremated bones	2365 ± 28 2390 ± 30 2418 ± 30	an iron shepherd's crook pin an iron knife a glass bead (fr) a flint sherds of at least 7 clay vessels

Continued on the next page

[2] The information on the 1980s excavations is in places contradictory. In such cases I included the finds in the contexts I considered the likeliest, preferring published information over non-published. The contradictions and possibly resulting errors do not affect the conclusions drawn in this paper.

Table 1. *Continued*

Grave, location within		Burials (sex and age)	^{14}C date BP	Finds
IV	Cist	M 16–18 M 16–18 F 16–20 F 18–20	– 2410 ± 30 – 2507 ± 30	a few potsherds
	Outside the cist	cremated bones	–	a few potsherds a bronze chain? (fr)
V	Cist	? 0 ? 1 ? 2 ? 17–22 F 25–30 M 25–35 ? 50+	– – 2610 ± 35 – 2555 ± 30 2420 ± 30 –	
	Outside the cist	? adult ? adult cremated bones	2136 ± 30 – 2264 ± 30	a bronze spiral 2 iron knives iron objects (fr) a few potsherds

near the southern end of the cist. The other was an infant in grave II, who had been placed with the head pointing to the north-west. The rest of the numerous infants in grave II were disordered clusters of bone located with ca half-metre intervals in the western part of the grave, mostly ca 2 m from the cist. In at least two cases, the bones of two infants were intermingled. Many of the infants were unearthed from what in 2000 was the topmost part of the grave, and even if it remains unknown how much had been removed in the 1980s, it implies that the burial must have been shallow. Strangely, the 9–10-year old child of grave II was not found when samples for radiocarbon dating were collected, which points to the need for a more detailed osteological report than currently available. As for grave V, the bones outside the cist seem to have been scattered (Lõugas 1983, 297; s.a.) and it is impossible to ascertain whether complete bodies or something else had been interred. Also, a few teeth and cranial parts uncovered in these regions belonged to the eldest person in the cist (Kalman 1999, 26).

Except for the 4–5-year-old child whose remains were found west of the cist in grave III, embedded deep between the stones, Kalman (1999) did not determine the cremated bones outside the cists, apart from weighing. For grave III the result was ca 600 g and for grave V ca 3500 g of bone burnt at the temperatures of 645–940 °C. In both cases, the bones were scattered over the grave surfaces, and although some of them were located in the cists, it is likely that the cist burials pre-dated the cremations. Kalman does not comment on the few burnt bones reported from grave IV (Lõugas 1983, 296).

Before proceeding, a few things have to be pointed out about the cemetery population. Other osteologists have argued, though not always convincingly, that Kalman tended to underestimate the number of buried individuals (see e.g. Allmäe 2010; Varul 2016; cf. Laneman 2012, 103; 2021). It is therefore advisable to remain cautious in regard of his inferences on demographics and mortuary practices. Also, Vello Lõugas has more than once mentioned that the cists had been 'robbed' long before the excavation (Lõugas 1983; 1985). Although he has provided no explanation as to what made him think so, the assertions evoke suspicion about the allegedly ritual removal and mingling of bones observed at Rebala (Kalman 1999; cf. Laneman 2007, 69). Kalman's observation about the abnormally large proportion of young adults among the deceased may however be true, although there is no convincing explanation to this peculiarity. An interesting and only recently discovered fact is that the community had been affected by plague, since the younger man interred in the cist of grave II has been identified as a probable plague victim (Marcel Keller and Meriam Guellil, pers. comm.). As plague is known to have depopulated villages and made survivors conduct non-standard burials, it is to be hoped that future researches will reveal more information about the plague's effect on the community, to be discussed along with the few indications of other diseases and interpersonal violence observed by Kalman (1999). It should also be noted that the cemetery population of only 30 individuals is a small one, in which percental proportions become easily distorted by only a single event out the ordinary.

The artefact finds, comprising items from the Bronze and Iron Ages and far beyond, are listed in Table 1. Their chronological range and relevance are discussed in more detail below in relation to the radiocarbon data. The majority of the finds were collected in the 1980s, which means that little is known about their location within a particular cist or a grave mound. Moreover, the body texts by Lõugas (1983; s.a.) are in places incompatible with his captions and with what can be observed in the physical find assemblage, including mismatching find contexts and objects missing in either the papers or the assemblage. Unprofessional recording notwithstanding, it is still questionable if any of the artefacts could have been firmly associated with a particular burial. The clay vessels in the cists are known to have situated in the northern ends of the cists near the heads of the deceased, yet only in cist III the number of vessels matched the number of skeletons. At least seven shattered clay vessels were also located at the north-eastern margin of the grave (Lang et al. 2001a; 2001b). Similarly, in grave I the peripheral pottery, although in considerably smaller quantities, was found mainly in the eastern part of the grave, both inside and outside the ring wall (op. cit.). As for the rest of the finds, it is known that the iron pin was unearthed in the western part of grave III and the knife was found above the cist, while the curved knife came from grave V's eastern part (Lõugas 1983; s.a.). Two of the bronze spirals in grave II were located near the cist's western wall and near the north-eastern interior portion of the ring wall, respectively (Lang et al. 2001a).

Radiocarbon dates

Radiocarbon dating by accelerator mass spectrometry (AMS) was ordered for 22 bones, each standing for a separate individual. The sampling included all extant graves, females and males, adults and sub-adults, and bones inside and outside cists (see Tables 1–2 for details). The selection was based on Kalman's osteological determinations (Kalman 1999; Lang et al. 2001b), matched with the physical skeletons by Martin Malve, an osteologist. Including an earlier result obtained for a female in grave I, the proportion of radiocarbon-dated individuals amounts to almost 50% of the osteologically distinguished skeletons. Besides inhumations, the set includes four cremations. Except for Hela-2063, in cremated samples bone apatite (instead of collagen) was used for radiocarbon dating (see e.g. Dunbar et al. 2016). The Finnish Museum of Natural History Dating Laboratory and the Scottish Universities Environmental Research Centre AMS Facility performed the analyses.

The obtained results indicate two clearly separate burial periods for the cemetery: in roughly 1000–50 BC and AD 1400–1650 (Table 2; Figs 3, 5). The former includes all five graves and the latter concerns grave II and the cluster of infants therein.

In the first group, the majority of the dates, predominantly but not exclusively of the cist burials, coincide with the Hallstatt plateau of the calibration curve, i.e. they span wide ranges between 800 and 400 BC when turned into calendar dates (Fig. 3). A notable exception is the (or a) cremation burial in the cist of grave II, which produced a calibrated date earlier than 800 BC. Its outlier position suggests caution, the more so that cremations have been observed to yield results older than their true age because of carbon exchange with the fuel used in the pyre (Hüls et al. 2010; Olsen et al. 2013; Snoeck et al. 2014; Van Strydonck 2016). Leaving this date aside, the remaining data suggest that the earliest interments had been made between ca 800 and 600 BC, and that burial in cists ended by 400 BC at the latest. The data do not reveal the order in which the graves were built or whether the spatial grouping had a chronological relevance, not to mention the order or intervals of the interments in cists. This also applies to the cists of grave I, although the construction details made it clear that cist B had been built later than cist A. The inconclusiveness of radiocarbon dating in these matters was nevertheless predictable.

