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NEW DATA ON JAANI STONE GRAVES AT VÄO, NORTHERN ESTONIA

The article presents the results of osteological analysis and radiocarbon dating of the bones from Jaani stone grave(s) at Vão, excavated in 1982. The study of human bones revealed the remains of at least 38 individuals of various age groups. Due to heavy fragmentation and intermingling of bones, it was possible to reconstruct only one skeleton in cist A, while the distribution, location and details of burial mode for other inhumations remain questionable. Zooarchaeological analysis revealed a pattern generally compatible with other contemporary sites, but unexpectedly, a radiocarbon date of a sheep bone turned out to be recent, suggesting caution in interpretation and need for more frequent ¹⁴C-dating of animal remains. Radiocarbon dates of the human remains show that stone-cist grave B was present in the Late Bronze Age, but grave A probably originates from the Early Pre-Roman Iron Age (5th c. BC) and may thus be one of the latest stone-cist graves in Estonia. We were unable to radiocarbon-date the original bone deposit of the ship grave, but it is nevertheless likely that the ship is (one of) the oldest structure(s) at the site. The site also includes interments from Roman, Migration and Pre-Viking periods, when it was probably reserved for predominantly child and infant burials. A few deposits of burnt human bone from at least three individuals perhaps also date from this use-phase.

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Introduction

In 1982, one of the authors of this paper excavated three conjoined stone graves on the bleak *alvar* at Jaani farm in Vão village (Lang 1983b; 1996, 134 ff.). These were the last of the numerous stone graves around the hill site at Iru and the lower reaches of the Pirita River (Fig. 1) that were rescue excavated due to vibrant economic development on the doorstep of the capital city Tallinn. The

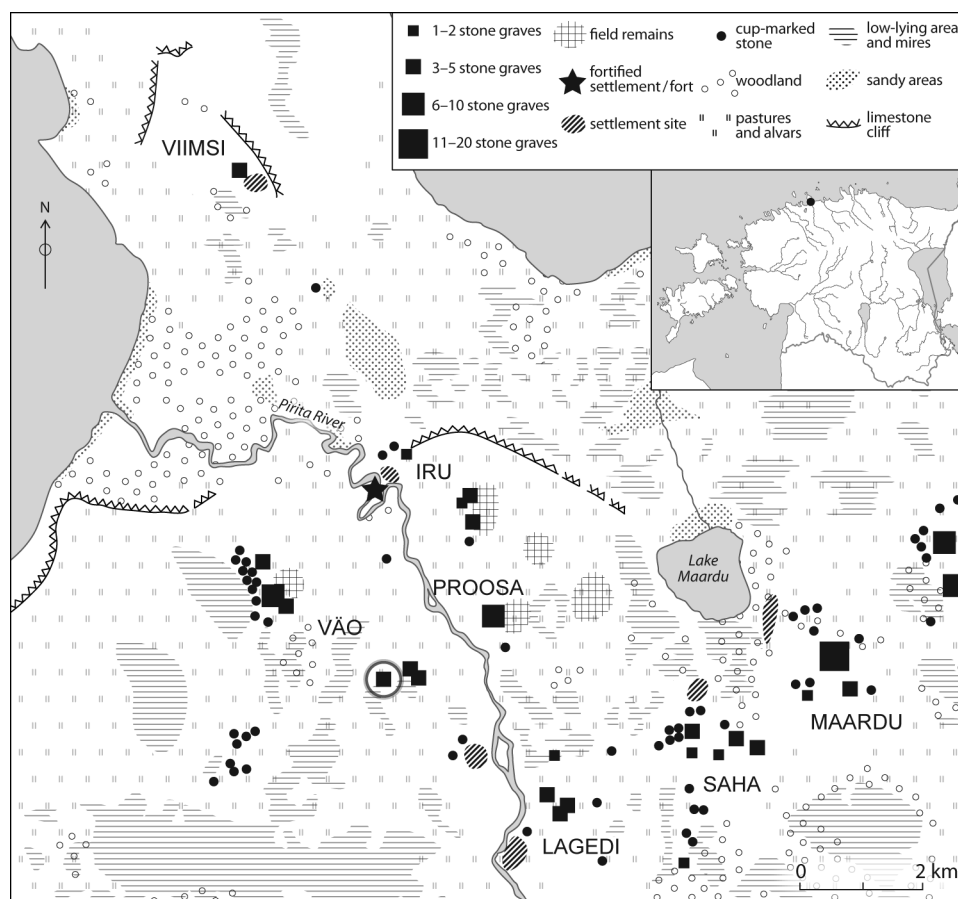


Fig. 1. Archaeological sites at the lower reaches of the Pirita River from ca 1000 BC – AD 800 (after Lang 1996, figs 2, 102–104). The site discussed in this paper is circled.

majority of the graves in the area had been rescue excavated in the 1970s and in 1980 (Lõugas 1975; 1976; 1981; Jaanits & Lavi 1978; Deemant 1993; see also Howen 1900; Spreckelsen 1907; 1927; Vassar 1936).

Now, more than thirty years later, we scrutinized the site's osteological assemblage and ordered radiocarbon dating for a selection of human bones. The study was undertaken as part of a radiocarbon dating programme for stone-cist graves in Estonia (see Laneman 2012; Laneman & Lang 2013). In the current paper we publish the results of this investigation, adhering to a rather plain form of describing and discussing different elements of a single site (grave structure, human and faunal remains, artefacts, etc.). In an ideal world, most of this information, particularly osteological analysis, would have been available shortly after the excavation. In the real world, however, one has to deal with the remarkable paucity of properly excavated, osteologically analysed and (radiocarbon-)dated

The roughly 10.5 m long ship-shaped grave in the eastern part of the structure was edged with large granite stones, which in places were situated in two adjacent rows. It was not possible to definitively establish whether this was the original arrangement of the stones or if they had initially been placed on top of each other; in any case it seems that there has been no top wall of limestone slabs (unlike with the other graves). The gunwale line was partially destroyed, and thus revealed no indications as to which end of the ship was the stern and which was the stem (cf. Lang 1983b; 1996, 135). The cist, also of granite boulders, was preserved only partially, but its original dimensions may have been ca 60 × 50 × 40 cm. The space between the gunwales was filled with limestone, except for the surroundings of the cist where relatively small sparsely situated granite stones were found. The limestone fill included slabs collapsed from the ring wall of grave A, and stones from a later field clearance above them. The thickness of the original limestone fill was therefore difficult to determine, but it was estimated to have been approximately a couple of dozen centimetres, so that the fill did not reach the tops of the framing granite stones.

The stone-cist graves were bordered by two-layer ring-walls with a foundation of granite stones (which in at least grave A were placed in two adjacent rows) and a top wall of limestone slabs; the limestone walls, however, were fully disintegrated. The ring-wall of the westernmost grave B was partially destroyed. The bases of both graves inside the ring-wall were a 30–50 cm tall paving of granite stones, while the upper parts were predominantly crumbled limestone, about 20–40 cm in thickness at the time of excavation. The cists had been built above the granite base and had dry stone walls of limestone slabs which, however, had completely fallen apart and shattered; hence even defining the cists' dimensions involved a considerable degree of conjecture. Worthy of mention are the differences in length and particularly the orientation of the cists. Also, the floor of cist A was positioned on a ca 20 cm higher level than the floor of cist B, and its westernmost part rested on the ring-wall of grave B.

It is thus evident from the construction features that grave B had been built prior to A. In which order grave A and the ship were erected is more difficult to decide from only the construction (cf. Lang 1983a; 1983b; 1996, 134 ff.), since the intersection of these graves did not definitively reveal whether the ship's granite stone edging was originally partial (to merge with the pre-existing grave A), or if it was destroyed (before or in the course of grave A construction), or if it was simply adjusted to form the ring-wall for the new grave A. The overall impression, encouraged by the date of Scandinavian ship graves, has so far been that the ship pre-dated grave A and probably also grave B. Even if this is not the case, the ship must have been built before the eastern ring-wall of grave A collapsed, since its limestone slabs were found fallen over the interior of the ship.

It is important to consider that the described monument may have been part of a larger group of stone graves. The nearest of such is known to have been 190 m to the west, but many nearby graves were reportedly destroyed in the 19th and

even the 20th century, hence the prehistoric spread of graves may have been denser. Six or seven of the graves have been archaeologically excavated (Howen 1900; Lõugas 1975), but unfortunately without proper reports, which leaves many important details veiled. It seems, however, that the graves were quite common stone-cist graves, which in at least some cases had two concentric circular walls consisting of limestone slabs above a granite foundation. The cists were roughly north–south in orientation, but varied in terms of construction: some were of stacked and some of vertical limestone slabs and some perhaps of granite stones. Burial was mostly by inhumation, but the presence of cremation remains cannot be ruled out.

