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First Steps in the Dating of the Bronze Age Mega-Fort in Sântana-Cetatea Veche (Southwestern Romania)

Despite the fact that the fortification in Sântana-Cetatea Veche has been known since the 18th century and various local scholars have taken a direct interest in the site, the first excavations only started much later. The fortification was correctly attributed to the Bronze Age only in the second half of the 20th century. Until then, those interested in the issue of the great fortifications in Banat believed that the ramparts had been constructed during the Avar Period. New research on the fortification in Sântana was initiated in 2008. The northern side of the third fortification system was tested in 2009, and its construction system was documented on that occasion. The fortification system in question consisted of an earthen rampart, a wall made of wood and clay built upon the crest of the rampart, and a defense ditch. At the same time we noted that the erection of the earthen rampart had disturbed a cemetery in use in that area. The present article focuses on the dating of the third system of fortification excavated in 2009 and on the presentation of the contexts from which radiocarbon data have been collected. The results indicate that the cemetery disturbed by the construction of the fortification was used at the end of the 15th century BC and that the fortification was certainly in use during the 14th century BC.

Introduction

Ever since the 19th century there has been interest in the Bronze Age fortifications in the area of the Lower Mureş: intellectuals such as Gábor Fábrián and Sándor Márki for example, passionate about local history, included in their works brief descriptions of certain “great and old earthen ramparts”.¹ Even though the first archaeological excavations were performed much later, fortifications such as those in Corneşti-Iarcuri and Sântana-Cetatea Veche were interpreted as rings of the Avar era.² Although the discovery of 11 golden items inside Cetatea Veche in Sântana in 1888 generated an increased interest in this archaeological objective,³ no scientific initiative was actually taken in research on this fortification until the second half of the 20th century.

Once Egon Dörner was employed as an archaeologist at the Museum in Arad, numerous field research projects of the most important sites in the

Lower Mureş were initiated.⁴ Through his friendship with Mircea Rusu and the latter’s interest in the Bronze Age, a series of field surveys and small test excavations were performed inside the site of Sântana-Cetatea Veche. The research of these two archaeologists, later accompanied by Ivan Ordentlich, reached a peak in 1963 with an archaeological campaign that focused both on the fortification systems of enclosures I and III as well as on the inner surface of enclosure I. Starting with that year, the fortification under discussion, like the one in Corneşti (Jadani), was attributed to a so-called Hallstatt A1 period.⁵ It was presumably erected by carriers of the Sântana-Lăpuş-Pecica or Sântana-Lăpuş-Gáva culture, who were also responsible for the burial of Cincu-Suseni-type deposits in the 12th century BC.⁶

⁴ Gogâltan/Sava 2010, 20-22; Bader 2015.

⁵ This periodization is based on that suggested by H. Müller-Karpe for the southern part of Central Europe (Müller-Karpe 1959).

⁶ Rusu 1963, 188-189. – K. Horedt (1967b, 21) has rightfully criticized the term “Sântana-Lăpuş-Pecica culture”, since it is too comprehensive and encompasses diverse groups under the same heading (“da sie zu umfassend ist und verschiedene Gruppen unter dem gleichen Begriff vereinigt”).

¹ Fábrián 1835, 91; Parecz 1871, 8. 19; Miletz 1876, 166-167; Márki 1882, 112-121; 1884, 185-194.

² Péch 1877; Márki 1882.

³ Márki 1892, 39-40; Dörner 1960. For the entire discussion about and bibliography for this hoard, cf. Gogâltan *et al.* 2013, 24-25. 28-29.

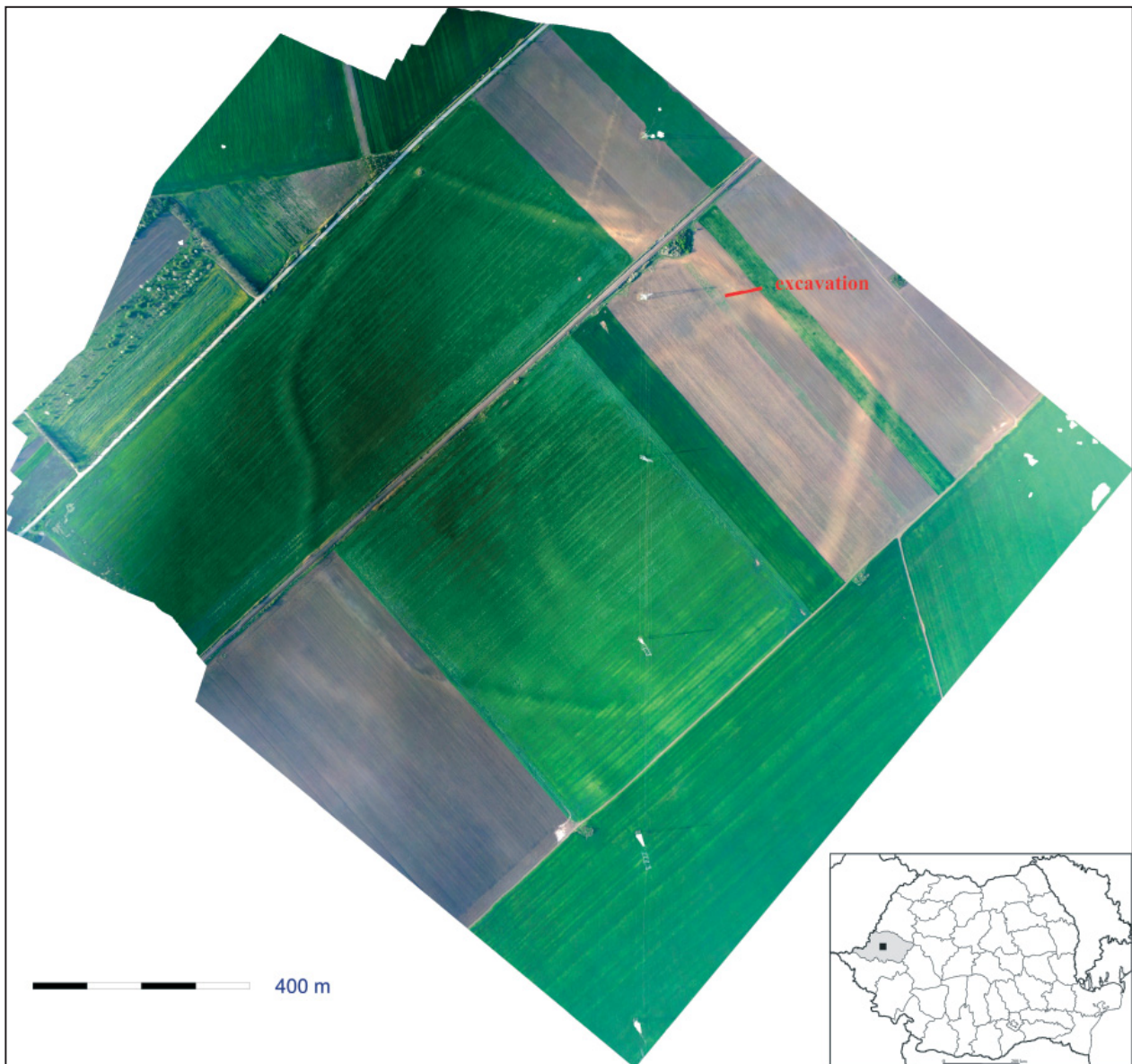


Fig. 1 Sântana-Cetatea Veche. Aerial photograph of the fortification with the location of the 2009 excavation and the location of the settlement of Sântana on the administrative map of Romania (photo by the authors)

Kurt Horedt accepted this dating straight away, but he preferred to use the term ‘Late Bronze Age Period’.⁷ He also added that Sântana displayed two habitation levels that could be attributed, on the basis of the gold hoard, to the stage Bronze Age D and on the basis of a bronze belt discovered on the surface of the settlement to the stage Hallstatt A.⁸

Mircea Rusu also spoke about two stages in the development of the fortification in Sântana in his presentation of the site in the *Enzyklopädisches Handbuch zur Ur- und Frühgeschichte Europas* by Jan Filip (1969). Rusu attributed the first fortifica-

tion to a late phase of the Pecica-type civilization from the end of the Bronze Age and the second fortification to the first Iron Age (Hallstatt A1).⁹ Other specialists have subsequently adopted this dating.¹⁰ An archaeological report on the 1963 excavation was published much later, providing the first pieces of information regarding the structure of fortification III and the habitation identified inside fortification I. The excavations were illustrated with plans and archaeological material discovered during this work.¹¹ Although the fortification systems of enclosures I and III were investigated, no definitive

⁷ Horedt 1967b, 9.