An inhumation and a cremation, located outside the cist of grave V, yielded calibrated dates between 400 and 50 BC. Notably, an inhumation and two cremations with analogous out-of-cist placements in grave III produced dates similar to the cist interments. The data, difficult to interpret in fine detail, enables at least two readings, the possible unreliability of the cremations notwithstanding (Van Strydonck et al. 2009; Snoeck et al. 2014; Van Strydonck 2016). The first reading is that the use of the cemetery was continuous from the Bronze Age to the Pre-Roman Iron Age and ceased not long after 400 BC; some or all burials outside the cists post-dated the cist burials. The second scenario includes at least two temporally separated burial periods, in the Late Bronze Age and in the Pre-Roman Iron Age respectively. The latter phase in this scenario involved burials outside the cists, either all or some of them. Explicit time frames of the two burial periods are impossible to establish.

Table 2. Radiocarbon dates from Rebala. The table includes, and shows in italics, previously published dates (Lõugas & Selirand 1989; Lang et al. 2001b; Lang 2007) and a date of a chicken bone, recently obtained within another project (Ehrlich et al. forthcoming 2022). Bone dates are AMS and charcoal dates are conventional dates. Calibration by OxCal v4.4.2 with the IntCal20 atmospheric curve (Bronk Ramsey 2009; Reimer et al. 2020). G – grave, sq – square, F – female, M – male, ? – sex unknown, R – right, L – left, AI – Archaeological Research Collection at Tallinn University

Context	Sex, age in years	Sampled item	Lab code	Date BP	Date cal (95.4%)	$\delta^{13}C$ (‰)
G I, cist A	?, 5–7	R tibia AI 5229	SUERC-28731 (GU-21235)	2465 ± 35	770–410 BC	–21.4
G I, cist A	*F, 17–19*	*L tibia AI 5229*	*Poz-10826*	*2480 ± 35*	*780–420 BC*	–
G I, cist B	F, 25–35	L femur AI 6435: 25	Hela-2125	2518 ± 30	790–540 BC	–21.4
G I, cist B	F, 35–45	L femur AI 6435: 27	Hela-2126	2510 ± 30	790–540 BC	–21.3
G I, sq d4	–	*Chicken AI 6435: 94*	*Poz-116213*	*2090 ± 30*	*200 BC–AD 10*	–
G II, cist	M, 18–22	L radius AI 5229	Hela-2127	2485 ± 30	780–480 BC	–21.4
G II, cist	M, 35–45	R scapula AI 5229	Hela-2061	2481 ± 30	780–470 BC	–21.4
G II, cist	(Cremation)	Tubular bone? AI 5229	Hela-2124	2734 ± 30	970–810 BC	–26.4
G II, sq d4	?, 0–1	R femur AI 6436: 26	SUERC-28733 (GU-21237)	460 ± 35	AD 1400–1490	–19.8
G II, sq d4	?, 0–1	R femur AI 6436: 55	Hela-2130	452 ± 30	AD 1410–1480	–19.9
G II, sq d5	?, 0–1	R tibia AI 6436: 12	SUERC-28732 (GU-21236)	400 ± 35	AD 1430–1640	–20.4
G II, sq d5	?, 0–1	Femur AI 6436: 11	SUERC-28737 (GU-21238)	385 ± 35	AD 1440–1640	–20.4
G III, cist	?, 1	R humerus AI 5229	SUERC-28738 (GU-21239)	2420 ± 35	750–400 BC	–20.4
G III, cist	F, 50+	R femur AI 5229	Hela-2131	2485 ± 30	780–480 BC	–21.2
G III, sq d3	?, 4–5 (cremation)	Cranium AI 6437: 109	SUERC-86378 (GU-51276)	2365 ± 28	540–380 BC	–22.7
G III, sq e3	?, adult	Tubular bone? AI 6437: 20	Hela-2132	2390 ± 30	730–390 BC	–21.7
G III, sq 3c	(Cremation)	Tubular bone AI 5229	Hela-2133	2418 ± 30	750–400 BC	–22.0
G IV, cist	M, 16–18	L femur AI 5229	Hela-2135	2410 ± 30	750–390 BC	–21.3
G IV, cist	F, 18–20	L humerus AI 5229	Hela-2134	2507 ± 30	790–540 BC	–21.3

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Table 2. *Continued*

Context	Sex, age in years	Sampled item	Lab code	Date BP	Date cal (95.4%)	$\delta^{13}C$ (‰)
G V, cist	?, 2	R humerus AI 5229	SUERC-28740 (GU-21241)	2610 ± 35	900–590 BC	–22.1
G V, cist	F, 25–30	R humerus AI 5229	Hela-2136	2555 ± 30	810–550 BC	–21.2
G V, cist	M, 25–35	R humerus AI 5229	Hela-2137	2420 ± 30	750–400 BC	–21.2
G V, sq 6b	?, adult	Tubular bone AI 5229	Hela-2062	2136 ± 30	350–50 BC	–21.4
G V, sq a4	(Cremation)	Tubular bone AI 5229	Hela-2063	2264 ± 30	400–200 BC	–20.9
G I	–	*Charcoal AI 6435: 9*	*Tln-2565*	*2868 ± 75*	*1270–830 BC*	–
G II	–	*Charcoal AI 6436: 1*	*Tln-2557*	*2930 ± 57*	*1380–930 BC*	–
G III	–	*Charcoal AI 6437: 3*	*Tln-2563*	*2929 ± 66*[3]	*1380–930 BC*	–
Baulk, A/B	–	*Charcoal*	*Ta-1643*	*2020 ± 60*	*200 BC–AD 160*	–
Baulk, F	–	*Charcoal AI 6716: 8–9*	*Tln-2822*	*2014 ± 98*	*360 BC–AD 240*	–

Discussion

In the following, I discuss the radiocarbon dates of the bones in relation to the radiocarbon dates of the charcoal, the typochronology of the artefacts, and other available evidence to see whether the chronology of the site can be specified and what inferences of wider relevance can be made.

Bone dates and charcoal dates

The dates of the bones are generally later than the dates of the wood charcoal from beneath graves I–III (Table 2; Fig. 3). Given that the earliest stone-cist graves in Estonia emerged around 1100 BC, if not even earlier, the charcoal dates are not excessively old to be applicable to the graves; yet the poor overlapping with the bone dates cannot be overlooked.