Human remains

The human osteological assemblage of the site has been examined by Leiu Heapost, but this study was never published or reported, except for the final conclusion on the minimum number of inhumations. This revealed only that the two stone-cist graves together contained the remains of eight adults and thirteen sub-adults (Lang & Ligi 1991, table 1; Lang 1996, 137). We carried out a new analysis with the purpose of obtaining more information, particularly on the sex and age profile of the buried individuals and their location within the site. The detailed analysis thereof can be found in a separate report (Malve et al. 2014); here we present the main findings of the investigation.

The task, however, turned out to be more complicated than expected, because the bones were highly fragmented and mingled. A good gauge for this is provided by the fact that the excavators were able to distinguish no more than at best two skeletons (in cist A, allegedly in reverse orientation), while the rest were in an indistinguishable bone mix. This must have been partly due to the naturally poor conditions for bone preservation in above-ground stone graves and repeated burials at the same spot, and partly because of more recent disturbances. For instance, the whole site was overlain by stones from field clearance, which in the case of grave A had to be removed with a bulldozer; the grave also contained an unexploded WWII projectile shell near the southern end of its cist (Lang 1983a). The list of disturbances can be extended by adding the action(s) that destroyed the ring-wall of grave B and parts of the ship.

Another drawback was that the bones were collected during excavation from over large and poorly defined areas without reference to their vertical positioning within the grave. An example of difficulties caused by this imprecision is that it cannot be ascertained which bones were found north and south of cist A and whether or not they represented separate burials (see Fig. 2 to grasp the problem); also, part of the bones from the two stone-cist graves are indistinguishably intermingled. The imprecise recording can be explained by the overall attitude towards bones in the archaeology of the 1980s where osteological studies were rare, and therefore recording bones gained little attention, and by the fact that the

structural elements of the site were exposed only at a later stage of the excavation. All things considered, however, one has to accept that very limited inferences can be made on the funerary/mortuary practices of the site.

The ship grave reportedly yielded ‘a couple of handfuls’ of burnt bones and roughly the same amount of unburnt bones. Both assemblages were found outside of the destroyed cist (Fig. 2), and the burnt bones were, generally, positioned slightly deeper than the unburnt bones. Unfortunately, the existent bone collection includes no burnt bones from the ship – the most probable explanation is that they have gone missing at some point after excavation. The unburnt human bones comprise altogether eleven fragments from at least

- one adult of indeterminate sex and age (three teeth and some bone fragments present) and
- an infant less than six months old (a femur present).

It is impossible to tell whether the bones originate from a primary or secondary burial (in the sense of e.g. Nilsson Stutz 2003, 206 f.) or from the disturbance of the adjacent stone-cist graves. A primary inhumation is perhaps the less probable option, though in view of the disturbed state of the grave and the possibly shallow burial, it cannot be ruled out.

The stone-cist graves yielded much larger quantities of bone. Excavation records suggest that the remains of the deceased had been placed mainly inside and in the vicinity of the cists (Fig. 2). Among the bones that were identified as collected from within the boundaries of grave A are the remains of at least

- five adults (incl. a male 30–40 and perhaps another male 40+ years old),
- one juvenile (14–16 years old),
- six infants (generally less than six months old, a few less than two months old at death) and
- seven children aged 1–11 years (as bones of children between infancy and teenage were difficult to recognize, this number is based on the teeth).

Inhumed bones collected from the area of grave B include the remains of at least

- two adults (one of them probably male),
- one juvenile (14–16 years),
- a child of 2–3 years,
- three other children or juveniles of unspecified age, and
- six infants (generally 0–6 months, some 0–2 months old).

According to the teeth, however, this grave contained the remains of at least seven children aged between 1–11 years (at least six of them other than the children recorded in grave A).

The site also included the remains of at least two additional adult inhumations, but it is unknown from which stone-cist grave they were collected.

The best preserved skeleton, that of a male who had died between 30 and 40 years of age, was found from the cist of grave A. The skeleton was lying extended and supine, with the head to the north and the arms probably at the sides. Its position next to the cist’s eastern wall may be the reason why the left side

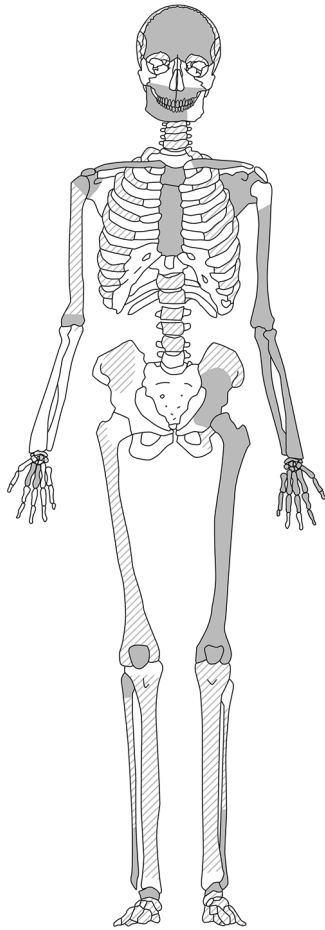


Fig. 3. The best preserved skeleton (male, age at death approx. 30–40 years; radiocarbon age 2399 ± 27 BP) from the cist of grave A. Bones marked in grey have been preserved completely or almost completely, hatched areas are present as small fragments.

of the skeleton was much better preserved than the right side (Fig. 3). The man had been approximately 175 ± 3 cm tall in life. The joints of his upper and lower limbs and hips show signs of osteoarthritis, and vertebrae had developed spondyloarthrosis, osteochondrosis in the cervical spine, and spondylosis and Schmorl's nodes in the lumbar region. The pathological features are generally related to ageing and manual labour, while Schmorl's nodes (intervertebral herniation) may also be a result of trauma or congenital disorders (Jiménez-Brobeil et al. 2010, 37). The man's teeth show mild wear and slight dental calculus. In all probability, the individual had been deposited as a complete body.

It was impossible to reconstruct any other skeleton or determine its position within the grave (incl. the second reported skeleton in cist A). It is nevertheless likely that at least part of the disarticulated bones originate from complete inhumations which were analogous to the above-described male burial, and had been placed inside, above or in the vicinity of the cists. On the other hand, in a situation like this, partial burial, re-burial and any other kind of secondary burial practices cannot be excluded from consideration. There were indeed a few vague indications that skeletal parts of an individual may have been divided between graves A and B, i.e. located several metres apart (in a manner suggesting that intentional placement may be the cause, not inaccurate recording by excavators). This

observation, however, was only based on the distribution of teeth, which does not allow definitive conclusions to be drawn. Single teeth can easily be relocated by any intrusion or even by rodents, and reconstructing a set from loose and scattered teeth itself is controversial. Despite that, the referred division of skeletons, be it ritual-related or not, cannot be ruled out.

It should thus be clear that the above lists of whose bones were found from which section of the site does not necessarily mean that the listed individuals had been buried in the respective sections. The figures, however, accord with the minimum number of individuals (MNI) that we calculated, based on the recurrent

skeletal parts, for the whole site. Accordingly, the three graves altogether contained the remains of at least 38 individuals (incl. cremains – see below). The figure includes

- ten adults (according to the number of petrous parts of temporal bones),
- two juveniles (according to metatarsals),
- fourteen children aged 1–11 years (according to teeth) and
- twelve infants (according to mainly limb bones).

Needless to say, the actual number of the deceased was probably bigger; however, again, we should be cautious in determining the distribution of the deceased between the graves and the way and form in which they were interred. As for the considerable deviation from the estimate of MNI by Heapost, we hypothesise that her calculation included only temporal bones, whereas we considered also other skeletal parts.

Besides inhumed bones, the stone-cist graves yielded a small quantity of burnt bones. In grave A there was only one such fragment, well-cremated at the temperature of ca 1200–1300 °C. Unfortunately, it cannot be established whether the fragment belonged to a human or an animal. Grave B comprised apparently two separate assemblages of burnt bone. The surroundings of the cist yielded scant remains of an adult, perhaps male, and a child. Both were represented by cranial fragments, 16 in total, and nine pieces of tubular bones were also present. The second assemblage was found in the southernmost part of the grave. Remarkably, it consisted of exclusively cranial fragments, 18 in number, which belonged to another adult, perhaps also a male. All three individuals had been burnt at the same temperature (300–600 °C, with the lower end of the range being more likely). Since it is imaginable that a ritual involved cremation of only part of the body (or bones), we cannot exclude the possibility that these individuals are the same who are present among the unburnt bones. There is presently no clear-cut evidence in Estonia to prove that the practice of partly inhuming and partly burning the same body or skeleton existed, but indications along this line have nevertheless been observed in quite a number of stone graves from the Bronze through Early Iron Ages (Kalman 2000, 427 f.; Lang 2007a, 180; see also Vassar 1943, 22).