⁸ Horedt 1967a, 149; 1967b, 19. – On the metal discovered in Sântana see Gogâltan *et al.* 2013.

⁹ Rusu 1969, 1298.

¹⁰ Horedt 1974, 224 no. 19; Dörner 1976, 42-44.

¹¹ Rusu *et al.* 1996; 1999.

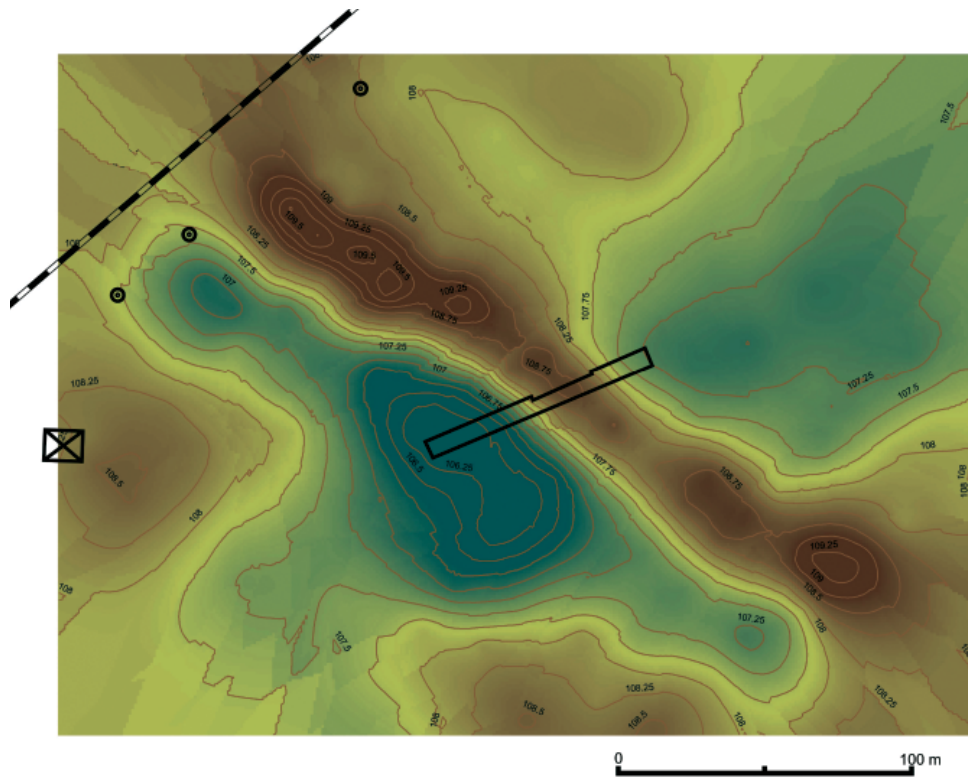


Fig. 2 Sântana-Cetatea Veche. Topographic survey of the area where the 2009 excavation was performed and the location of section S1 (map by the authors)

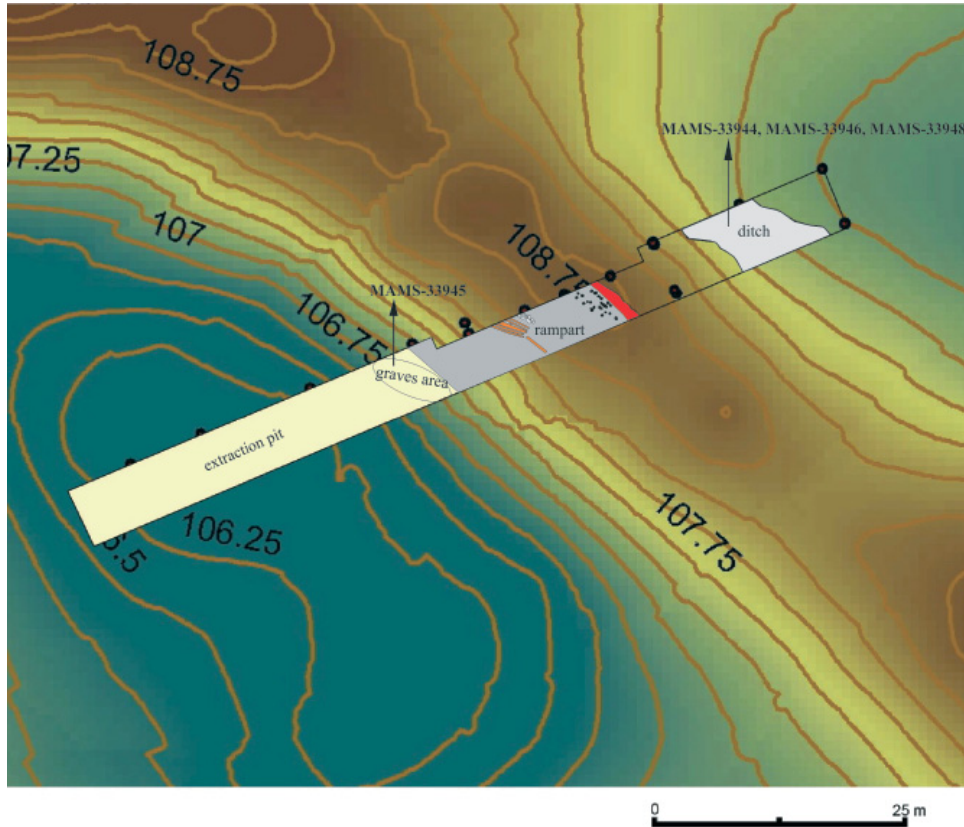


Fig. 3 Sântana-Cetatea Veche. Schematic ground of section S1/2009 and the main contexts (very light grey: ditch; grey: rampart; red: remains of the wall; brown: wood beams; light grey: stones; black: post holes; white: extraction pit and area of graves) from where AMS data were sampled (graphic by the authors)

Lab no. MAMS	Sample name	14C age [yr BP]	±	Cal 1-sigma	Cal 2-sigma	Material	Context
33944	1_Santana, Cetatea Veche S1,70A	3064	27	cal BC 1388-1283	cal BC1409-1236	human bone	ditch
33945	2_Santana, Cetatea Veche S1,Cx.41	3118	23	cal BC 1427-1322	cal BC1438-1303	human bone	cemetery
33946	3_Santana, Cetatea Veche S1,62A	3066	24	cal BC 1388-1286	cal BC1407-1263	human bone	ditch
33948	5_Santana, Cetatea Veche Cx.38	3131	23	cal BC 1433-1327	cal BC1487-1306	animal bone	ditch

Table 1 Sântana-Cetatea Veche. List of AMS dates

answer could be provided for their chronological identification. Still, the pottery fragments and metal items discovered in the perimeter of the fortification can be dated to stage Hallstatt A1, while other finds can be attributed to phase Bronze Age D or perhaps a slightly later period (Hallstatt B).

When reviewing the most important opinions on the earthen fortification in Sântana, one can note that the chronological stages of its construction, use and destruction are vaguely dated to the late period of the Bronze Age and the beginning of the first Iron Age. Even after the rescue excavation performed in the autumn of 2009, when the defense system of enclosure III was partially sectioned (**Figs. 1-3**), we were unable to refine the chronology very much.¹² Although a series of samples were collected on that occasion from the charcoal of the posts forming the wall on top of the rampart, due to the lack of financial resources we had to postpone the absolute dating of the fortification elements until 2018.