At this point, the origin of the radiocarbon-dated charcoal is of crucial importance and needs to be discussed. Charcoal was present only between and beneath the lowermost stones of the graves where it came as tiny pieces rarely as big as a fingertip, mostly scattered, less frequently in small clusters (Lang et al. 2001a). In grave III a small and compact cluster slightly but clearly higher than the limestone bedrock was radiocarbon dated; in grave I the analysed charcoal came from a more loosely defined area ca 40 cm across; and in grave II where charcoal was the least

[3] This date has been quoted incorrectly in earlier publications (Lang et al. 2001b; Lang 2007, fig. 97).

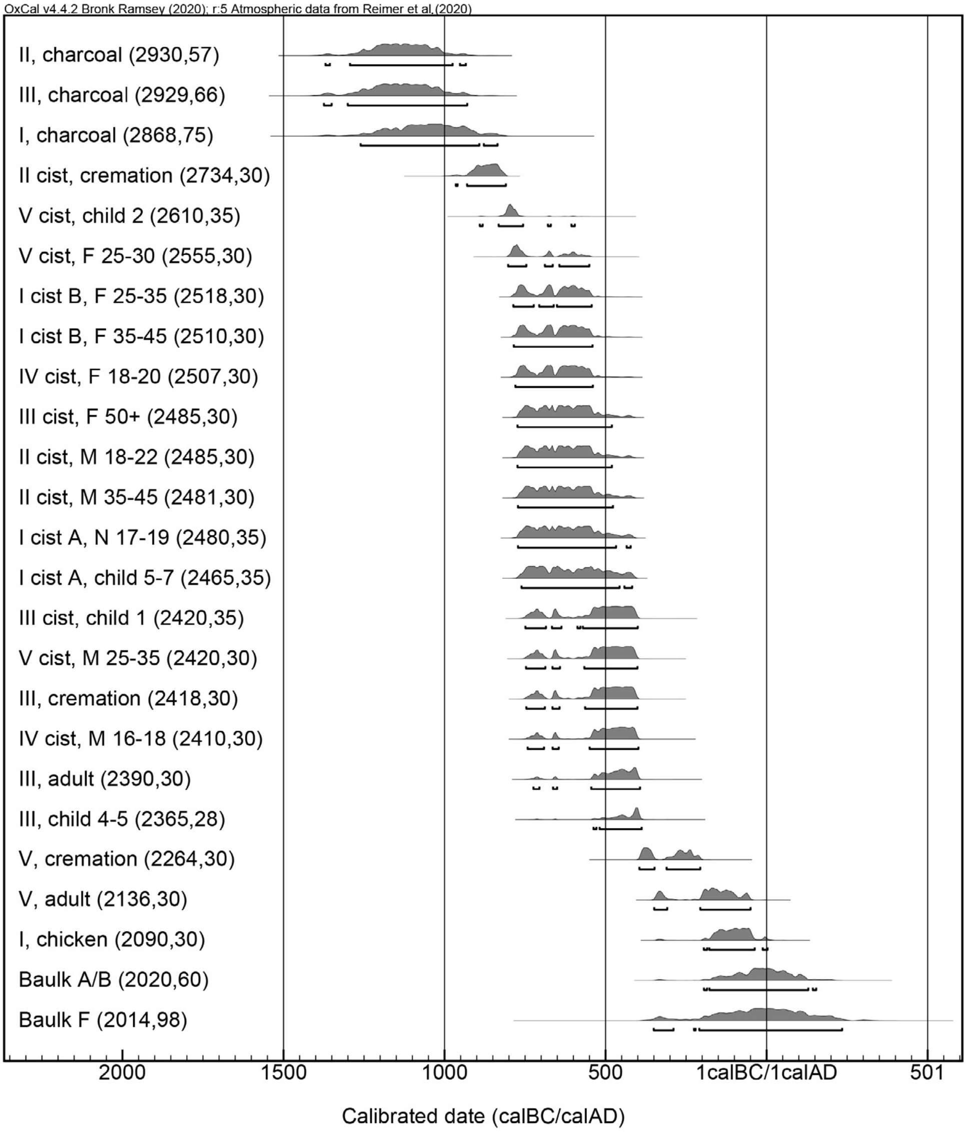

Fig. 3. Radiocarbon chronology at Rebala, corrected to calendar ages by OxCal v4.4.2 with the IntCal20 calibration curve (Bronk Ramsey 2009; Reimer et al. 2020). The figure shows 95.4% probability ranges. The dates of the 15th–17th-century infants are plotted separately in Fig. 5.

abundant, the sample was collected from an extensive area of almost the entire grave base. The charcoal has not been studied, i.e. it is unknown from what kind of wood the charcoal originated.

It has been suggested that the charcoal was a result of preparing the area for grave construction with the aid of fire (Lang et al. 2001b). If so, the most readily available explanation for the difference of bone and charcoal dates is the old wood effect, i.e. the burnt wood must have been of relatively old age and therefore produced a radiocarbon date earlier than the event of burning (Simonsen 1983; Mook & Waterbolk 1985; Kim et al. 2019). This hypothesis could be assessed alongside more information about the burnt wood; this information is however lacking. Another possibility to consider is that the graves sealed and preserved charcoal from an event earlier than the building of the graves. This hypothesis is also difficult to prove, although extensive AMS dating of the charcoal particles could possibly yield relevant (though not necessarily conclusive) results. The third potential explanation is that the charcoal dates are a true indication of the cemetery's age, but the earliest interred skeletons, removed from the cists to make room for new burials, were unavailable for radiocarbon analysis. This hypothesis has yet to be verified by osteological studies and radiocarbon dating that would provide greater precision than those currently available. As long as there is no evidence of removing skeletons from the cists, and the relation of the charcoal to the graves is an open question, the radiocarbon dates of the bones are to be viewed as more reliable than the charcoal dates in regard of the age of the graves.

Bone dates and artefact dates

The cist finds (see Table 1), particularly the clay vessels of Lüganuse-style and the bone pin with widening ('spade-shaped') head (Lõugas 1983, pls V: 1, 3; VII: 1; Lang 1996, fig. 9: 1–2), are in general terms a good match to the skeletons' radiocarbon dates. It is rather likely that the fragment of another bone pin, found outside the cist in grave II, had originally been also inside the cist. The finds are, however, of no help in narrowing down the wide stretches of time depicted in Fig. 3, and the reasoning is as follows.

Bone pins, including 'spade-headed' specimens, date back to the early stone-cist graves, as demonstrated by the cemetery at Jõelähtme. It is possible that bone pins accompanied burials at Jõelähtme as early as before 1000 BC (Laneman 2021). Bone pins have also been found in the grave groups with calibrated radiocarbon dates across the Hallstatt plateau at 800–500/400 BC, i.e. cases similar to that of Rebala (e.g. Jaani at Väo, Iru XVIII; Laneman et al. 2015; Saag et al. 2019). The pins in such graves have usually no well-datable co-finds, which means that a more precise date remains out of reach. The fact that bone pins were present in the fortified settlement at Asva is unhelpful, as the site suffers from similar limitations in dating (Sperling 2014).