A few words must be said on pathologies observed on the bones, although the assemblage was rather modest in this respect. Most of the observations were made on the best preserved male skeleton from cist A and were mentioned above. Besides this individual, a few other cases of osteoarthritis were recorded. A fragment of a lower jaw of an adult showed bony growth along the inside of the mandible (*torus mandibularis*), which may have been caused by trauma, and another fragment of a mandible from another adult had developed a bone growth that was possibly a benign bone tumour (*osteoides osteoma*; Fig. 4). Teeth also show only modest pathological features. Dental calculus, in most cases slight, was observed on approx. 21% of the teeth; horizontal stress lines were present on ca 12% of the teeth, and only 3.5% of the teeth featured caries. In two cases (adults), caries had resulted in severe abscess.

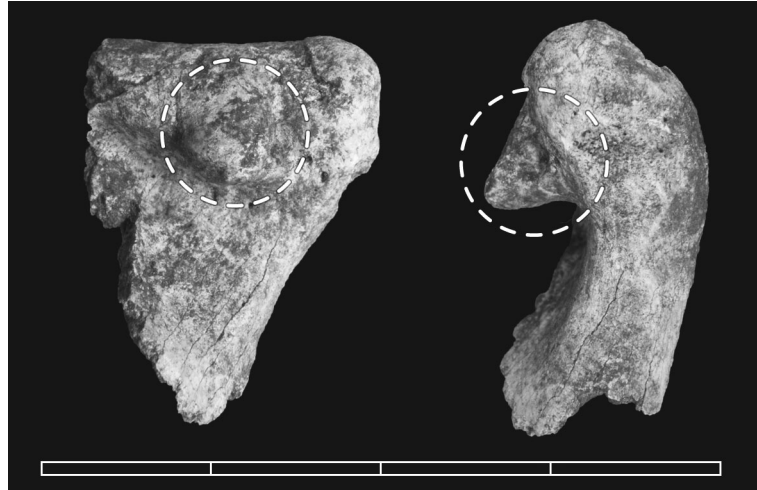


Fig. 4. Fragment of the left condyloid process of a mandible, showing a bony growth, probably a benign bone tumour (*osteoides osteoma*), on its articulate surface. Photo by Kristel Roog.

Faunal remains

The animal bones, highly fragmented and mingled, had been collected together with the human bones, and the analysis thereof faced generally the same limitations (see above). Detailed review of the site's zooarchaeological finds is provided in Rannamäe et al. 2014.

Compared to the human bones, animal bones were considerably fewer in quantity. The respective list includes 552 bones or, predominantly, fragments thereof (Table 1). 35% of the assemblage is, however, fragments that do not allow determination of a sufficient precision, and may thus include a few specimens of even human origin. The bones are generally unburnt, with the exception of only two indeterminate fragments which may also have been human. The greatest number of bones was gathered from the area of grave A, while they were clearly less numerous in grave B and only a few in the ship. This pattern is compatible with the distribution of human remains. The highest number of species was also observed in grave A, but all in all the species composition is similar in all three graves. The lack of (identifiable) pig bones in the ship grave is worth mentioning; also, it is difficult to see why the bone assemblage of the ship included almost no rodents.

Approximately 22% of the assemblage is made up of the remains of rodents, moles and amphibians, which most probably reached the site without human involvement. This may apply to some other wild species, for instance marten, hare and at least part of the birds¹. Small mustelids frequently inhabit the ancient stone

¹ The research on the bird bones was supervised by Teresa Tomek (Institute of Systematics and Evolution of Animals, Polish Academy of Sciences).

Table 1. Faunal remains from Jaani graves at Vão. Given is the number of bones / bone fragments that can be assigned to the indicated species or other taxon. A number in brackets stands for the minimum number of individuals wherein bones of unquestionably more than one individual are involved. *Northern sector* denotes the assemblage where bones from grave A and B are indistinguishably mixed. It may also be that some bones recorded as collected from grave A were in fact collected from grave B, and vice versa

	Ship grave	Grave A	Grave B	<i>Northern sector</i> (A + B)	Total	
Dog (<i>Canis lupus familiaris</i>)	2	36 (3)	3	9	50 (3)	
Sheep/goat (<i>Ovis aries</i> / <i>Capra hircus</i>)	5	20	4	5	34	40 (2)
sheep (<i>Ovis aries</i>)		5 (2)		1	6 (2)	
Cattle (<i>Bos taurus</i>)	5	16 (2)	5	4 (2)	30 (2)	
Pig (<i>Sus scrofa domesticus</i>)		15 (2)	4	3	22 (3)	
Horse (<i>Equus caballus</i>)		1			1	
Seal (<i>Phocidae</i>)		1			1	
Hare (<i>Lepus</i> sp.)	2	9 (2)	1	1	13 (3)	
Pine marten (<i>Martes martes</i>)		1			1	
Fox (<i>Vulpes vulpes</i>)?	1				1	
Birds (<i>Aves</i>)		10	4 (2)	2	16 (2)	76 (12)
landfowl (<i>Galliformes</i>)		5 (2)	1		6 (2)	
– black grouse (<i>Tetrao tetrix</i>)	2	13 (2)	1		16 (2)	
– capercaillie (<i>Tetrao urogallus</i>)	1				1	
– black grouse / capercaillie (<i>Tetrao</i> sp.)		8 (2)			8 (2)	
waterfowl (<i>Anseriformes</i>)	1				1	
– mallard (<i>Anas platyrhynchos</i>)		6 (3)			6 (3)	
– duck (<i>Tadorna</i> sp. / <i>Anas</i> sp.)		2	2	1	5	
corvids (<i>Corvidae</i>)		2			2	
– jackdaw (<i>Corvus monedula</i>)		1		1	2	
– crow/rook/jackdaw/raven (<i>Corvus</i> sp.)	2	3			5 (2)	
owl (<i>Strigiformes</i>)	1	1			2	
charadriiform (<i>Charadriiformes</i>)	1				1	
gruiform (<i>Gruiformes</i>)			2	1	3	
passerines (<i>Passeriformes</i>)			1		1	
– trushes (<i>Turdidae</i>)			1		1	
Rodents (<i>Rodentia</i>)	1		1		2	111 (26)
cricetids (<i>Cricetidae</i>)		45 (11)	30 (7)	34 (7)	109 (25)	
Amphibians (<i>Amphibia</i>)		2	5	3 (2)	10 (3)	
Mole (<i>Talpa europaea</i>)		2			2	
?	6	51	58	79	194	
TOTAL	30	255	123	144	552	

graves, and the sites' bone records may to some extent reflect their diet. An axis (vertebra) from grave A suggests that at least some hares of the site may be European hares (*Lepus europeaeus*) and cannot thus pre-date the 16th century when the species migrated to Estonia (Kirk 2003; Lepiksaar 1986). The presence of the single fox canine (in the ship) is difficult to explain; a possibility that the canine belonged to a dog must however also be considered.

Species whose presence can be associated with human activity were represented by at least 144 bones. Such species include dog, sheep/goat, cattle, pig, horse and seal. Horse was represented by only a single tooth, quite heavily worn, and seal by a single astragalus, the size of which possibly indicates the ringed seal (*Pusa hispida*). The dog bones belonged to a minimum of three individuals, including two adults and a puppy less than 8–10 months old. All body parts of a dog from nose to tail seem to be more or less present (Table 2), but skeletons were nevertheless impossible to reconstruct.

Sheep/goat, cattle and pig were all present with at least two individuals, but in view of the fragmented state of bones these figures hardly reflect the reality. Of sheep/goat, a few bones are clearly attributable to sheep (two individuals), whereas no definite goat bones were detected. Both sheep were of adult size but

Table 2. Skeletal elements of the animals present in Jaani graves at Vão

	bones		Cranium	Furcula	Coracoid	Vertebrae	Ribs and sternum	Scapula	Humerus	Radius and ulna	Carpal and tarsal bones	Metacarpal and metatarsal bones	Pelvis	Femur and patella	Tibia	Digital bones	Long bones	?	Total	MNI
	teeth																			
Dog	1	10				3	1		3	2	3	15				12			50	3
Sheep/goat	1	14				1	3		2	2	2	6	2		1	6			40	2
Cattle	4	8				2	2		1		2	6		2	2	1			30	2
Pig	2	7							3	1	2		1	1	2	3			22	3
Horse		1																	1	1
Seal											1								1	1
Hare		1				1	1	2	2	2			1	1	2				13	3
Pine marten	1																		1	1
Fox?		1																	1	1?
Birds			2	10		1	2	7	14	8		9		3	11	2	7		76	12
Rodents	76								10	1			3	14	7				111	26
Amphibians									4						5		1		10	3
Mole													1	1					2	1
?	4	1				9	6		1	1	3	1	1	2	1	1	36	127	194	
Total	89	43	2	10	17	15	9	40	17	13	13	37	9	24	31	25	44	127	552	58

less than two years in age; one sheep/goat tooth indicated an individual older than 1.75 years. Of cattle, at least one newborn calf was represented in addition to adult(s). Of pig, there was a piglet less than 3–6 months old; two canine teeth indicated the presence of an adult female and an adult male,² and some bones belonged to an individual of adult size but less than 2–2.5 years old. Skeletons are very incomplete. Most of the bones apparently originate from skulls and limbs (Table 2), but this is probably because these parts are the easiest to identify among highly fragmented material. In general, all body parts from skull to tail seem to be represented, and in view of heavy fragmentation it would be incorrect to claim otherwise.