The absolute dating of some of the elements of this fortification was possible by the generous financing through the LOEWE project. In the beginning of 2018 several animal and human osteological fragments were sent for dating to the Klaus-Tschira-Archäometrie-Zentrum in the Curt-Engelhorn-Zentrum Archäometrie gGmbH in Mannheim. The bone remains had been discovered in the defense ditch, as well as in a grave identified behind the ramparts, in secondary position (**Tab. 1**). This article aims at briefly presenting the results of the AMS data sampled from the different

contexts of the fortification system of enclosure III in Sântana. In order to form a general perspective, we shall first present the contexts from which the samples were collected and then the relation between the absolute dates and the archaeological material, mainly the pottery discovered during the 2009 excavation.

Archaeological contexts

Although the immediate results of the excavation performed during 2009 were already presented in 2010, nevertheless we believe it is useful to describe in detail both the archaeological contexts from which radiocarbon samples were collected and the contexts which through their very nature provide clues to the relative dating of the fortification system.

The first element of fortification consists of a defense ditch, with a width of 10.2 m and a depth of 2.86 m, located c. 8 m in front of the rampart. The profile shows that the ditch becomes narrower towards the bottom and that the inner incline is steeper (**Fig. 4**). The fill consists of 18 soil lenses, in a typical to gradual undulation; lens "L5" reflects the destruction level of the fortification. This led us to believe that the defense ditch was strongly silted at the time when the fortifications ceased to be used. Lens "L5" contained numerous pieces of adobe from the wall placed on top of the rampart. A number of pottery fragments, human and animal bone material, large quantities of adobe, a pot with grooves that could be reconstructed, and a cup were discovered in the fill (**Fig. 5**). The pot

¹² Gogăltan/Sava 2010, 41-44.

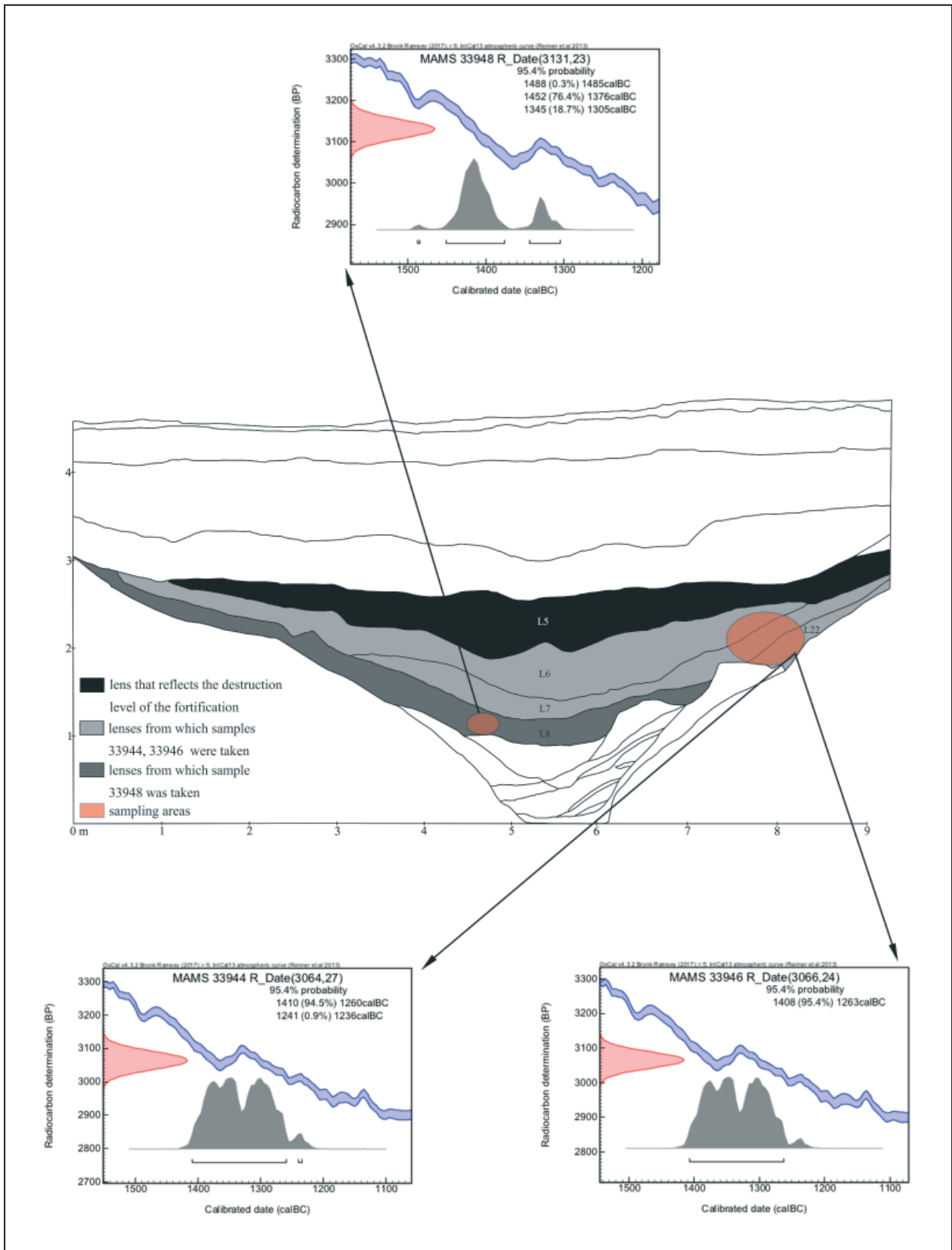


Fig. 4 Sântana-Cetatea Veche. North-eastern profile of the ditch and absolute dating of lenses “L6”, “L7”, “L8” and “L22” (drawing by the authors)