The earliest clay vessels of style Lüganuse date from the 11th–9th centuries BC at the latest, if the two radiocarbon dates obtained from charred crust of vessels from open settlement sites are to be trusted (Kriiska et al. 2005; for the pottery style, see Lang 2007, 129 f.). In a stone-cist grave at Väo (Kangru VIII), which contained a vessel of this type, a cist burial was radiocarbon dated to the 9th century BC (Lang 1996, 143; Saag et al. 2019). The vessel was located outside the cist, and therefore the relevance of the radiocarbon date in regard of the pottery is questionable. Apart from Rebala, cist burials accompanied by a Lüganuse-style clay vessel have not been radiocarbon dated. The main co-finds of the Lüganuse pottery in most stone-cist cemeteries are bone pins with protracted date ranges until the end of the Bronze Age and perhaps slightly beyond (see above). The pottery type has also been reported from the fortified settlements at Asva and Iru (Lang 1996, 43 ff.). The fact that the Late Bronze Age fortified settlements contained only small quantities of this pottery type has previously been viewed as an evidence for its predominantly Pre-Roman Iron Age date (Lang 1992; 1996). Today this view no longer holds the ground, since the radiocarbon dating has detected specimens that probably pre-date the fortified settlements, and because absence from settlements may have other (i.e. function-related) causes rather than a chronological difference. These things considered, a broad date range has to be accepted for also this find type. For only the sake of completeness let it be mentioned that the cist of grave III also contained a reportedly unique vessel that cannot be assigned to a type, not to mention a precise date (Lõugas 1983, pl. V: 2; Lang 1996, 295, fig. 13: 2).

An iron object in a cist is an intriguing find, particularly in a case where it is unknown whether or not the burial crossed the conventional border between the Bronze and Iron Ages. In the case of grave II, the find is however useless. First, the object is unidentifiable, and second, if the bone pin had moved out of the cist, other objects may have moved into the cist at an unknown point in time.[4] Certain doubt about the object's status as an original grave inclusion is relevant, because iron finds in cists are generally rare. On the other hand, one of such rare cases was observed at Väo, and it is most interesting that a possibly associated individual had been genetically related to one of the men in cist II at Rebala (see the next sub-chapter).

As for the artefacts outside the cists, the knife and particularly the shepherd's crook pin in grave III (Lõugas 1983, pl. VII: 4, 7) are characteristic find types of the Pre-Roman Iron Age *tarand* graves. Most of the pottery found outside the cists may be contemporaneous, though the vessels are too fragmentary to allow more precise dating within the later part of the Bronze Age and earlier part of the Iron Age (Lang et al. 2001b; Laneman 2007). The knife and the pins are, however, similarly elusive in regard of the question whether they reached the site in the first or the last half of the Pre-Roman Iron Age.

The date of the iron shepherd's crook pins has been placed between 250 or 200 BC and AD 50 so far (Lang 1996, 55, 288 f.; 2018, 171). Due to the scarcity of closed find complexes, the date is poorly grounded (see Lang 1996, 55) and is therefore amenable to revision by recent radiocarbon data. A skeleton with an in-situ shepherd's crook pin in a stone-cist grave at Kõpu, Hiiumaa, has been radiocarbon dated to ca 360–50 BC[5]. The individual, probably a female (Leiu Heapost, pers.

[4] This is in fact one of the rare cases when the location of a find has been mentioned by Lõugas (1983), 'at the pelvic bones of the eastern skeleton'. It must have been the younger of the two men, because according to Kalman (1999, 21 f.) the pelvis of the older man was absent. However, the bones in the cist were a mess (op. cit.) and it would be unwise to conclude that any object therein could have been ascribed to a particular skeleton, unless firmly attached.

[5] 2156 ± 39 BP (UBA-25490; $\delta^{13}C$ –20.9‰; $\delta^{15}N$ 9.3‰). This radiocarbon date has not been published before. Note that all calibrated radiocarbon dates in this paper are quoted at 95.4% probability ranges.

comm.), had been placed in a secondary cist built above an earlier cist (Lõugas 1984a; 1984b). A date between 380 and 180 BC (2205 ± 35 BP) for a male skeleton in an early *tarand* grave at Poanse, western Estonia, may also be relevant (Saag et al. 2019). Unfortunately, it is unknown whether the date applies to the man buried with a shepherd's crook pin or to some of the other males nearby, because the samplers failed to establish the relation between the sampled bones and the excavation and osteological records (see Varul & Laneman 2018). Similar radiocarbon dates have been obtained for other *tarand* graves that contained iron shepherd's crook pins (Saag et al. 2019), although the dates do not apply directly to the pins. The data nevertheless shows that the pins may have been older than 200/250 BC. In case of Rebala, however, it does not make interpretation easier.

The knife in question, a 'sickle-knife', is of type 1a according to the classification in Laul & Tõnisson 1991. A similar knife has been found in the early *tarand* grave at Kunda which, according to radiocarbon data, had been present in the 5th century BC at the latest (Oras et al. 2016, 14). In numerous burial sites, such knives occur along with shepherd's crook pins (Laul & Tõnisson 1991). Accordingly, a narrower date than the entire Pre-Roman Iron Age cannot be established.

The rest of the finds outside the cists, mainly in grave II and V, date from later periods through the Iron Age and beyond. Not unusually, the assemblage is diverse and otherwise rather nondescript. A few items are possibly contemporaneous with the infant burials. Although the selective radiocarbon dating did not detect burials between the Pre-Roman Iron Age and the 15th century AD, their presence cannot be entirely excluded from consideration, particularly among the cremation deposits. On the other hand, and perhaps more likely, the artefacts may have ended in an above-ground stone structure in any of several ways other than a burial, including both ritual and non-ritual practices and events. The detailed review is as follows.

The curved knife in grave V (Lõugas 1983, pl. VII: 5) is a frequent find type in the 3rd–6th-century *tarand* graves and settlement sites (Lang 1996, 164; Tvauri 2012, 123). The possibly second knife in grave V (Lõugas 1983, pl. VII: 6) has no particular characteristics that allow a reasonably precise age determination, but a date roughly contemporaneous with the curved knife is possible. The spiral tubes of bronze wire in graves V and II (Lõugas 1983, pl. VII: 2) represent an artefact type with a prolonged use from the end of the 3rd century AD until at least the Viking Age (Vassar 1943; Tvauri 2012, 149). As for the remaining finds of grave II, trapezoid bronze pendants appeared in the 6th century AD and their use continued into the mediaeval period (Tvauri 2012, 151 f.; Laul & Tamla 2014, 70). Ice nails (Lõugas 1983, pl. VII: 3) date from the end of the Iron Age and perhaps also from the Middle Ages (Savioja 2016). The two rectangular tin plaques have been assigned to the mediaeval period (Lõugas 1983, 296). Analogous plaques have been found, for example in a rubbish dump accumulated in the late 15th century in the outskirts of Tallinn (Andres Tvauri, pers. comm.; Russow et al. 2019) and in a hoard cached in the 1570s or 1580s at what today is Puru in Ida-Virumaa (Keeman 2017; Kiudsoo 2018). A minor part of the pottery, perhaps in all graves, is probably contemporaneous with the above-mentioned finds, and a few sherds in grave II have a date in the 17th century or most likely even later (Erki Russow, pers. comm.). Pieces of flint and quartz in the 2004 trench adjacent to grave I date from after the mid-Neolithic; a more precise date cannot be determined (Laneman 2006; 2007, 56). A reasonably precise date is similarly difficult to assign to the rest of the finds.