Cut marks were observed on four bones: a rib and an ilium of sheep/goat, and a humerus and a cervical vertebra of cattle. Three other (indeterminate) bones may bear cut marks. The marks indicate both chopping of carcasses and removal of flesh from bones. At least four fragments (of sheep, sheep/goat, black grouse, and an indeterminate species) bear tooth marks, mostly so-called puncture marks, which have been left by a predator, most likely a canid (dog). Five other bones (including cattle and pig) possibly have the same kind of marks. Chew marks from rodents were observed on up to four bones. The scarcity of tooth marks suggests that the bones were not easily accessible to animal disturbance. On the other hand, the small number of both tooth and cut marks may be due to the fact that the surfaces and edges of bones were poorly preserved.

It is more than difficult to assess how and when the bones of the domesticates (and the seal) arrived at the site. A metatarsal bone (which bore clear tooth marks of a predator) of a sheep from grave A was radiocarbon-dated to the 18th–20th centuries AD³, which is unexpectedly recent. This leads one to think that part of the bones may originate from livestock that had suddenly died and were dug in or cast on long-abandoned stone graves – a practice widely maintained even in the 20th century (e.g. Mandel 2000, 96). In such cases the cadavers were quickly detected and consumed by predators, leaving behind nothing but a few bones with occasional chew marks. On the other hand, the cut marks show that some of the animals were cut into pieces. Unfortunately, it is impossible to decide whether or in which cases they imply food for the departed, offerings to some supernatural creatures (which may involve practices of very varied content and date), remains of funeral or commemorative meals, or leftovers from a farmer's lunch taken at a field baulk. The generally small number of bones suggests that in most such cases only part of an animal was involved, but one cannot exclude scenarios in which an animal was cut in pieces and then cast in to the grave

² A lower right tusk of a boar (less likely, a wild boar) was found slightly outside grave B, near an iron nail (see Fig. 2). It has previously been assumed to bear traces of working, and is therefore listed as an artefact in the excavation records. Fresh inspection did not confirm the presence of working traces, and we therefore include the find in the faunal remains (of grave B).

³ 100 ± 30 BP (Poz-61914). The radiocarbon dating was undertaken by Eve Rannamäe as part of another project on sheep DNA research. Other animal bones of the site have not been radiocarbon-dated.

(in the vein of frequently cited description by Ibn Fadlan). Finally, one can also think that complete animals were buried in the same manner as or together with humans, though this interpretation seems to be the least likely. It may, however, apply to the dogs or some of them.

It might be interesting to look at better preserved and documented graves to see if they can help narrow the range of interpretations outlined here. The truth is, however, that this review would offer little beyond the crude understanding that the species composition at Jaani graves is generally similar to that observed in other Bronze and Iron Age sites, including graves (see Laneman 2012, 102 and references therein). The zooarchaeologically analysed graves are disgracefully few in number, the information is published in varied detail and is therefore poorly comparable, and radiocarbon dates are absent. It becomes increasingly evident, however, that without radiocarbon dating interpretations may be misleading.

Radiocarbon dates

For radiocarbon dating, 15 samples of human bone were selected, to encompass all three graves, different age groups, and both inhumations and cremations. Detailed information thereof is provided in Table 3. An attempt was made to ensure that each sample should represent a separate individual, though a degree of doubt cannot be avoided in case of the burnt bones and, particularly, the bone from the ship. All samples from grave A originated from bones that were reportedly collected from within or above/around the cist. The same applies to the samples from grave B, except for one of the cremation deposits (UBA-24122) which was found on the southern margin of the grave. Two samples (UBA-24134 and UBA-24135) were collected from the context designated as *Northern sector*, which combined intermingled bones from graves A and B. These samples were included to test if the interments in the northernmost part of grave A (see Fig. 2) deviated from the general chronological pattern of the site.

The radiocarbon dates were obtained by accelerator mass spectrometry (AMS) at the Centre for Climate, the Environment & Chronology at Queen's University Belfast, Northern Ireland in 2014. Stable isotope measurements were provided along the way, but these will not be discussed in this article.

As can be seen in Fig. 5, the obtained dates fall roughly into two chronological groups: (1) Late Bronze and Early Pre-Roman Iron Age and (2) Roman Iron Age, Migration Period and beginning of the Pre-Viking Age. This is in relatively good accordance with the previous dating of the site based on artefact typology. Accordingly, the graves were established at the end of the Bronze or (more likely) beginning of the Pre-Roman Iron Age, but also contained burials from the Late Roman Iron Age and Migration Period, and single artefacts, probably sacrifices, from even later periods (Lang 1996, 136–138, 292). In what follows we discuss the site in the context of the mentioned periods, including comparison of radiocarbon dates and relative chronology of the artefact finds.

Table 3. Radiocarbon dates and stable isotope measurements of the human bones from Jaani stone graves at Vão. Calibration after OxCal v4.2, using IntCal13 calibration curve (Bronk Ramsey 2009; Reimer et al. 2013). Isotope measurements by IRMS method. l = left, r = right

Grave	Individual's sex and age at death	Sampled bone	Lab code UBA-	Date BP	Date cal (95.4%)	¹³ C (‰)	¹⁵ N (‰)	C : N
Ship	? (adult)	a tubular bone	24 121	2230 ± 28	380–200 BC	-21.3	9.8	3.14
A	Male 30–40 yrs	l. tibia	24 124	2399 ± 27	730–400 BC	-21.2	10.7	3.13
A	Male 40+ yrs	r. metacarpal IV	24 125	2242 ± 26	390–210 BC	-21.1	10.2	3.07
A	? 14–16 yrs	l. metacarpal I	24 126	1862 ± 31	80–230 AD	-21.2	12.2	3.09
A	? 5 yrs ± 16 mos	a tooth (r. M ¹)	24 127	2382 ± 31	730–400 BC	-20.7	10.8	3.07
A	? 0–6 mos	l. femur	24 128	1610 ± 29	390–540 AD	-20.1	11.9	3.16
A	? 0–6 mos	l. femur	24 129	1626 ± 29	350–540 AD	-20.6	10.5	3.24
B	? (juvenile)	fibula	24 130	2574 ± 42	820–550 BC	-21.2	11.0	3.14
B	Male (adult)	r. metacarpal I	24 131	2255 ± 38	400–210 BC	-21.4	10.6	3.24
B	? 9 yrs ± 24 mos	a tooth (M ¹)	24 132	1785 ± 33	135–330 AD	-20.8	13.0	3.09
B	? 0–6 mos	r. femur	24 133	1546 ± 29	425–575 AD	-20.5	11.8	3.21
B	Male? (adult)	parietal bone (burnt)	24 122	1456 ± 28	560–650 AD	n/a	n/a	n/a
B	Male? (adult)	cranium (burnt)	24 123	1438 ± 31	570–655 AD	n/a	n/a	n/a
A or B	? (child)	r. femur	24 134	2296 ± 31	410–230 BC	-21.4	11.2	3.38
A or B	? 0–6 mos	r. femur	24 135	1405 ± 29	600–670 AD	-20.9	11.6	3.38