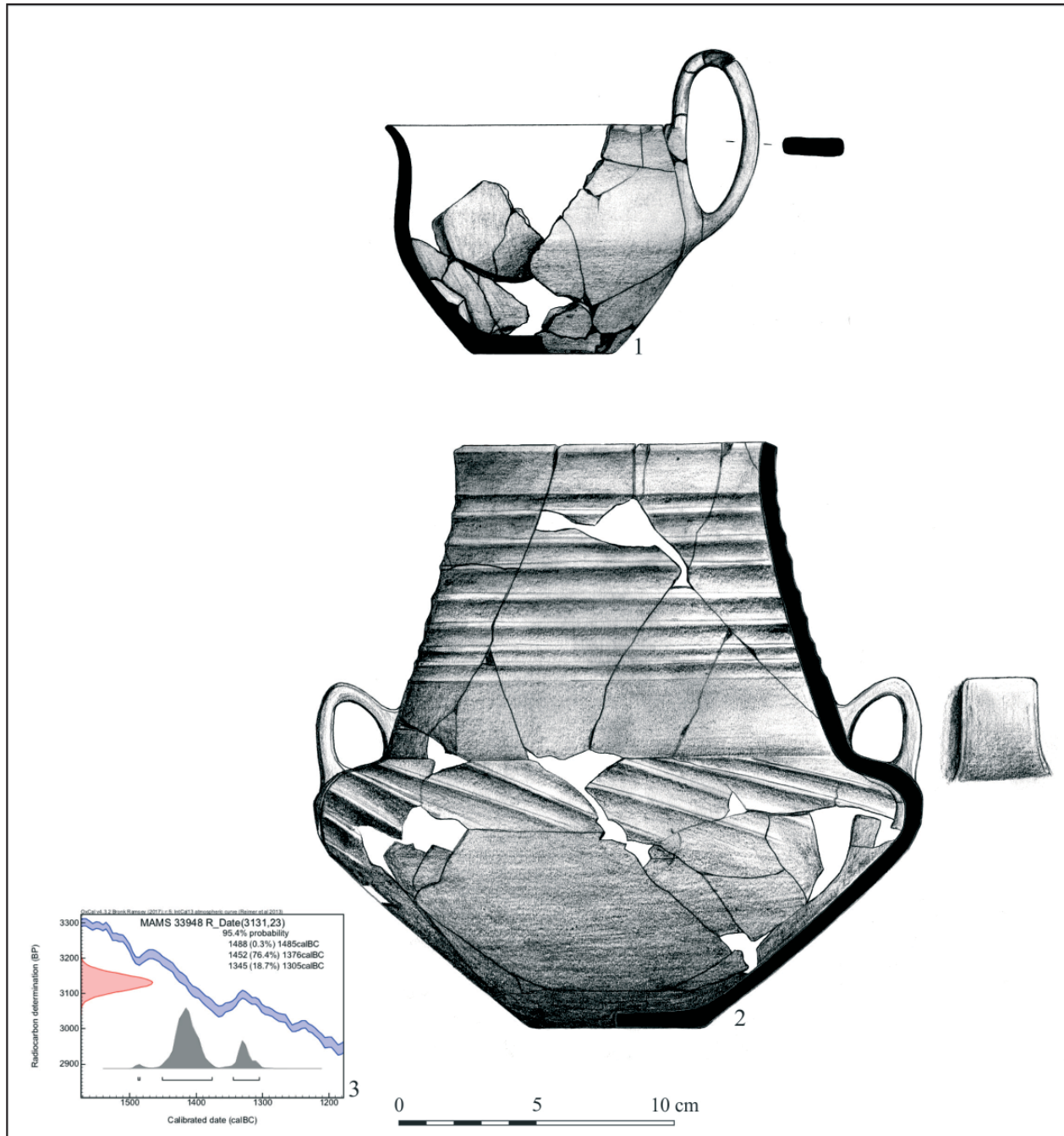


Fig. 5 Sântana-Cetatea Veche. Ceramic pots discovered in lens “L8” and the absolute dating of the context (drawings by the authors)

decorated with grooves became apparent in square 74B, at the absolute depth of 104.13 m and the inner depth of 1.9 m, i.e. in lens “L8”. By chance, an animal bone was preserved inside the pot – corresponding to radiocarbon sample MAMS-33948. A deer antler was also discovered in the fill of the ditch, between lenses “L7” and “L8”, in square 72B, at the absolute depth of 104.36 m and the inner depth of 1.67 m. A sample taken from this antler was sent in 2014 to the Isotoptech Zrt. laboratory in Debrecen, and another was sent in 2018 to the Klaus-Tschira-Archäometrie-Zentrum in the

Curt-Engelhorn-Zentrum Archäometrie gGmbH in Mannheim (MAMS-33947). Unfortunately, both labs reported that the samples did not contain sufficient collagen for analysis.

The human bones discovered in lenses “L6”, “L7”, “L8” and “L22” (Fig. 4) represent a special aspect. The bones belonged to two mature individuals, males, aged between 20 and 30. One skull fragment displays traces of trauma, reflected by two blows that probably caused the individual’s death.¹³ Both de-

¹³ Gogâltan/Sava 2012, 70 Fig. 10.

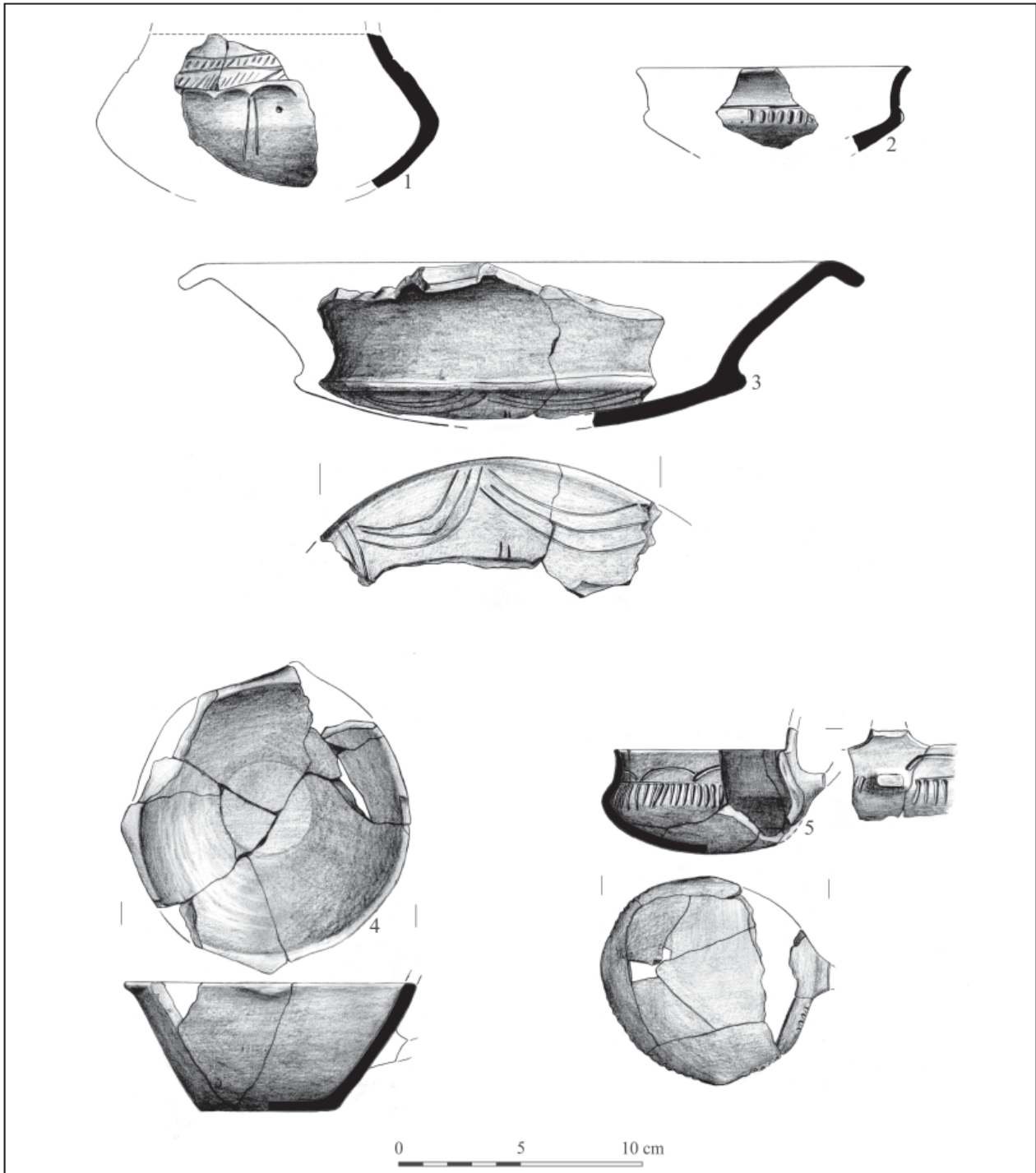


Fig. 6 Sântana-Cetatea Veche. Pottery discovered in the rampart, in secondary position (drawings by the authors)

ceased contributed to the absolute dating (MAMS-33944 and MAMS-33946); the results confirm that they died during the same chronological interval.

The rampart and the wall erected on top of it have already been described on other occasions, and we shall not repeat all now.¹⁴ Still, we must

¹⁴ Gogâltan/Sava 2010, 29-33. For a graphic reconstruction of fortification III see Oltean 2016, 9. See also Gogâltan/Sava 2018.

mention the impressive dimensions of the rampart built of compacted clay, wood and stone: it measured almost 27 m in width and 2.5 m in height. As for the wall, it was erected on a structure of wooden posts rammed in the rampart, and this structure was filled with clay. The outer surface of the wall was carefully covered with clay, which had been repaired several times with new layers of clay. The entire wall was strongly burnt, as all posts were charred, and the burnt clay in some places was vitri-