Radiocarbon dates and genetic relatives

The two adult males of grave II at Rebala have been included in an aDNA study (Saag et al. 2019). The older of the men was found to be the second-degree maternal relative of a 30–40-year-old man known from Jaani grave at Väo ca 15 km west of Rebala. The two men were either half-brothers or an uncle and nephew, which means that the two burials, or lives, must have been relatively close in time.

The radiocarbon date of the Väo individual is 2399 ± 27 BP, which also translates into a generally long stretch of time between ca 730 and 400 BC (Laneman et al. 2015; Fig. 4). A date in the 6th–5th centuries BC for this burial has been preferred

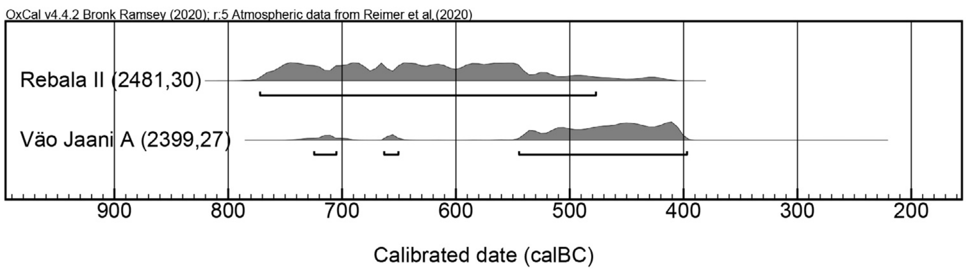

Fig. 4. Radiocarbon dates of the second-degree relatives at Rebala and Väo, corrected to calendar ages by OxCal v4.4.2 with the IntCal20 calibration curve (Bronk Ramsey 2009; Reimer et al. 2020). The figure shows 95.4% probability ranges.

mainly because the cist that housed the bones contained an iron knife with a date most probably in the Pre-Roman Iron Age. Additionally, the latter part of the calibrated date range was deemed statistically more likely than the earlier, and the joining of grave structures reminded of the way the Pre-Roman Iron Age *tarand*s were attached to one another. Yet the weak spots of the reasoning cannot be overlooked: it is unclear whether the knife belonged with the radiocarbon-dated male or, given that the grave had been severely damaged, the knife had been an original grave inclusion in the first place. It is also possible that the knife had an earlier date than the 6th century BC (Lang 1996, 136). All things considered, including the statistics of the radiocarbon calibration, the Väo individual provides no conclusive clues to confidently specify the date of his Rebala relative.

Burials and a chicken

Within another research project, a chicken tibiotarsus from grave I was radiocarbon dated to ca 200 BC – AD 10 (Ehrlich et al. forthcoming 2022). It turned out to be the earliest firm evidence of chicken in Estonia. The bone had been located between the lowermost stones of the grave roughly three metres east of the cists. It is difficult to see how the bone found its way to the almost under the grave if the space between the cists and the ring wall had already been filled. It may have been possible though, given that there was relatively little soil between the limestone slabs. The absence of soil may have enabled the movement of single bones with an aid of animal agency (for instance, a mustelid inhabiting grave II was observed on the spot in 2000) or during excavation when stones were removed and small items may have found their way downwards without noticing.

Differently from the Pre-Roman Iron Age artefacts with wide date ranges (see above), the chicken bone can be temporally located at the end of the period in question. It is therefore an almost firm evidence of an event taken place at the site in the Late Pre-Roman Iron Age. There are, however, no grounds to establish that the event was a burial. It has been observed that stone graves may have been tended for a long time after burial had ended (e.g. Lang 2000, 104; Laneman 2021), and it is conceivable that other rituals took place at the sites. This possibly accounts for the presence of ‘late’ artefact finds at some sites. At Rebala, a ritual involving chicken may also have been associated with field cultivation nearby (see below). The possibility that the chicken bone derived from someone’s mundane meal, whether a farmer or a predator (of another species), cannot be ruled out either. It must therefore be concluded that the chicken bone cannot be relied upon in deciding whether the cemetery contained burials from the Late Pre-Roman Iron Age.

Graves and fields

Establishing chronological (and almost any other) relation of the graves and the surrounding fields requires a well-established chronology to be available for both. It is clear from the above that this condition is not met for the graves. The following explains why the situation is not better in the case of the field remains.

The chronology of the fields has been based on two radiocarbon dates obtained from wood charcoal (Table 2; Fig. 3). One of them dates a small fireplace discovered in excavation trench A or B in the 1980s (see Fig. 1). Regrettably, the stratigraphic relation of the fireplace and the field baulk has been reported inconsistently, leaving it unclear whether the fireplace was situated on top of or within the baulk, or whether it had been cut into the limestone bedrock beneath the baulk (Lõugas 1985, 30; Lõugas & Selirand 1989, 152; Lang 1996, 486; Lang et al. 2001b, 35). The associated radiocarbon date is nevertheless consistent with the date obtained for trench F in 2004. The latter date stands for small pieces of charcoal collected over an area of ca 7.5 m^2 between and beneath the lowermost stones of the baulk (Laneman 2006). The find context and quantity of the charcoal is similar to the charcoal observed under the graves, and poses similar problems for interpretation, i.e. the radiocarbon determination provides hardly more than terminus post quem for the (particular) baulk. In neither case has the burnt wood been determined to assess the probability of the old wood effect.

These things considered, stating that the fields were established in the Pre-Roman or the Roman Iron Age, with no further precision, is prudent. The morphology of the fields (e.g. Lang 1996, 486 f.; 2007, 98 f.), potsherds with striated surfaces reportedly found from the upper layers of the baulks (Lõugas 1985), and sizeable granite stones, allegedly from field clearance, heaped against grave II before disintegration of the ring wall (Lõugas 1983; 1985), support this estimation but do not enable specification thereof. The various Early Iron Age artefacts in the graves cannot be considered an evidence for dating the fields, although the connection may have existed. The same applies to the radiocarbon-dated chicken bone of grave I (Ehrlich et al. forthcoming 2022).