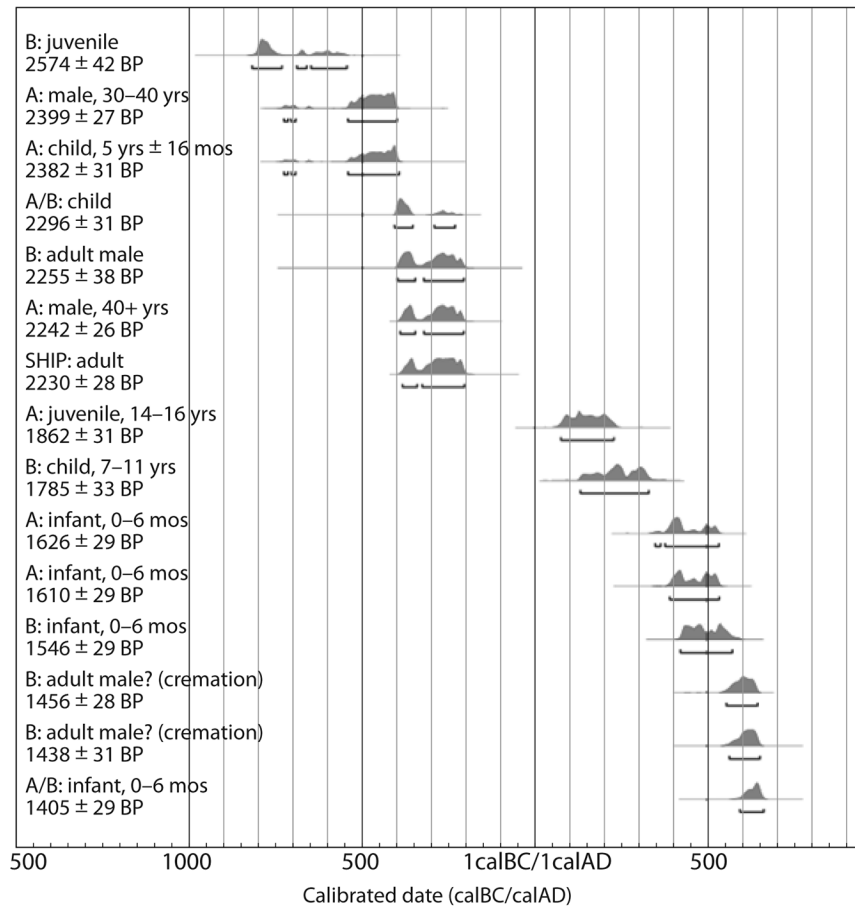


Fig. 5. Radiocarbon dates of the human bones from Jaani graves at Vão as corrected to calendar ages, using OxCal v4.2 and IntCal13 calibration data (Bronk Ramsey 2009; Reimer et al. 2013). The figure shows calibration ranges of 95.4% probability.

Late Bronze Age and Pre-Roman Iron Age

A single date of a juvenile from grave B indicates that this grave was present in the Late Bronze Age. This is confirmed by a spade-headed bone pin that was found from cist B (Lang 1983b, pl. III: 1; 1996, pl. XXXVI: 9). Unfortunately, the time range indicated by the radiocarbon date cannot be narrowed: bone pins were present in the earliest stone-cist graves, for instance at Jöelähtme long before 800 BC, and were probably used throughout the Late Bronze Age. Of no great help is the possibility that pins with large dimensions, such as the one under discussion, may be relatively late in date (see Lang 1992, though the paper is somewhat outdated). It is also relevant to note that the grave most probably contained other (Late) Bronze Age burials not analysed with radiocarbon dating.

Grave A seems to have been attached to grave B in the 5th century BC or only slightly earlier. One cannot be certain that the very first burial of the grave was radiocarbon-dated, but it is likely that the most complete skeleton (Fig. 3) in cist A was among the earliest. Another inhumation (of a child) is approximately the same in date, though it is unknown whether it had been placed inside the cist or somewhere else. Its presence nevertheless indicates a burial pattern commonplace in stone-cist graves: both adults and sub-adults were interred in these graves (incl. cists). An iron knife with a slightly curved back (Lang 1983b, pl. III: 3; 1996, pl. XXXVI: 5) that was found lying on the cist bottom may have been connected to these burials or to this burial period. However, the typological date of the knife spans the entire Pre-Roman Iron Age and perhaps even beyond (see Lang 1996, 136 and references therein; Laul & Tõnisson 1991 is outdated and inconsistent), and its association with slightly later Pre-Roman Iron Age burials, also present in the grave, cannot be excluded.

Human remains from between ca 400 and 200 BC were found from all three graves. As earlier, both adults and children were involved. Unfortunately, there is no certainty about the precise location (cist or outside cist) and nature (primary or secondary) of these interments. Associated with them (or/and earlier burials) is probably part of the pottery scattered across mainly the stone-cist graves. The vessels were, however, poorly preserved and thus quite uninformative. They nevertheless require a brief discussion, because in the course of the project the pottery assemblage was also reviewed and the results slightly differ from what has been published before (cf. Lang 1996, 137 f.).

The ship grave contained only a few pieces from a shallow vessel with slightly striated surface and indeterminable date. The stone-cist graves, however, yielded altogether approximately 330 potsherds, which originate from a minimum of 14 vessels. All vessels were shattered, and the sherds of a vessel were generally scattered all over the structures with no clear patterning. The shape of a vessel could be reconstructed in only one case and a more or less precise date established in only four cases. An almost certain Pre-Roman Iron Age date can be assigned to only one possibly Ilmandu-type vessel, the sherds of which were mostly scattered in the southern part of grave A, while a single sherd was unexpectedly found slightly north of the grave. The shape of the vessel remains unknown, but its surface had been striated and shoulder appears to have been decorated with marks that were probably stick impressions, resembling a pot found from stone-cist grave 70 at Muuksi (Laneman & Lang 2013, fig. 6: 3). Such vessels were undoubtedly present in the 5th century BC (*ibid.*, 112), but a slightly earlier or later date cannot be ruled out. Two other vessels may represent the Late Bronze Age fine-grained ceramics, but with a slightly greater probability they date from post-Roman period and will thus be discussed below.

As for the ship, the obtained Pre-Roman Iron Age date most likely represents late insertions to the grave. For the reasons stated above, we were unable to radiocarbon-date the original burial deposit, and an unidentifiable (burnt?) bronze item, a single clay vessel and a bronze spiral ring found from the grave are unhelpful in pinpointing the date of its construction. A further option is turning to the date of the grave type, which is clearly of western origin in this corner of land. In what is probably the most recent treatment of the subject, Joakim Wehlin (2013) dates the ship graves of the Baltic Sea region generally to 1100–700 BC,

peaking around 950–850 BC. He also attempts to divide the ship graves into types and specify the date accordingly. The ship at Vão resembles the most type 2 of Wehlin (op. cit., 59, fig. 4.1: B), which according to him is relatively late in date, from 900–700 BC (ibid., 68, 80, fig. 4.11).⁴

The latter date based on the type may well apply to the Vão ship. A degree of reservation, however, is needed with this estimation, because the mentioned date range is based on just five radiocarbon-dated specimens from only Gotland. Also, Wehlin himself does not specify the type of the Vão ship, and he is generally vague and even inconsistent in also discussing other eastern Baltic ship graves. In any case, however, it is clear that at Vão the ship pre-dates grave A (which was also suggested by stratigraphic observations), but it remains disputable whether the same is true in relation to grave B. The only currently available option to decide is the intuitive feeling of the excavator, according to which the ship was the oldest element at the site.

An unavoidable question is at which temporal intervals the graves were built and whether burial was continuous or with considerable interims. A conclusive answer is, however, out of reach. This is not only because most of the interred individuals were not radiocarbon-dated and the available radiocarbon dates are ambiguous, but also because there probably were associated graves which served whilst the discussed graves were temporarily left alone. Since (most of) these graves were probably destroyed long ago, it cannot be established whether the structures and burials discussed in this subsection evolved over a millennium or over only a few hundred years. As for the perspective of joining graves of remarkably old ages, it can be noted that this may not be inconceivable if the structures were constantly taken care of (see e.g. Lang 2000, 104).

A further emerging issue concerns the relationship of the ship grave and stone-cist graves or, more properly, of their builders. In this paper we nevertheless skip the intriguing discussion of northern ‘colonists’ and ‘hybrid culture’ (see e.g. Wehlin 2013, 47, 52, 77, 185, and the references therein), particularly because we were unable to establish a reasonably precise date for our ship. An equally interesting issue, however, revolves around stone-cist grave A. The general date of stone-cist graves has been recently revised so that the majority of the graves are believed to pre-date the Pre-Roman Iron Age (see Laneman & Lang 2013, 94–96, 102–103). The referred grave thus appears to be one of the latest specimens of this grave type in Estonia. The end of the stone-cist grave tradition is a subject that definitely needs further research, but the case of Vão nevertheless suggests that the tradition was still followed in the 5th century BC, or at least at the turn of the 6th–5th centuries BC.

⁴ It is worth noting that the burnt bone deposits from one of the Lülle ships yielded the radiocarbon dates of 2613 ± 30 BP (cist 2; Ua-42960) and 2525 ± 30 BP (cist 1; Ua-42959), which are among the latest in the Baltic Sea region (Wehlin 2013, table 4.2, fig. 4.12). This of course tells nothing definite about the date of the Vão ship. The ship graves in Courland were much closer to the Lülle graves, but they nevertheless produced considerably different (earlier) dates (ibid.).

Also, the fact that the discussed structure is, strictly speaking, not a proper stone-cist grave but only half of one, and that it was squeezed between two pre-existing graves, leads one to ponder whether it mirrors the concept of a *tarand* grave, which involves attaching a series of rectangular enclosures to each other and which appeared, notably, around the 5th century BC (Lang 2007a, 170 ff.; 2007b; see also Laneman & Lang 2013, 112). The similarity is even more striking in 400–200 BC when burials appear in all three sections. Also, the age profile of the buried (i.e. various age groups present) and the paucity of grave goods is compatible with the earliest *tarand* graves. True, there are other and considerably older sites where stone-cist graves are attached to each other (Lang 2007b). The truly comparable examples, however, are only graves 12/35 and 17/36 at Jõelähtme (Kraut 1985, pl. IV: 5), which were built several hundred years before *tarand* graves were introduced. This, however, does not disprove what was hypothesized about Jaani grave A, since the apparently similar arrangements may embody different concepts. Or, what is also possible, the concept that fully manifests itself in the *tarand* graves may have been present in the earliest stone-cist graves already.