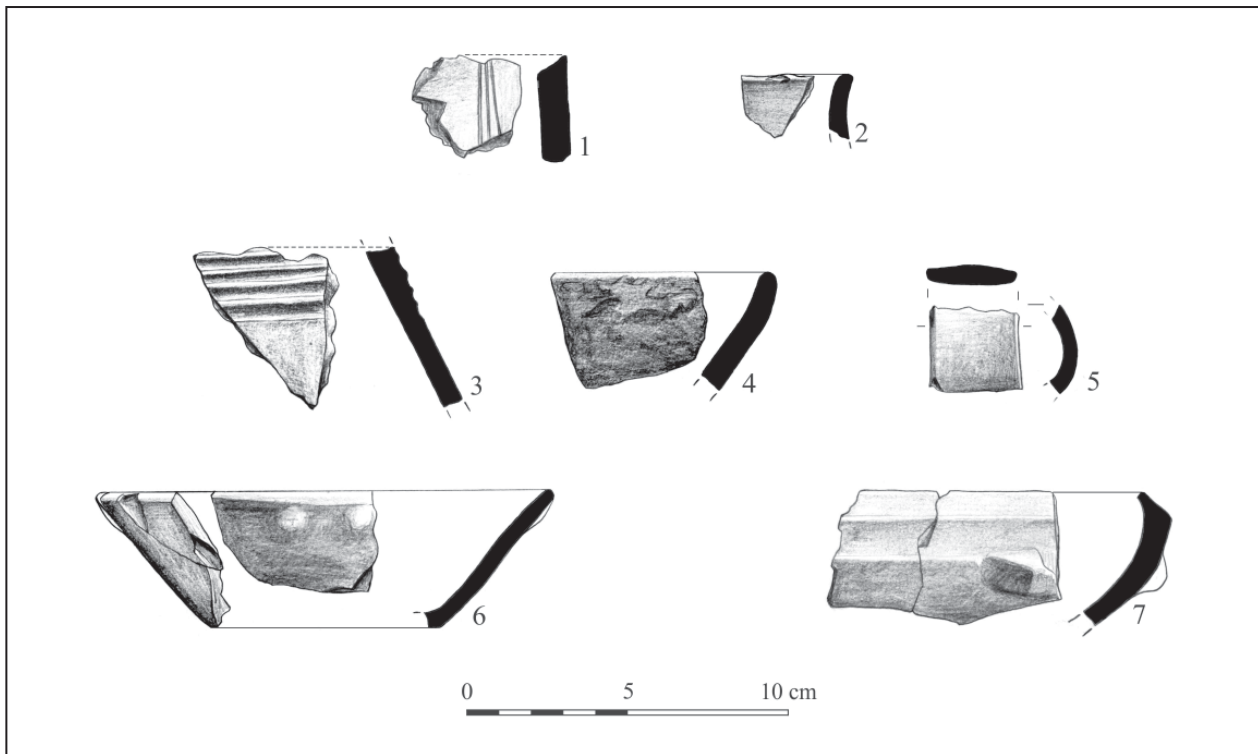


Fig. 7 Sântana-Cetatea Veche. Pottery discovered in the extraction area of the soil used for the erection of the rampart (drawings by the authors)

fied. As mentioned above, a series of charcoal pieces were collected from the charred wooden structure uncovered in 2009. However, as they could not be analysed in time, they became altered. Thus, when we had the opportunity to obtain absolute datings of the fortification through the LOEWE project, we were unable to provide samples from the structure of the wall. One of the goals of the excavation planned for the summer of 2018 is to obtain relevant samples for the absolute dating of the time at which the fortification of enclosure III in Sântana was destroyed by fire. At the moment, only the numerous pottery fragments discovered between the soil lenses of the ramparts, obviously in secondary position (Fig. 6), can be discussed.

A specific feature for the fortifications in the area of the Lower Mureş (for example Corneşti¹⁵ or Munar¹⁶) is a ditch or rather a large cavity that doubles the rampart on the inside. In Sântana this feature was identified all along the fortification of enclosure III and in the area of trench S1; it measured 33 m in width and 2 m in depth. Based on the data available so far, we can state that this inner cavity is in fact an area from which most of the clay required by the erection of the rampart was ex-

tracted. Overtime, especially during the Habsburg era, this small depression was filled with earth; from this fill we also recovered pottery fragments from the late stage of the Bronze Age (Fig. 7) and some bronze items of little chronological value.¹⁷

The report of the 1963 excavation records the discovery, behind the fortification of enclosure III, of an *in situ* grave that contained a skeleton buried in crouched position. The inventory of this grave consisted of two ceramic vessels and a pair of bronze tweezers that were dated, with probability, to phase Hallstatt B.¹⁸ This was not the first grave found in this area of the fortification. In 1888 the workers building the railroad that still crosses Cetatea Veche presumably discovered a hoard of gold items and old ceramic vessels in a destroyed grave. Rescue excavations coordinated by Aurel Török during the same year led to the discovery of coarsely made pots and two skeletons, one of an adult and the other of a child, both without funerary inventory.¹⁹

¹⁷ Gogâltan/Sava 2012 Figs. 39-40.

¹⁸ Dörner 1976, 43; Rusu *et al.* 1996, 16 Pls. II,1b. VI,17-18. XIV,5; 1999, 144 Figs. 2,2. 7,17-18. 15,5. The funerary inventory is nevertheless characteristic for an earlier stage of the Late Bronze Age, as the settlement in Şagu, for example, proves (Sava *et al.* 2011 Fig. 100, cx. 83. cx. 132).

¹⁹ Gogâltan *et al.* 2013, 24 with all bibliographic data.

¹⁵ Szentmiklosi *et al.* 2011, 824.

¹⁶ Gogâltan 2016, 94 Fig. 6; Sava/Gogâltan 2017.

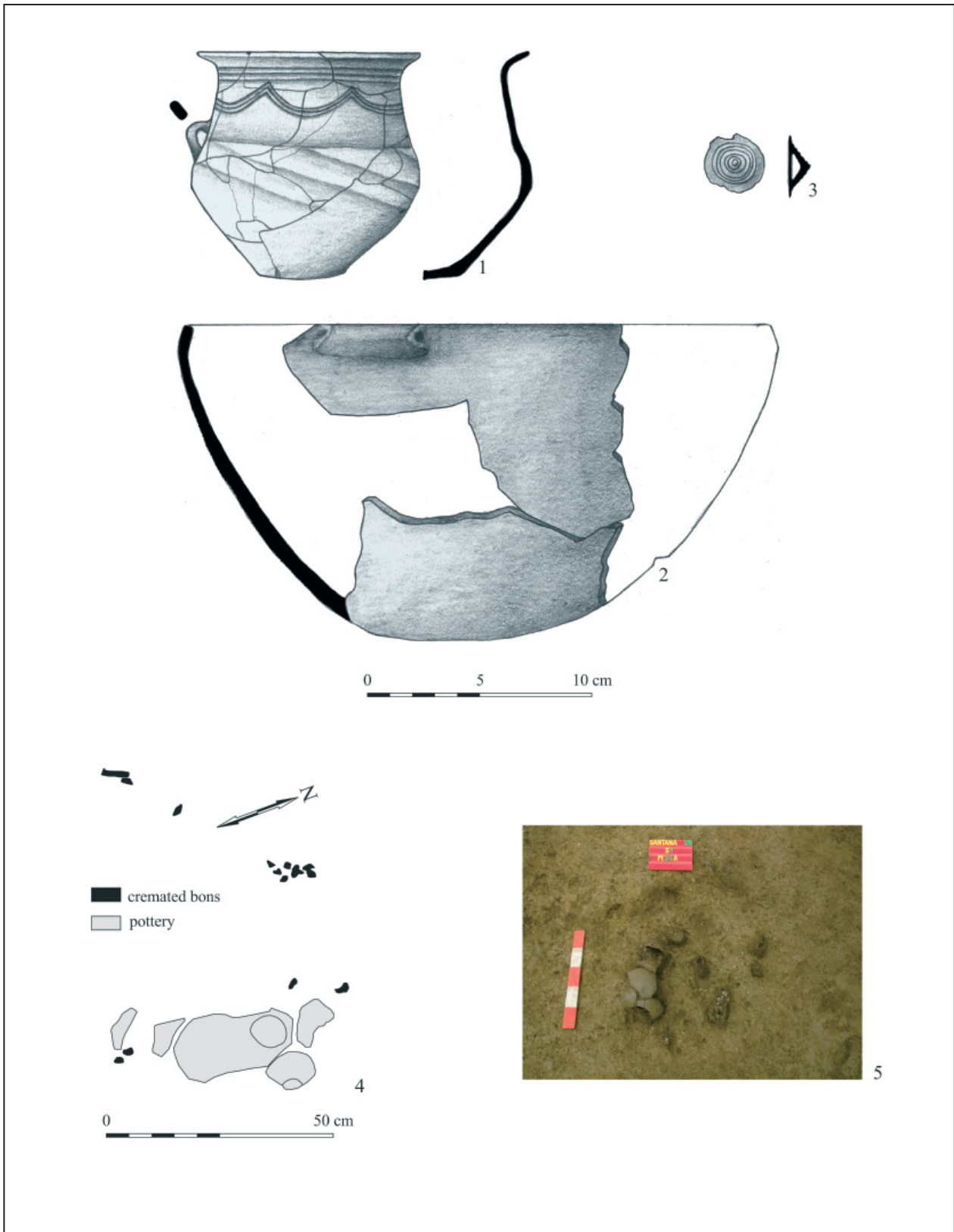


Fig. 8 Sântana-Cetatea Veche. Grave Cx. 40 (photo and drawings by the authors)