It follows that the field tillers did not probably bury their dead in the cists, but they may have inserted bodies, bones, and/or artefacts in other parts of the stone mounds. Given the vast stretches of time involved, it is difficult to be explicit, especially as no one knows for how long the fields remained in use.

The last stone-cist graves

Considering that the earliest stone-cist graves in Estonia emerged around 1100 BC at the latest, the cemetery at Rebala appears to be relatively late among this type of cemeteries. Yet the point in time when the tradition of building stone-cist graves ceased and burial in cists stopped is difficult to ascertain. The case of Rebala itself exemplifies these difficulties.

Before radiocarbon dating of bones was applied to the stone-cist graves, the terminal boundary of their building had been set at ca 200 BC, i.e. at the time when shepherd's crook pins appeared in burial sites (Lang 1996; 2007). The pins were rare in the cists, and the obvious conclusion was that the cists pre-dated the pins. The first thing to note here is that the shepherd's crook pins may have appeared earlier than hitherto believed (see above). An even more important fact is that radiocarbon dating has so far failed to detect stone-cist graves where the oldest burials undoubtedly post-date 400 BC. More precisely, in the latest stone-cist graves the calibrated dates of the cist burials sit on the Hallstatt plateau between 800/750 and 400 BC, and similarly to the case of Rebala, there is usually insufficient evidence to further narrow the dates. An attempt has been made at Väo (Jaani), in favour of the 5th century BC, but the evidence, combining radiocarbon dates, structural features of the graves, and the questionable status of an iron knife as an original grave inclusion, remains inconclusive (see above; Laneman et al. 2015). The relevance of the Kõpu case in dating the last stone-cist graves (see Lang 1996, 297), also mentioned above in regard to the shepherd's crook pins, is questionable, because the radiocarbon-dated skeleton came from a secondary cist, different from the original cist in position, structure, and probably also date. Thus, neither the shepherd's crook pin nor the associated radiocarbon date need be a true indication of the grave's age; regrettably, the bones in the stratigraphically lower cist have not been radiocarbon dated. The case is similar at Jäbara, where skeletons equipped with a bronze bracelet and neck ring and iron knives, dated to ca 500–300 BC, were uncovered in not the original but secondary cists of grave A (Shmidekhelʹm 1955, 24 ff.; Lang 1996, 285), and thus tell little about the time the grave and the first cist were constructed. Additionally, a skeleton radiocarbon dated to ca 760–400 BC in the *tarand* grave at Tandemägi, Võhma (Saag et al. 2019), implies that the burials with such rings may pre-date 500 BC.

These things considered, it is probably justified to state for the time being that the building of stone-cist graves ended in the 5th century BC at the latest. There is a considerable probability that it happened earlier, but the mists of the Hallstatt plateau blur the view. Besides, the fact that no new stone-cist graves were added did not mean that no new burials were added to the extant stone-cist graves after, and even very long after, the 5th century BC.

Mediaeval infants

The infants of grave II turned out to be two millennia younger than the grave itself (Table 2; Fig. 5). Minimal intersection of their grave hollows in a confined area suggests a relatively short period of burial in the 15th century; a 16th-century date for some of the interments cannot be ruled out either. The comparatively diverse artefact assemblage of grave II (see above) provides no direct support in dating, among other things because the finds came mostly from the topmost part of the grave and their relation to the infant burials remains questionable. On the other hand, the presence of a few items with potentially matching dates, such as the tin plaques, cannot be overlooked. The closest settlement of the time was the village of Rebala less than a kilometre to the south. The temporally closest available records reveal that in the 16th century the village comprised seven farmsteads, and the land north of the village was probably used as a pasture (Troska 2000; 2007). A consecrated burial ground was present about 2 km south-east of the village.

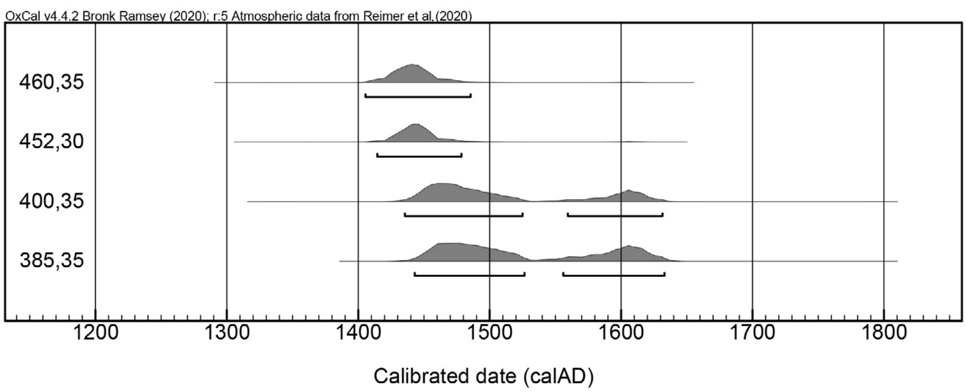

Fig. 5. AMS dates of the infants from Lastekangur II at Rebala corrected to calendar ages by OxCal v4.4.2 with the IntCal20 calibration curve (Bronk Ramsey 2009; Reimer et al. 2020). The figure shows 95.4% probability ranges.

Burying children (and some other societal groups, often ‘deviant’ or marginalised) separately from other members of a community, occasionally in long-abandoned burial sites, is a practice spread widely in space and time. In Estonia, too, the phenomenon is not limited to Rebala or the Middle Ages. The most similar case is a stone-cist grave at Kaseküla, western Estonia, which has been used for infant burial most likely around the end of the Viking Age (Allmäe 2010; Laneman 2012). The Jaani stone-cist graves at Väo may have served as a burial place for predominantly children in the Roman and Middle Iron Ages (Laneman et al. 2015). Other stone graves with an unusual number and clustering of infant skeletons are known to have existed, e.g., at Lagedi, Tandemägi in Võhma, and Iru (Spreckelsen 1927, 24 f.; Lõugas 1976; Kalman 2000c, 425), though the skeletons have not been radiocarbon dated. Observations on ‘missing’ children in burial sites (e.g. Allmäe 2010, 46, 49; Kalman 2000a, 33; 2000b, 398; 2000c, 429; Valk 2001, 65; Randoja 2012; cf. Allmäe 2006) is possibly an indirect indication of secluded burial.

The reasons behind excluding infants from a communal burial ground are as various and nuanced as are the responses to infant birth and death (e.g. Scott 1999; Finlay 2000; Carroll 2011; Gardeła & Duma 2013; Hausmair 2017; see also Laneman 2012, 111 f.). A plausible interpretation requires detailed knowledge on the era at hand, including knowledge on its legal history and of what can perhaps be called its history of mentalities. The case of Rebala also needs, and deserves, a treatment far more profound than that possible in this paper, and I therefore limit myself to merely a few remarks on the topic.