Roman Iron Age, Migration Period and Pre-Viking Age

The radiocarbon data suggest that the Jaani graves contain no Late Pre-Roman period burials, and there is no evidence to claim the opposite. A few iron shepherd's crook pins from another nearby grave (Howen 1900, 95; Lang 1996, 134) may nevertheless be a tenuous indication that the grave field was not entirely abandoned, though the main burial ground of the associated community seems to have been elsewhere or at least not in the stone-cist graves. We will probably never find out what happened in the intervening centuries, but at a certain point of time in the Roman Iron Age, burial in the Jaani graves began again.

Radiocarbon dates from the later burial phase(s) span through the Roman Iron Age, Migration Period and the beginning of the Pre-Viking Age, embracing a minimum of 350 and a maximum of 600 years. Interments from this time range comprise at least, and most likely even more than, half of all interred individuals, which was anticipated because the total number of burials was too high for a common stone-cist grave burial pattern. The interments were made in the stone-cist graves, and their placement, which most likely disregarded the structural elements of the graves, must have contributed to the disintegration of the cists and mingling of bones. The ship may have been neglected because, as a low structure from the very beginning, it was perhaps covered in turf and sunk into the ground to such an extent that it was no longer considered appropriate for burial. It is questionable whether a specific grave form (i.e. stone-cist grave or ship grave) was of any particular significance at this time.

The overwhelming majority of the late interments are sub-adults, and this remains true even given the considerable probability that radiocarbon dating may

have missed some inhumed adults from this time period. Particularly interesting is the clustering of infant burials within AD 400–650, which suggests that this particular age group was probably excluded from a common burial ground and ended up in a thousand-year-old or even older stone grave. This phenomenon was very clearly observed in Kaseküla I and Rebala II stone-cist graves as well, which contained numerous infant burials from the 8th–11th and the 15th centuries AD respectively (see Laneman 2012 for a more detailed discussion). An even closer case of infant mass burial, both temporally and spatially, may have been in stone-cist grave IX at Lagedi, where also disproportionately numerous and well-preserved infant skeletons were noted outside the cist (Spreckelsen 1927, 24 f.). The grave also contained a bronze shepherd's crook pin and a 7th(–8th)-century ring-headed pin, which may hint at the date of the burials. It can be added that similarly to the Lagedi case, the infant bones from Vão were also relatively well-preserved.

Given this interpretation, it is difficult to explain the presence of the cremated adults⁵, who seem to be more or less contemporaneous with the infant burials. First, however, it must be acknowledged that the respective dates should be approached with a degree of suspicion, because radiocarbon dating of modestly burnt bones may yield unreliable results (Van Strydonck et al. 2009). In the current case, there are no means (such as for instance artefacts) to assess their accuracy. But if the dates are accurate, the cremains can be interpreted as possibly representing individuals who in some way or other deviated from the norm and were therefore excluded from the common burial ground. A possibility that only part of the cremation remains were brought to this grave, or only part of the body was cremated, may also be of significance here. As for cremation in general, it is not possible to draw conclusions from this particular burial mode, since in the region and throughout the time span under discussion cremation and inhumation were practised side by side. Also, it is unknown how the rest of the community members were treated in death, though it is entirely possible that burning the dead was a standard procedure for which infants were not eligible.

Despite the fact that the site was used for interment of only selected individuals, and in view of their estimated total number, it is likely that throughout the many centuries that the radiocarbon dates span, burial was not continuous but occurred with a considerable interlude, or perhaps with several interludes. The detailed chronology thereof, however, is very difficult to pinpoint based on the available radiocarbon data. One possible reading is that burials were placed before or around AD 200/250 and then again around AD 500–600, but this is only one of the

⁵ The respective radiocarbon dates are very uniform. To be frank, it cannot be assured that different individuals were dated. There were apparently two burnt bone assemblages and each contained a single fragment to prove the presence of altogether two different adults. We did not want to damage these bones, so less informative fragments were selected for AMS analysis; we assumed that the rest of the bones in a particular assemblage belonged to the same person and that the bones of two adults had not intermingled between the assemblages – which we however cannot definitively verify.

possible interpretations. The artefacts, scattered in the grave and impossible to associate with any of the burials, are also unhelpful in this respect. To demonstrate this, and for the sake of comprehensiveness, we provide a review of artefacts connected to the discussed time span (for their location within the site, see Fig. 2).

- A *bronze shepherd's crook pin* (Lang 1983b, pl. III: 2; 1996, pl. XXXVI: 4) has a protracted date range from the Pre-Roman period until the Viking Age. At Proosa, not far from Vão, one such pin was found in the *tarand* grave from AD 300–450, while the adjacent cairn grave of a later date did not yield such pins (Lang 1996, 181). In south-eastern Estonia such pins have also been dated to the 4th–5th centuries and probably beyond (Laul 2001, 126). As mentioned above, at Lagedi IX a bronze shepherd's crook pin was found together with a 7th(–8th)-century pin, though this was not a closed find. This provides no definite judgement about the date of the discussed Vão pin, but allows its association with the later burials rather than the Pre-Roman Iron Age burial phase.
- A *tiny tube made from coiled bronze wire* (Lang 1983b, pl. III: 6; 1996, pl. XXXVI: 2) represents an item that in large amounts appeared in graves of north-western Estonia at the turn from the 3rd to 4th century and continued until at least the Viking Age (Lang 1996, 128; Tvauri 2012, 149). An earlier date cannot be ruled out either.
- *Spiral bronze rings*, two in the discussed grave (Lang 1983b, pl. III: 4–5; 1996, pl. XXXVI: 1, 3), are widespread in particularly the 3rd–5th-century graves in northern and central Estonia, but they may also have an earlier or a later date (Lang 1996, 127). The ring found from the cist A area has a diameter of 14 mm, which suggests that, if it was a finger ring, it probably belonged to a child. The spiral ring that was a secondary find from the ship is 17 mm in diameter.
- Two strips of *bronze wire* may originate from such rings as described above or some other artefacts. The wires clearly represent two different items. A third piece of bronze wire had been coiled into a floppy ring with a diameter of less than 10 mm.
- A *small bronze mount* has probably counterparts in 5th–6th-century cairn graves and late burials of *tarand* graves (see Lang 1996, 137; Shmidekhel'm 1955, 128 ff., fig. 31: 3). Two small *fragments of sheet bronze*, one of them with a shiny surface, were found nearby and, speculatively, may have a similar date.
- Of shattered *clay vessels*, at least three provided grounds for being dated to the discussed time span. One of them was a carinated bowl (Lang 1996, fig. 50: 3) with a probable date in the 5th–6th centuries.⁶ Its sherds clustered at the southernmost margin of grave A, but were also scattered in grave B and perhaps even north-west of it. Another vessel, also scattered in both A and B sections, was probably similar to the aforementioned bowl in both shape and date. The third vessel was represented by only a single sherd with a black burnished surface, and can be dated to the 8th–10th centuries, though an earlier date is not ruled out. The at least eleven vessels of indeterminable date (incl. the vessel from the ship) may, however, include specimens that were associated with the burials discussed in this sub-section.
- An *iron knife* (Lang 1996, pl. XXXVI: 7) is so heavily worn that its date cannot be established. It may also belong with the Pre-Roman-period interments.

⁶ Very similar vessels were present in the Late Bronze Age settlements and ship graves of Saaremaa and Courland but, notably, they do not turn up in the stone-cist graves with Late Bronze and Pre-Roman Iron Age burials (Lang 2007a, 128 f.). Such vessels re-appeared in the mid-5th-century northern Estonian graves (ibid., 135 f.; see also Tvauri 2012, 71 f.). Since there is no undeniable evidence that the pot under discussion originated from the ship grave, there are also no reasons to prefer the earlier date over the later, which accords with the radiocarbon data (cf. Lang 1996, 137 f.).

- A *fire-steel with rolled-back ends* (Lang 1983b, pl. III: 7; 1996, pl. XXXVI: 6) is an item the appearance of which has been dated to the Pre-Viking Age at the latest and in some opinions to as early as the 5th–6th centuries (Vassar 1943, 122 f.; Tvauri 2012, 89). Its date however spans throughout the Late Iron Age and beyond, perhaps into the modern era. There is a considerable probability that the specimen from Vão has in fact no connection whatsoever to the burials.