Trench S1, opened in the autumn of 2009, intersected the trench excavated in 1963. Three other graves were also identified behind the rampart, but this time in a secondary position, destroyed by the construction of the rampart. Grave cx. 5 became apparent in square 36B as a small agglomeration of human bones, mostly part of the skull cap. A bronze ring with a preserved piece of the phalanx was identified in its close proximity. No traces of a possible deposition pit of the human bone remains were observed. Based on the anthropological analyses we can state that the skeletal remains belonged to a child, at most 2 years in age. In its close proximity we uncovered another grave (cx. 40), also in secondary position. It was a cremation grave deposited in a natural cavity located slightly above the yellow clay. The inventory of the grave consisted of a fragmentary bowl, a small cup and a bronze *tutulus*. Pieces of charcoal and small fragments of cremated bones were scattered inside and around the bowl (Fig. 8). In the same sector of trench S1, more precisely in square 32B in the western profile, we discovered the bones of an adult in an obviously secondary position, accompanied by fragments from three bowls (Fig. 9). Sample MAMS-33945 was collected from the inhumation grave (cx. 41).

The presentation of these funerary discoveries indicates convincingly that a cremation and an inhumation cemetery existed behind the fortification of enclosure III. It was destroyed by the erection of the fortification system of enclosure III. Both the rites and the rituals are similar to those observed in the cemetery in Pecica-Situl 14, located c. 30 km south-west of Sântana,²⁰ and the funerary inventory is characteristic for the Late Bronze in this region. Furthermore, sample MAMS-33945 dated grave cx. 41 to a time between 1438 and 1303 cal BC 2σ .

Results

In order to shorten the discussion of the contexts from which the samples for AMS dating were collected, we note here that three came from the defense ditch and one from grave cx. 41 located behind the rampart (Fig. 3; Tab. 1). As discussed above, a fifth sample taken from a deer antler found in the defense ditch did not contain enough collagen for analysis (MAMS-33947).

As one can note in Figs. 10-11, the earliest dates are those collected from grave cx. 41. Modelling the date, an average interval of 1411 BC is reached (Fig. 12,1).²¹ Although the inventory of the grave was poor (consisting only of three fragmentary pots), we can remark upon the bowl decorated with two lobes on the rim and with concentric grooves on the bottom (Fig. 9,2). This early dating for the channelled decoration, at the passage between the 15th and the 14th century BC, confirms the use of channels ever since the 15th century, as attested by grave cx. 98 in Pecica-Situl 14.²² The pot discovered in lens "L8" in the ditch of enclosure III in Sântana is dated to the 14th century BC (Fig. 5,2). Cremation grave cx. 40 was identified in close proximity to grave cx. 41 and contained a small pot decorated with channels besides a fragmentary bowl and a bronze *tutulus* (Fig. 8,1). This type of decoration has been traditionally attributed to the time of Hallstatt A1, i.e. the 12th century BC. Today it becomes apparent that the entire chronology of channelled pottery from the Lower Mureş Basin must be revised. Taking into account the already mentioned data, it is very likely that grave cx. 40 was relatively contemporary with grave cx. 41 and should be thus dated to the end of the 15th century BC or the beginning of the 14th century BC.

Regarding the samples collected from the lenses of the defense ditch, two samples (MAMS-33944 and MAMS-33946) were taken from the skeletal remains of two individuals, identified in lenses "L6", "L7", "L8" and "L22" (Fig. 4). It seems that both persons died at the same time, or within a narrow interval in time. By modelling the dates an average interval of 1394 BC is reached (Fig. 12,2), very close to the one obtained for the sample from the cemetery behind the rampart. Bringing together the three dates available so far from this ditch, an average interval between 1368 and

²⁰ Sava/Andreica 2013; Sava/Ignat 2014; Andreica 2014; Sava/Ignat 2016, 185-186.

²¹ We thank our colleague Prof. Dr. Florin Draşovean for modelling these AMS dates and for his suggestions regarding their absolute chronology.

²² Sava/Ignat 2016, 185. After the new excavations performed in Lăpuş, the authors of the excavations have noted that the pottery decorated with channels (of the Gáva-Lăpuş II type) appeared much earlier than previously believed: "Although old-wood-effects cannot be excluded, the intervals of the dates indicate the existence of channeled ware pottery in Lăpuş in the 13th century BC if not earlier" (Metzner-Nebelsick *et al.* 2010, 223).

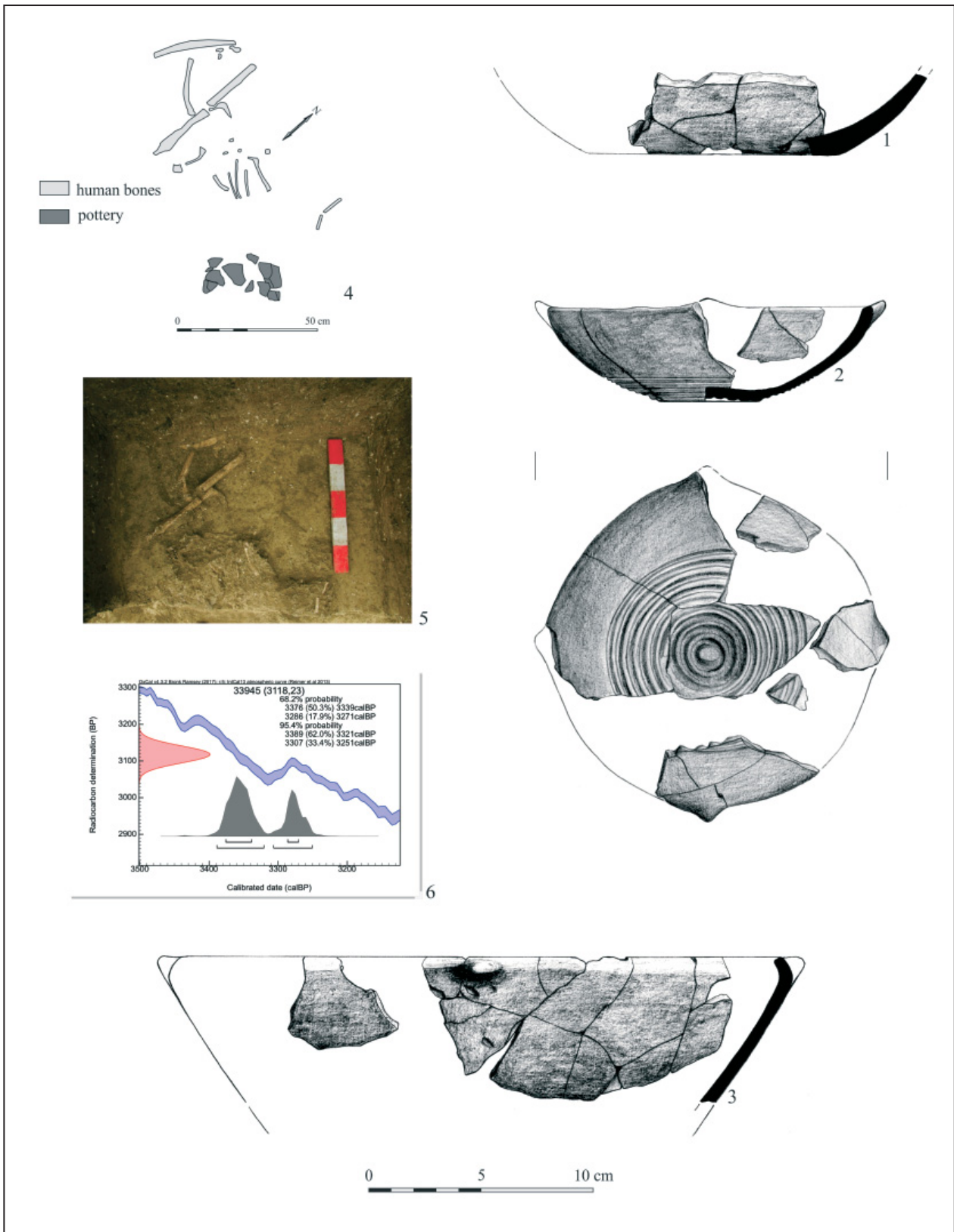


Fig. 9 Sântana-Cetatea Veche. Grave Cx. 41 and its absolute dating (photograph and drawings by the authors)