First of all, a proper osteological analysis is needed. It is highly likely, and was also observed at sampling, that age estimations more precise than currently available in Lang et al. 2001b are achievable (cf. Kalman 2000a; Allmäe 2010). Infancy itself can be split up to various stages such as perinatal, neonatal, and post-neonatal ages (e.g. Carroll 2011; Hausmair 2017), and this is an important factor to consider in an attempt to find out how the babies died and why they were buried in an old cairn. The main causes of infant death include illness and killing, the latter in the form of ‘domestic’ infanticide (with greatly varying causes and degrees of societal acceptance) or of ritualised sacrifice, whereas deliberate neglecting and abandoning remains in a ‘grey area’. Cause of death can be a contributing factor to a differential burial; so were (other) deviations from norm(s), including belonging to a category of less valued persons or non-persons. It is therefore advisable to study the bones for also pathological conditions or abnormalities.[6] At Rebala, if it was a burial place used by a single village of fewer than ten farmsteads, a one-time epidemic outbreak can probably be excluded from consideration. The place must have been well known, which means that infanticide, if it was practised, must have been tolerated. Given the high infant mortality rate of the time, I am inclined to prefer an interpretation that excludes violence. Missing the initiation through baptism is a

[6] One of the radiocarbon-dated infants at Rebala had possibly suffered from meningitis or a birth trauma (Martin Malve, pers. comm.). The preliminary observation made at sampling is yet to be confirmed by methodical examination.

possibility to consider but, as mentioned earlier, a profound discussion of syncretism and official church legislation, combined with more precise age estimations and data on pathological conditions, is required to assess the hypothesis.

An interesting detail to mention in this context is the name Lastekangrud [Children's Cairns]. The anecdotal evidence is that the villagers, or a villager, explained to Vello Lõugas that the children who were herding the villagers' livestock used to play on and around the overgrown stony heaps in the pasture, hence the name of the site. It is difficult to assess whether the information came as an ad hoc theory of the informant(s) or as a known fact. Interestingly, Lõugas found a rectangle laid of limestone slabs, apparently a few square metres in size, in the northern part of grave II, right below the turf. The captions he had inserted to the archived photos thereof state that it was the foundation of a children's play hut; again, it is unknown whether this is an interpretation or a known fact. Be that as it may, it is perhaps not inconceivable that the name of the site (also) echoes if not the Bronze Age, then the Middle Ages when the place served as a burial site for the youngest.

Conclusions

The more than twenty radiocarbon dates of bone render the graves of Lastekangrud at Rebala the so far most extensively radiocarbon-dated stone-cist cemetery in Estonia. The results exemplify the difficulties in dating the relatively late stone-cist graves. In such cases, there are no closed burial complexes with well-datable artefact finds and the ^{14}C-dates coincide with the Hallstatt plateau of the calibration curve, spanning broad ranges from ca 800 to 400 BC. At Rebala, the things are even more complicated, because the dates of a cremated bone and the charcoal from beneath the graves suggest the presence of the graves long before 800 BC, and a few bone dates indicate the possible use of the cemetery through the Pre-Roman Iron Age up to ca 50 BC. The dates of the bones are, however, more reliable than the dates of the charcoal, because the connection of the charcoal and the cemetery founding is not granted, and the old wood effect cannot be ruled out. Even if casting the charcoal dates aside, we are still left with a long period of about 800 years. Such a long, or even longer, lifespan of the cemetery is not necessarily impossible, though rather unlikely in view of the number of the grave mounds and interments. The latter figure is however unsuitable for determining the length of the cemetery use, because it is unknown whether all members of a community were buried in stone-cist graves; particularly at Rebala where the cremations have not been osteologically studied and the age profile of the inhumed population shows an abnormally large proportion of late adolescents or young adults.

The currently available information suggests that the simplest (and perhaps the likeliest) scenario is that the cemetery was founded between 850 and 600 BC and used thereafter until ca 350/300 BC; interment in cists ended by ca 400 BC, and the last burials were placed outside the cists. An alternative interpretation is that burial was interrupted by the 5th century BC at the latest, and was resumed, perhaps briefly and in only some of the graves, sometime between 400 and 50 BC. The latter stage of burial may have coincided with the establishment of the block-shaped field system around the graves. The date of the first field blocks within the Pre-Roman Age and Roman Iron Age is however impossible to pinpoint, and likewise is it unknown for how long the fields remained in use. The graves also contain apparently occasional artefacts from various Iron Age periods, but their purpose and meaning at the site remains a matter of guesswork.

In the 15th century, grave II was turned into a burial ground of infants. Differential treatment of infants in death has been a widespread practice across cultures, yet the reasons vary greatly. At Rebala, the infant burials deserve a further investigation, including a detailed osteological examination and an in-depth analysis of the cultural context.

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Margot Laneman

REBALA LASTEKANGRUTE KRONOLOOGIAST

Resümee

Lastekangrute-nimelised kivikirstkalmed Põhja-Eestis Rebala küla ja mereranniku vahelisel loopealsel on üks põhjalikumalt uuritud seda tüüpi kalmete rühmi Eestis. Arheoloogilised kaevamised toimusid kalmetel ja neid ümbritsevatel kamberpõldudel 1980. ja 2000. aastail (jn 1–2). Kui 1980.–1990. aastail dateeriti kalmistu eelkõige esemelise leiumaterjali alusel eelrooma rauaaega, siis 2000. aastate algul näitasid kalmetealuse söe ja ühte kirstu maetud luustiku radiosüsinikudateeringud, et kalmed võisid arvatust vanemad olla. Seejuures langesid kolm söedateeringut kalibreerituna ühtlaselt 13.–9. sajandisse, kuid luudateering 8.–5. sajandisse eKr. Kalmekuhjatistest leitud esemed, mida ei saanud konkreetsete matustega seostada, jätsid siiski avatuks võimaluse, et kalmetesse maeti ka eelrooma

rauaaja lõpul, rooma rauaajal ja võib-olla hiljemgi. Eriti tõenäoline tundus suhteliselt hiline dateering II kalme kirstu kõrvalt kivilademest leitud kümmekonna alla aasta vanuse lapse puhul, sest selline vanuseliselt segregeeritud matmine ei ole kivikirstkalmetele üldiselt iseloomulik.

Muististekompleksi kronoloogia täpsustamiseks lasti radiosüsinikumeetodil dateerida viiest säilinud kalmest 22 inimluud, kõik tõenäoliselt eri indiviididelt (tabelid 1–2). Koos eelmainituga on praeguseks dateeritud 19 põletamata luustikku, mis on ligi pool kõikidest kalmerühmas osteoloogiliselt eristatud skelettidest. Nende seas on 13 kirstusisest ja kuus kirstuvälist matust, seejuures mõlema bioloogilise soo ja eri vanuserühmade esindajaid. Põletusmatuseid, mida tundub olevat vähem kui laibamatuseid, pole kahjuks osteoloogiliselt piisava põhjalikkusega uuritud, kuid neli proovi võeti nendestki, sh üks II kalme kirstust, mis ainsana kuuest kaevatust sisaldas põletatud luid.