The interpretation of a segregated burial ground unavoidably raises a question as to where the remaining community members (i.e. the majority of them) were buried or how they were treated in death. There is, however, no definitive answer to this question. It is unlikely that they were distributed between other nearby stone-cist graves, because in all probability, the graves did not contain burials and artefacts, particularly ceramics, even close to the quantity found at the discussed Jaani graves (see e.g. Lõugas 1975). True, one cannot be entirely assured about the destroyed graves and graves excavated in 1895. One of these structures indeed yielded a shepherd's crook pin, a finger ring and a coiled wire tubule (all from bronze), which is strongly reminiscent of the find assemblage of the discussed triple grave (Howen 1900, 93). The amount of bones, however, seems to have been unremarkable, suggesting the presence of only a few burials or, less likely but still possibly, of only (sacrificed?) artefacts. Among the destroyed graves were also specimens that contained 3rd–6th-century finds, some of which have been collected from a local farmer (Lang 1996, 145 f.). The character and type of the graves is however unknown. But in the end, excavations of other groups of stone-cist graves have shown that graves with numerous (late) burials, such as Jaani at Vão, are exceptional, and there are no particular grounds to argue that this statement does not apply at Vão. On the other hand, however, the possible presence and unknown character of even a few contemporaneous burial deposits in other nearby graves inevitably blurs the interpretation of Jaani graves.

The signature grave types of the discussed time period were conjoined *tarand* graves, which in the discussed region were built in ca AD 200–450/500, and cairn graves, which came subsequently (Lang 1996; 2007a). The graves are rich in grave goods and burials, among which generally both cremations and inhumations occur. It however appears that from the viewpoint of Vão, such graves were built and used on only the other side of the river. It seems unlikely (though, admittedly, not entirely impossible) that those communities crossed the river to bury some of their dead in some relatively distant grave field. The destroyed graves of Vão, again, may have included *tarand* and/or cairn graves, but on the other hand, it is probable that some communities of the time did not use stone graves at all. There are for instance indications that throughout the time span under review, underground cremation and inhumation graves may have been far more common than the archaeological record reveals (Lang 2007a, 217 ff.; Tvauri 2012, 264 f., 280 f.). None is known from the surroundings of Vão, which however does not disprove that such burial, or some other archaeologically invisible rite, was practised.

As for the re-use of old stone graves in general, the phenomenon is widespread and apparently practised throughout the periods discussed in this sub-

section (Tvauri 2012, 254 ff.; Laneman & Lang 2013, 105). It has, however, not been specifically studied in Estonia, which admittedly would be difficult in view of the scarcity of osteologically analysed and radiocarbon-dated sites. It is generally held that the late burials in a stone grave are usually few in number, and their presence is frequently inferred from only the presence of single artefacts, which may result from other practices than human bone deposition. Differentiation of such burials by age groups has not been addressed in the context of the discussed periods, although the tacit understanding seems to be that the buried were mainly adults (which need not be untrue). Therefore, it is difficult to place the late burials at Vão into a sufficiently detailed context of the discussed practice, but hopefully the case study contributes to approaching a more refined understanding thereof.

Later periods

According to the currently available evidence, the Jaani graves and most probably also the rest of the group were abandoned well before the outset of the Viking Age. The uppermost layers of the stone-cist graves and their close surroundings, however, produced an array of relatively recent iron objects. The finds include five forged nails with different shapes; a broken bridle bit that might have counterparts in the ethnographic collections of many museums; a ring which may have been part of another bridle bit; and a presumed frame of a crude buckle. Perhaps the items represent nothing but recent rubbish and the only radiocarbon date to possibly associate them with might be that of a sheep bone originating in the 18th–20th centuries.

Conclusions

Osteological analysis showed that the site's human bone assemblage is such a mess that significant and detailed observations on bone deposition practices are impossible to make. This also explains why the previous estimations by Heapost had been so unspecific. The new analysis, however, identified twice as many individuals as previously known, and the reasoning is also backed with a detailed report, the necessity of which needs no further comment. As for the faunal remains, the species composition offered no surprises, unlike the unexpectedly modern radiocarbon date of a sheep, which eloquently calls for more frequent scientific dating of animal bones if an adequate interpretation thereof is aspired.

As a major disappointment, the burnt bones of the ship grave had gone missing and were not available for radiocarbon dating. Since the general time-frame for stone-cist graves has recently been shifted towards a slightly earlier date, and it generally coincides with the date of Scandinavian ship graves, the status of the ship grave as the oldest element at the site has become much less self-evident

than before (though may nevertheless be valid). Also, it became clear that stone-cist grave B had been erected in as early as the Bronze Age and not at the beginning of the Iron Age, as was thought before.

An almost certain Pre-Roman Iron Age origin, however, was attested for grave A, which may be one of the latest stone-cist graves in general. In view of the recently revised chronology of stone-cist graves, it is not yet entirely clear when the tradition of the building of stone-cist graves ceased. The discussed grave A shows that in the 5th century BC, or at least at the onset thereof, the tradition was still followed. On the other hand, however, one might ask as to whether it was a ‘proper’ stone-cist grave and whether adding it between the two former graves aimed at the creation of a kind of *tarand* grave. As arbitrary as this reading may be, it cannot be overlooked that the site includes interments from the time when the earliest *tarand* graves were being built and used.

The disproportionately high number of sub-adults among the buried found an explanation in the fact that the most, or at least a great proportion, of them are not part of the Bronze and Pre-Roman-period burial pattern, but belong to a later period between the Roman Iron Age and early Pre-Viking Age. In other words, in the later stage of its lifecycle the site seems to have served as a segregated or, perhaps, ‘deviant’ burial ground for predominantly children and infants. This form of re-using old stone-cist graves has also been observed elsewhere. The evidence at Vão, however, is not equally straightforward, and a degree of caution with this interpretation is advisable. A great proportion of skeletons has not been radio-carbon-dated, and there is a considerable chance that what initially appears as a continuous burial period may in fact imply at least two separate phases with a different burial pattern and associated beliefs.

To sum up, an attempt might be done to outline the developments at the site through several millennia. It would probably start with picturing a noble ship grave being accompanied with a stone-cist grave at an honourable distance and with a slightly different orientation. After a while, a third grave is being inserted, as if to bridge the two opposing graves and to turn the structure into a more up-to-date grave type, a *tarand* grave. Then there are a few peaceful centuries without burial, after which burying begins again, this time involving individuals whose social positions were not among the most prominent. The ship seems to be treated with disregard, and the presence of once two stone-cist graves is probably also forgotten. Finally, after one and a half millennium of significance, the cemetery falls into oblivion and serves as a random hump where dead farm animals and rocks from the surrounding fields are occasionally thrown. It luckily survives a shot of a military projectile, only to be destined to fall victim to limestone mining soon after. To avoid the fate of becoming crushed stone, as it happened to its surrounding milieu, the site’s integral physical existence is finished by archaeological excavation. But as is also evident from this paper, the site continues its transformations in a literary form.

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UUSI ANDMEID VÄO JAANI KIVIKALMETEST

Resüme

Vão Jaani kalme(d) – laevkalme, kivikirstkalme B ja nende vahele ehitatud veel üks kivikirstkalme A – kaevati päästekaevamiste korras läbi 1982. aastal (joon 1–2). Leitud luuainese kohta oli seni olemas ainult Leiu Heaposti täpsemate selgitusteta hinnang, et kahes kivikirstkalmes kokku olid 8 täiskasvanu ja 13 lapse säilmed. Seoses plaaniga kalmete matuseid radiosüsinikumeetodil dateerida tekkis vajadus inimluud – ja ühtlasi ka loomaluud – üksikasjalikuma vaatluse alla võtta. Käesolevas artiklis ongi tutvustatud nende uuringute tulemusi.

Inimluude analüüs näitas, et kolmes kalmes kokku olid vähemalt 38 inimese säilmed, sh kümme täiskasvanut, kaks teismeealist noorukit, neliteist last vanuses 1–11 aastat ja kaksteist imikut. Laevkalme näib seejuures peaaegu tühi olevat: siit korjatud põletatud luud on arvatavasti kaduma läinud ja väga vähesed täiskasvanu ning väikelapse põletamata fragmendid võisid laeva sattuda ka kivikirstkalmetest. Neis õnnestus enam-vähem rekonstrueerida ja lokaliseerida ainult üks skelett, mis kuulus 30–40-aastasele mehele, kelle terviklik surnukeha oli asetatud kalme A kirstu selili-siruliasendis, peaga põhja suunas, käed külgedel. Tema vasak kehapool, mis paiknes vastu kirstu kiviseina, oli parempoolsest märgatavalt paremini säilinud (joon 3). Mitte ühegi teise skeleti puhul ei saanud terviklikkuse astet, asendit ega isegi täpset asukohta kindlaks teha, nagu pole ka võimalik öelda, kas ühe indiviidi luud leidub ainult ühe kalme piirides või jaotuvad need erinevate kalmete vahel. Luude märkimisväärne fragmentaarsus ja segamini olek on vähemalt osaliselt tingitud korduvast matmisest samasse kohta ning kalme lõhutusest, ent oma osa on korratusse üldpilti andnud ka luude problemaatiline ülesvõtmine kaevamisel. Sellegipoolest võib võrdlemisi julgelt oletada, et vähemalt paljudel juhtudel on tegemist samasuguste kirstudesse, nende kohale ja lähikäikümbrusse sängitatud laibamatustega nagu kirstust A leitud mehe puhul, kusjuures mõlemas kalmes oli olukord üsna sarnane, k.a eri vanuserühmade osas (kalme A osas võis olla vaid veidi rohkem maetuid). Siiski ei saa nii fragmentaarse ja segamini materjali puhul välistada ka sekundaarseid (osa)matuseid, kas või luude ümbermatmise näol.