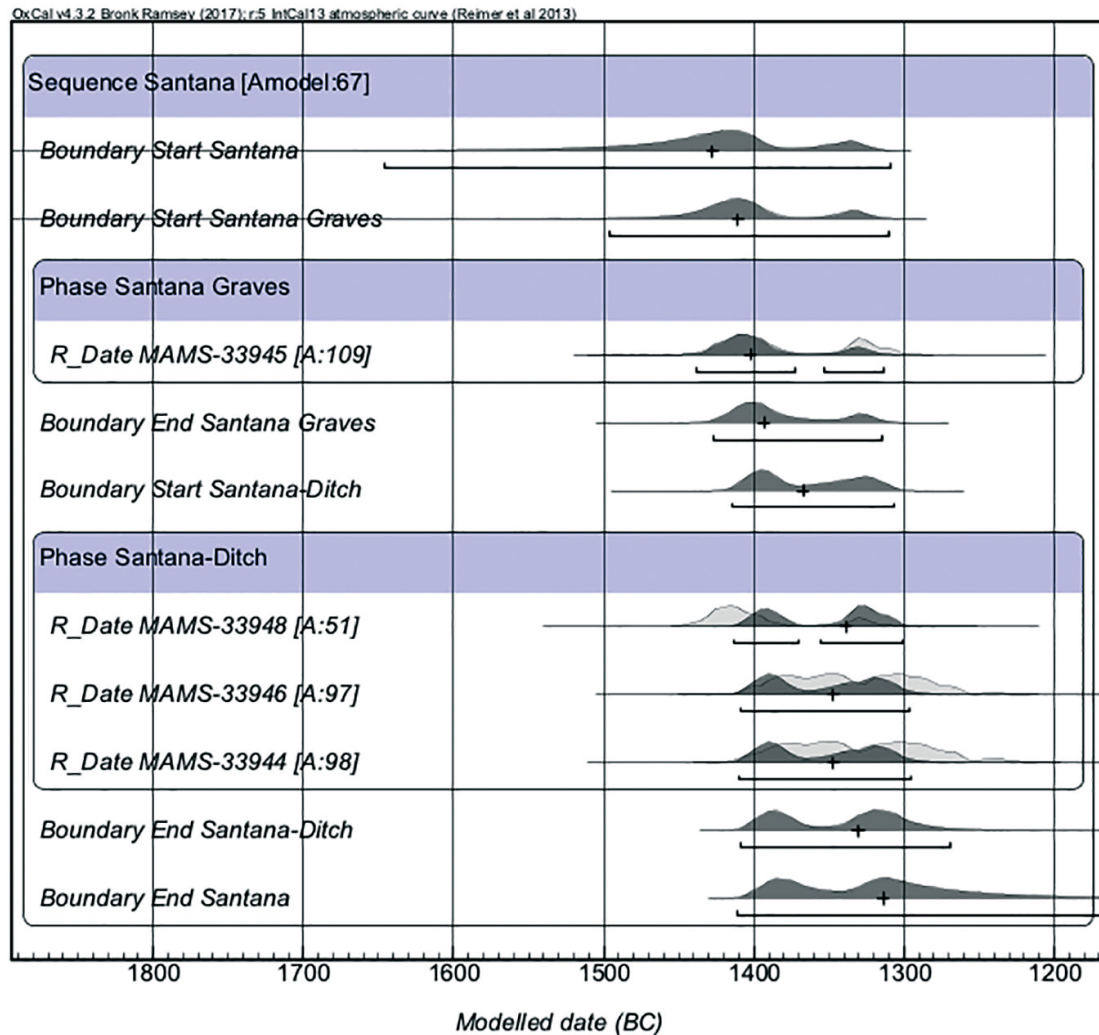


Fig. 10 Sântana-Cetatea Veche. Bayesian Model of the AMS data (graphic by the authors)

1331 BC is reached (Fig. 12,3-4). By correlating this chronological interval with the stratigraphy, we can state that it represents an intermediary use-phase of the ditch. The ditch was certainly dug before the 1368-1331 BC chronological interval, and the date when the fortification was destroyed, reflected by lense “L5”, is later.

Although no absolute dates sampled from the earthen rampart and the wall on top of it are available so far, the discovery of rich pottery material (in an obviously secondary position) among the soil lenses of the rampart allow us to determine the time at which the fortification of enclosure III was built, at least according to relative chronology. Analysing the decoration of the pottery discovered in these contexts (Fig. 6), we note the presence of incised ornaments. As demonstrated on another occasion, incised arches represent a characteristic of the pottery from the phase Late Bronze Age I (c. 1600/1550-1450/1400) in the area of the Lower

Mureş.²³ Pottery fragments decorated with arches, but also with other ornaments created by incision were also discovered during the 1963 excavations inside enclosure I.²⁴ The systematic field surveys initiated in 2007 have demonstrated the distribution of pottery fragments with this type of decoration characteristic for Late Bronze Age I not only inside enclosure I, but also all along the eastern side of the third fortification. Taking these arguments into consideration, we believe that the construction of fortification III disturbed an earlier settlement that had developed during phase Late Bronze Age I. It also destroyed a cemetery with cremation and inhumation graves. By modelling the date from grave cx. 41 an average interval of 1411 BC is reached, whereas the ditch was built before the 1368-1331 BC

²³ Sava/Ignat 2016, 195.

²⁴ Rusu *et al.* 1996 Pls. VII,2-4. VIII,2.5.7; 1999 Figs. 8,2-4. 9,2.5.7.

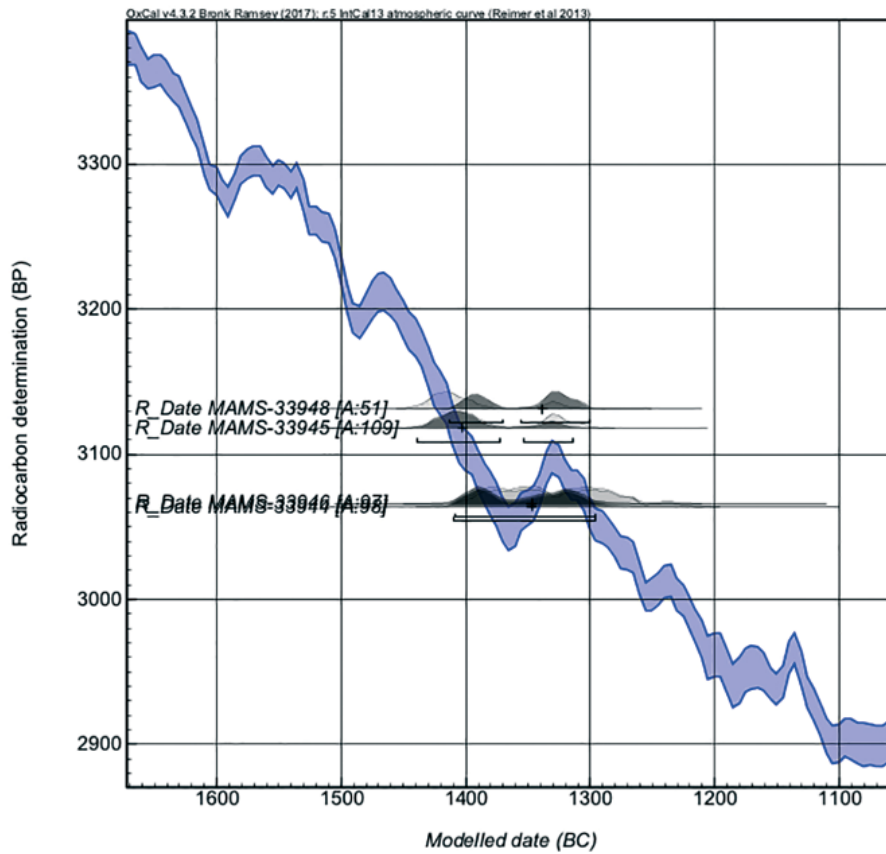


Fig. 11 Sântana-Cetatea Veche. The layout of the AMS data on the calibration curve (graphic by the authors)