Enamik kirstusiseste matuste dateeringutest sattus paraku kohakuti kalibreerimiskõvera nn Hallstatti platooga, mis tähendab, et tulemuseks on pikad ühtlase tõenäosusega ajavahemikud 800. ja 400. aasta vahel eKr ning et kalmistu tegelikku kasutusaega on raske kindlaks teha (jn 3). II kalme kirstu põletusmatuse dateering osutus küll varasemaks kui 800 eKr, ent kuna see erineb ülejäänutest ja põletusmatuse puhul võib tulemust mõjutada tuleriidal kasutatud materjal, siis peaks sellesse dateeringusse suhtuma ettevaatusega. Üks teine dateering osutab, et kalmistu oli tõenäoliselt olemas hiljemalt 600. aasta paiku eKr. Kirstudest leitud esemed (peamiselt luunõel(ad?) ja savinõud) sobivad radiosüsinikumäärangutega, ent ei võimalda neid täpsustada. Samuti ei ole kuigi palju abi asjaolust, et ühest teisest kohast – Väo Jaani kalmest – on dateeritud Rebala II kalme kirstu maetud (vanema) mehe geneetiline lähisugulane, kes pidi elama temaga enam-vähem samal ajal. Ka selle matuse radiosüsinikudateering venib kalibreerituna pikale ja kuigi mitmesugustel kaalutlustel võiks eelistada selle 6.–5. sajandisse jäävat otsa, ei saa välistada ka 8.–7. sajandit eKr (jn 4). Mis puudutab kalmealuse söe märgatavalt varasemaid tulemusi, siis nende puhul peab arvestama, et nn vana puu efekt ei ole välistatud ja et söe seos kalmete rajamisega ei ole tõestatud. Seni kuni pole leitud luid, mille dateering langeks söe omaga paremini kokku, tuleks luudest saadud dateeringuid pidada usaldusväärsemaks kui söest saaduid. Seega peaks kalmete rajamisaja puhul praegu piirduma tõdemusega, et see jääb tõenäoliselt 850. ja 600. aasta vahele eKr. Kirstudesse matmine lõppes hiljemalt 400. aasta paiku eKr.

Osa kirstuväliste matuste dateeringutest kattub kirstusisestega, kuid mõni näitab, et kalmetesse või vähemalt mõnda neist maeti veel 400. ja 50. aasta vahel eKr (jn 3). See ei välista võimalust, et kõik kirstuvälised matused on kirstumatustest hilisemad, ehkki tõestada seda praeguste andmetega ei saa. Ka kirstuvälise matmise ajalisel piiritlemisel ei ole esemeleidudest abi, sest isegi kui neid saaks konkreetsete matustega siduda, ulatuvad ka suhteliselt levinud esemetüüpide (näiteks karjasekeppnõela ja kõvernoa) dateeringud enam-vähem üle kogu eelrooma rauaaja. Tõlgendusi on vähemalt kaks: 1) matmine oli järjepidev ja lõppes 350/300. aasta paiku eKr või 2) oli vähemalt kaks eraldi matmisperioodi, millest üks jääb pronksiaega ja võib-olla ka eelrooma rauaaja algusse ning teine eelrooma rauaaega.

Viimasel juhul ei saa neid kaht perioodi täpsemalt piiritleda. Nii jääb lõpliku vastuseta ka küsimus, kas põldude harimise ajal kalmetesse veel maeti. Siin on küsimus muidugi ka selles, et põldude rajamis- ja kasutamisaeg ei ole kuigi täpselt teada. Põldude vanusemäärang põhineb peaasjalikult söedateeringutel, mis annavad tulemuseks väga pika ajavahemiku (350 eKr – 250 pKr), mida on kogu kompleksi peale ainult kaks ja mille seos põldude rajamisega on samamoodi küsitav nagu söe seos kalmete rajamisega. Liiatigi dateerib üks neist tuleaset, mille seos asjaomase põllupeenraga ei ole puudulike ja vastukäivate andmete tõttu sugugi selge.

Rebala juhtum iseloomustab raskusi kõige hilisemate kivikirstkalmete kindlakstegemisel ja dateerimisel: radiosüsinikudateeringud langevad Hallstatti platoole ning esemeleidudest pole nende täpsustamisel kasu. Seejuures on märkimisväärne, et nagu Rebalas, pole seni ühestki teisest kivikirstkalme esmasest kirstust süsinikudateeringutega tuvastatud matust, mis oleks kindlasti hilisem kui 400 eKr. See tähendab, et tõenäoliselt pärast mainitud rajajoont kivikirstkalmeid enam ei ehitatud, ehkki kirste ja matuseid võidi veel lisada. Kuna sellised dateeringud langevad kalibreerimiskõvera platoole, siis tegelikult võis kivikirstkalmete ehitamine lõppeda isegi varem kui 400 eKr. Igal juhul toimus see mõnevõrra varem, kui enne kivikirstkalmete ulatuslikumat radiosüsinikumeetodil dateerimist arvati: siis nimetati kivikirstkalmete ehitamise ülemiseks ajaliseks piiriks karjasekeppnõelte ilmumine 200. või 250. aasta paiku eKr. See kriteerium iseenesest ei pruugi radiosüsinikul põhinevate andmetega vastuolus olla, sest radiosüsinikudateeringud näitavad ka seda, et karjasekeppnõelad võisid kasutusele tulla märksa varem, kui seni arvatud.

Eelrooma rauaajast hilisemate rauaaja perioodide matuseid ei õnnestunud radiosüsiniku abil Lastekangrutest leida. Nende olemasolu pole endiselt välistatud, ent on vähetõenäoline. Küll aga osutusid II kalme neli dateeritud imikut kalmetest endist ligi 2000 aastat nooremaks. Tõenäoliselt maeti kõik kümmekond kalme kivikuhjatisest leitud väikelast 15., osa võib-olla ka 16. sajandil (jn 5). Tegemist on ajas ja ruumis võrdlemisi levinud nähtusega, kui väikelapsed maetakse ülejäänud kogukonnast eraldi ning võib-olla ka muul viisil erinevalt. Põhjused on ühiskonniti varieeruvad; antud juhul võib tõenäolise seletusena kõne alla tulla surm enne ristimistalitust. Esialgu peaks seda siiski käsitlema hüpoteesina, mille kui mitte tõestamiseks, siis tõepärasuse hindamiseks on vaja esiteks praegusest palju üksikasjalikumat osteoloogilist analüüsi, mis määraks täpsemalt laste vanuse surma hetkel ja uuriks võimaluste piires ka surma põhjusi, ning teiseks kultuurilise (sh usundilise) konteksti süvaanalüüsi.