Peale põletamata inimluude oli kalmes B ka kaks väikest nõrga põletusega inimluukogumit. Üks neist sisaldas täiskasvanu (mehe?) ja lapse peamiselt kolju ning vähemal määral teiste luude fragmente. Teises kogumis olid eranditult koljufragmendid ühelt teiselt täiskasvanult (oletatavasti samuti mees).

Patoloogiate osas on luukogu tagasihoidlik ja enamik ilminguid seostub kõige paremini säilinud meheskeletiga. Selgroolülidel täheldati lülivahekettasongi (Schmorli sõlmed), liigesepindade kulumust (spondüloartroos) ja lülkehade kulumust (kaelalülide osteokondroos, nimmelülide spondüloos). Mõnel jäsme-, puusa-, kämbla- ja põialuul on samuti jälgitav liigeste kulumine (osteoaartroos). Ühel

täiskasvanu alalõualuul on võib-olla trauma tagajärjel tekkinud kaks luulist moodustist (alalõualuumõikad), ühel teisel alalõualuul on aga healoomuline luukoekasvaja (joon 4). Hambaid iseloomustavad üldiselt vähesed horisontaalsed stressijooned (12% hammastest), kerge hambakivi (21%) ja harv kaaries (3,5%), mis kahel juhul on päädinud abstsessiga.

Ligilähedaselt 550 loomaluufragmentidist (tabel 1–2) on 35% sellised, mida ei saanud mingi mõistlikult informatiivse taksonini määrata, ja 22% kuuluvad väikestele närilistele, kahepaiksetele ning mutile, kellel ei ole inimtegevusega arvatavasti seost. Sama kehtib võib-olla metsnugise, rebase(?), jäneste ja vähemalt osa, kui mitte kõigi suhteliselt arvukalt ning mitmekesiselt esindatud lindude kohta. Põllumajandusloomadest (15%) on esindatud lambad (võimalik, et ka kitsed), veised, sead ja ühe hamba näol ka hobune. Suhteliselt arvukad koeraluud (9%) pärinevad vähemalt kolmelt isendilt. Inimtegevusega seostub ka üksik (viiger?)hülge kontsluu.

Loomaluud jaotusid kalmete vahel üldjoontes nagu inimluudki: kõige enam keskmises kivikirstkalmes A, napilt laevkalmes. Kalmete kaupa ei erine liigiline koosseis märkimisväärselt. Skeletid on esindatud äärmiselt fragmentaarselt. Vähe- malt neljal luul märgati lõike- ja raiejälgi, mis viitavad lihakeha tükeldamisele ning liha eemaldamisele luult. Kiskjalise, tõenäoliselt koerlase hambajälgi leidub samuti vähemalt neljal luul. Radiosüsinikumeetodil on dateeritud ainult üks lamba põialuu, mis osutus 18.–20. sajandisse kuuluvaks ja võib pärineda näiteks kalmele visatud korjusest. Tulemus näitab, et ilma rohkemate dateeringuteta ei saa kalme kasutamise aegseid ja hilisemaid loomaluid üksteisest eristada ning nende tõlgendamine oleks üsna pidetu.

Inimsäilmetest dateeriti radiosüsinikumeetodil 15 (eeldatavasti eri indiviidide) luud, sh kaks põletatud luud (tabel 3, joon 5). Tulemused näitavad ootuspäraselt, et kivikirstkalme B oli olemas juba nooremal pronksiajal, kuid ei ¹⁴C-tulemused ega kirstust leitud labidaspeega luunõel võimalda kalme rajamisaega täpsustada. Kivikirstkalme A võidi selle külge ehitada 5. sajandil eKr või õige veidi enne seda. On mõeldav, et sellises kalmete liitmises peegeldub n-õ idee tarandkalme tarandite liitmise: nimetatud kalmevorm hakkas ju levima enam-vähem samal ajal. Mõlemas kivikirstkalmes ja võib-olla laevaski avastati matuseid ka ajavahe- mikust 400–200 eKr, mis süvendab sarnasust tarandkalmega veelgi. Ka maetute vanuseline jaotumus – kõik vanuserühmad on arvatavasti esindatud – on ajastule iseloomulik (see kehtib tõenäoliselt ka kalme B pronksiaegse kasutuse kohta). Eelrooma rauaaegsete matustega seostuvad A-kalme kirstus olnud raudnuga ja mujalt leitud savinõu(de) jäänused, kuid süsinikudateeringuid need ei täpsusta. Matmise järjepidevust või pikemaid ajalisi katkestusi pronksi- ja eelrooma rauaaja raames ei saa olemasolevate andmete alusel kindlaks teha, mh seepärast, et kõne- alune kolmikkalme võis olla osa suuremast kalmerühmast ning vahepeal võidi matta rühma teistesse kalmetesse.

Mis puudutab laevkalmet, siis sellest leitud vanemast eelrooma rauaajast pärit inimluu tõenäoliselt ei dateeri kalme rajamisaega. Kuna selle kalme algset matust ei õnnestunud radiosüsinikumeetodil dateerida ja abi pole ka leiuainest, tuleks

lähtuda Skandinaavia laevkalmete üldisest dateeringust, mis asetatakse ajavahemikku 1100–700 eKr, kulminatsiooniga 950–850 eKr paiku. See paraku ei võimalda selgitada Vão laevkalme ajalist suhestatust kivikirstkalmega B ega teiste ümbruskonna kivikirstkalmetega, sest uuemate andmete kohaselt langeb kivikirstkalmete ehitamine Eestis enam-vähem samasse aega. Teisalt ei lükka see ka ümber seni kehtinud arusaama, et laev on olemasolevast kolmest kalmest (ja võib-olla ka laiemas rühmas) kõige vanem.

Ligilähedaselt pool või isegi suurem osa maetutest pärineb aga hoopis hilisemast ajast. Vastavad radiosüsinikudateeringud hõlmavad ajavahemikku umbes 50–650 pKr, kuid maetute arvu silmas pidades ei pruukinud matmine järjepidev olla. Kahjuks ei võimalda olemasolevad ¹⁴C-andmed eri matmisperioode täpselt piiritleda ja selles osas ei aita ka suhteliselt väheilmekad ning pikalevenivate dateeringutega esemeleid (pronksist karjasekeppnõel, spiraalsõrmused ja -toruke, osa keraamikast, võib-olla ka tilluke pronksnaast, tuleraud, raudnuga ning ebamäärased pronksplekikatked). Hoolimata sellest, et mõni kõnealusesse aega kuuluv täiskasvanu võis dateerimata jääda, tundub, et maeti peaaesjalikult lapsi. Tähelepanuväärne on väikelaste hulk ajavahemikul umbes 400–650 pKr. Pole välistatud, et tegemist on samasuguse nähtusega nagu Kaseküla I ja Rebala II kalmes, kus pronksiaegset kivikalmet kasutati tublisti üle tuhande aasta hiljem eranditult (või peaaegu eranditult) imikute matmiseks. Tõsi, Vão Jaani puhul tunduvad samasse aega langevat ka täiskasvanute põletusmatused. Neid on paraku raske tõlgendada, sest pole kindel: 1) kas tegu on mingit laadi osamatustega või mitte, 2) kui usaldusväärsed on dateerimistulemused (mõningate uurimuste kohaselt on nõrgalt põletatud luude dateeringud ebausaldusväärsed) ja – esmajoones – 3) kuidas ning kuhu (ja kas üldse) maeti ülejäänud kogukonnaliikmed. Pole usutav, et nad maeti teistesse lähikonna kivikirstkalmetesse (ehkki mõningal määral võis rooma rauaaegseid ja hilisemaid matuseid olla neiski), ning tarand- ja kivivarekalmeid ei ole Vão ümbrusest Pirita jõe vasakkaldal teada. Seesuguseid kalmeid võis muidugi leiduda siinkandis arvukalt lõhutud kalmete seas, aga on ka võimalik, et kogukonna peamiseks matmispaigaks kõnealusel ajal ei olnudki kivikalme.

Kaevamistel leiti ka hulk võrdlemisi hiljutisest ajast pärinevaid esemeid: viis sepanaela, katkised suitsed, raudrõngas, rauast pandla(?)raam. Matmisega – vähemalt inimeste matmisega – need tõenäoliselt ei seostu.