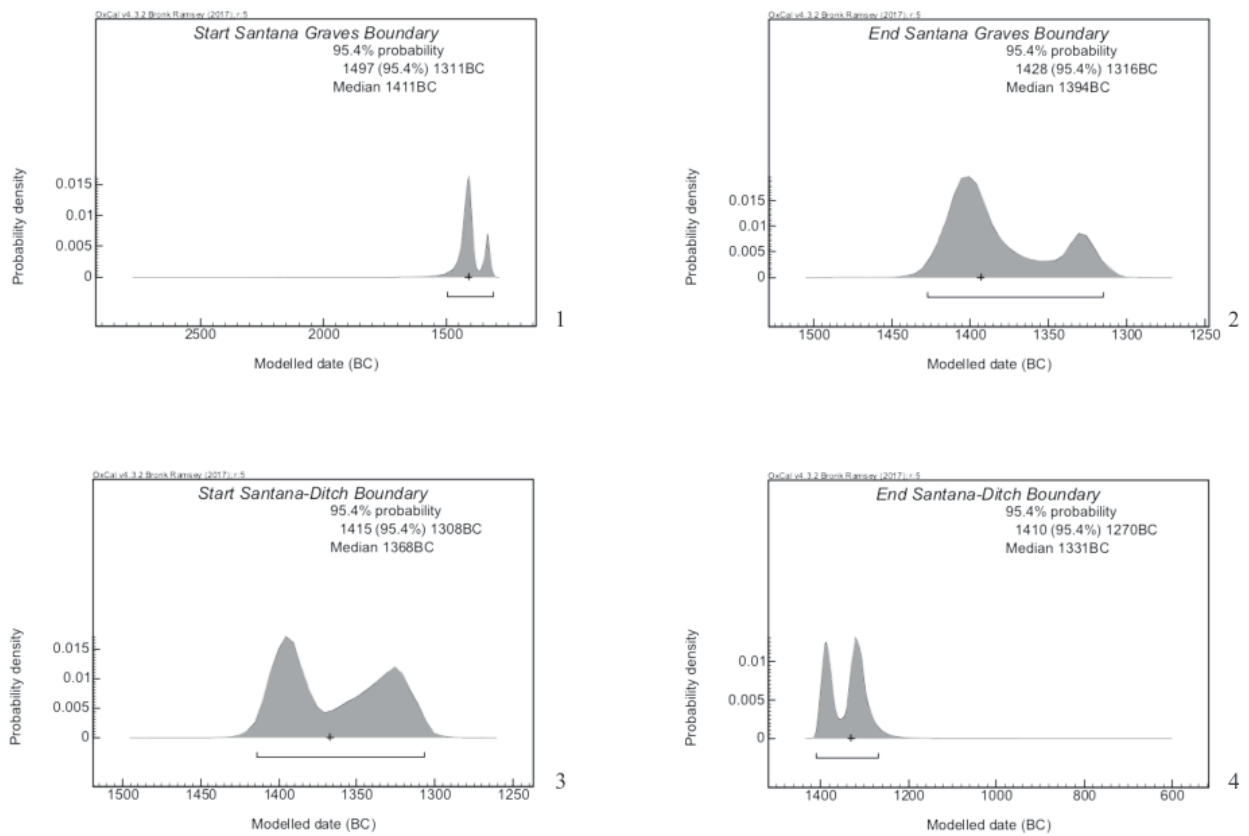


Fig. 12 Sântana-Cetatea Veche. The modelling of the AMS data: 1 Start Graves Boundary; 2 End Graves Boundary; 3 Start Ditch Boundary; 4 End Ditch Boundary (graphics by the authors)

chronological interval. In view of these conditions, the hypothesis that the fortification of enclosure III was erected in the beginning of phase Late Bronze Age II, sometime after 1400 BC, seems convincing. We are curious to see whether the excavations planned for the summer of 2018 will confirm or contradict our supposition.

Conclusions

For almost two centuries the great earthen fortifications of the Bronze Age from the Lower Mureş Basin have raised the constant interest of those interested in the old history of these places. Through their cyclopean dimensions they have fascinated numerous generations of archaeologists, yet few have also dared to research them. Appropriate investigations of the enormous surfaces between the earthen ramparts of these fortifications require special efforts. After ten years of archaeological excavations in Corneşti-Iarcuri, the results barely allow for an outline of some general aspects of the mega-fort.²⁵

It is obvious that the best strategy at this stage of research is to investigate the systems of fortification in order to set their absolute chronology. Through the 2009 archaeological excavation in Sântana-Cetatea Veche we wished to precisely clarify the dating of the fortification of precinct III that encloses an area of c. 80 ha. Despite the spectacular results, the dating was only reached in 2018.

At present we can state that the fortification system of the third enclosure (enclosure III) in Sântana was in use throughout the 14th century BC and that the erection of the rampart led to the destruction of an older cemetery and of an older settlement, both located in close proximity to the rampart. According to data available now, we can also state that this fortification was relatively contemporary with the first two fortifications in Corneşti-Iarcuri²⁶ and possibly with the first stage of the fortification in Csanádpalota-Földvár.²⁷ Its end was

violent. An attack with burnt clay sling bullets, an innovation for that period's fighting tactics, led to the conflagration and destruction of the fortification of enclosure III.²⁸

After setting the first chronological benchmarks for the mega-forts of the Late Bronze in the Lower Mureş, as Anthony Harding has inspiringly called them,²⁹ we still have to face numerous challenges. Only through a coherent program in research will we be able to answer other pending questions in the future. We believe that our priorities must focus on gaining better knowledge about the transition period from the multi-strata settlements of the Bronze Age in the area (tells and tell-like settlements) to the onset of these large fortifications.³⁰ This process took place around 1500 BC and marks the abandonment of a lifestyle that specialists dealing with this period view differently.³¹ The process either encompassed dramatic social changes that led to the onset of political inequality, or it was (we believe natural) a development towards complex social relations similar to those in the contemporary Mycenaean world.

By publishing certain archaeological excavations, such as the one from Şagu located in close proximity to the fortification in Corneşti, we stand a chance to identify the social and economic mechanisms that generated the development of a simple settlement into a mega-fort. Unlike its neighbours located at distances of 14 km (Corneşti), 21 km (Munar) and 27 km (Sântana), the settlement of Şagu which covered c. 25 ha was not fortified, but was oriented towards economic activities specific to the period.³² Munar seems to have been a different case, in which a small Middle Bronze Age tell turned into a fortified settlement that covered 14 ha.³³

Besides continuing the excavations in Sântana, these are our priorities for the subsequent years, in an attempt to clarify one of the current challenges for European archaeology: the onset of Bronze Age mega-forts.

²⁵ Harding 2017; Heeb *et al.* 2017b.

²⁶ Harding 2017 Fig. 1; Heeb *et al.* 2017b.

²⁷ Szeverényi *et al.* 2017, 139. As for the dating of the fortification in Csanádpalota, the authors of the excavation mention the following: "The series of radiocarbon dates taken from samples from both the large-scale preventive excavation and the smaller excavation of the oval enclosure indicates an occupation between 1380 and 1120 cal BC."

²⁸ Gogâltan/Sava 2018.

²⁹ Harding 2017.

³⁰ Gogâltan 2014; Sava/Ignat 2016; Sava 2016; Gogâltan 2017.

³¹ Kienlin 2015a; 2015b vs. Sava/Ignat 2014; Gogâltan 2016.

³² Sava *et al.* 2011; 2012; Sava 2014; Urák *et al.* 2015.

³³ Gogâltan/Sava 2010, 57-61; Sava/Gogâltan 2014; 2017.

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