

Sântana “Cetatea Veche”. Metal and power¹

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“...king of Mycenae that is rich in gold”²
To Professor Kristian Kristiansen on his 65th anniversary

Abstract: Through the eleven gold items, the 67 copper and bronze objects, and one sandstone mold preserved fragmentarily, all attributed to Late Bronze Age (Late Bronze II-III, Bronze D – Ha A), the fortification in Sântana “Cetatea Veche” has revealed among the most numerous metal items in Lower Mureş area. Some objects are part of funerary inventory, but most of them were not found in clear contexts, having ended up in the ground by chance. The metal artefacts, together with the imposing size and fortification elements, can be attributed to a statute of power and prestige that “Cetatea Veche” probably had among its contemporary communities.

Keywords: Lower Mureş valley, Late Bronze Age, gold artifacts, bronze objects, stronghold.

The already prestigious series *Studien zur Archäologie in Ostmitteleuropa/Studia nad Pradziejami Europy Środkowej* has recently published a volume dedicated to the issue of Bronze Age fortified settlements in Central Europe³. The volume is part of a series that contains publications focused on the interdisciplinary research of the fortification in Bruszczewo and its surroundings⁴. There is also another volume of studies dealing with the defensive structures of the third and second millennia B.C. that include the area between Central Europe and the Aegean world⁵. The discussions focused on the reasons that triggered the building of the fortifications, their defensive characteristics, their relation with the environment, the economic activities and social and political status of their inhabitants, the role they played in inter-regional exchange etc.

Another aspect related to pre- and proto-historical fortifications in the Eastern part of Central Europe, but from a completely different perspective, is the fall of the Iron Curtain, that had a negative impact upon the preservation of these monuments⁶. The European archaeological community is probably unaware of the effect of poaching in Romania⁷ and in the Republic of Moldavia⁸. If in these countries the authorities have prevented the academic community from saving what was left, in Hungary, for example the investigation of archaeological sites with metal detectors has become a national research program⁹. G. V. Szabó has the merit of providing a new perspective on gold and bronze items that can be discovered scientifically in Bronze Age fortified settlements of Eastern Hungary¹⁰.

We didn't chose randomly the above introduction, as the various case studies presented in can now be completed with the experience we have accumulated researching one of the most representative Late Bronze Age fortifications in the Carpathian Basin: Sântana “Cetatea Veche” (Fig. 1). At the same time, the large number of metal objects discovered until now in this settlement raises a series of

¹ This work was supported by a grant of the Ministry of National Education, CNCS – UEFISCDI, project number PN-II-ID-PCE-2012-4-0020.

² Homer, *Iliada*, VII, 173. *Mycene – rich in gold* is also the title of a well-known book by G. Mylonas (Mylonas 1982).

³ Jaeger *et al.* 2012.

⁴ Czebreszuk, Müller 2004; Müller *et al.* 2010.

⁵ Czebreszuk *et al.* 2008.

⁶ Recently, G. V. Szabó presented a suggestive image of the intensity of archaeological poaching in the Carpathian Basin and the fate of some bronze items on the illegal market of patrimony goods (V. Szabó 2012, 1-5; V. Szabó 2013, 793-815).

⁷ Lazăr *et al.* 2008.

⁸ Musteață 2010.

⁹ V. Szabó 2009, 123-138; V. Szabó 2010, 19-38. See also the systematic research with metal detectors of the site Blatnica, Central Slovakia, dated to the Late Bronze Age (Veličák, Ožďáni 2010, 110-113, Fig. 1).

¹⁰ V. Szabó, Bíró 2010, 72-84; V. Szabó 2011, 335-356.

problems that require both a typological analysis and a contextual explanation. We intentionally chose to publish this analysis before the systematic research with metal detectors that is planned for the end of this year. We shall thus examine if the traditional image we shall provide now will be modified or not, thus providing an example of how such a site should be approached scientifically in the future.

The topic we are dealing with is also included among the subjects discussed by the personality we hereby celebrate. It is well known that Professor Kristian Kristiansen opened new horizons in research of prehistory. His older studies on the consumption of wealth during the Bronze Age in Denmark¹¹, the use of bronze swords¹², or, still referring to metal, the character of bronze depositions in Denmark¹³, are still mandatory references. The theoretical models he developed for the interpretation of Bronze Age realities from “center and periphery” and “European World System”¹⁴ to inter-contextual approaches¹⁵ together with his recent opinions on social, cultural, and economic identities¹⁶ had a strong methodological impact on contemporary archaeological discourse.

Location of the fortification

“Cetatea Veche” in Sântana is located in the high plain of Arad, an old quaternary delta of River Mureş, created in the area where the river exits Şoimuş-Lipova Gorge. Today, this geographical unit is part of the Pannonian Plain (Fig. 1). The fortification is situated ca. 20 km north-east of Arad and 5 km east of the Arad-Oradea European road. More precisely, it can be found 5.8 km south-west of Sântana city center, towards Zimandu Nou, on the left side of the road that connects the two localities.

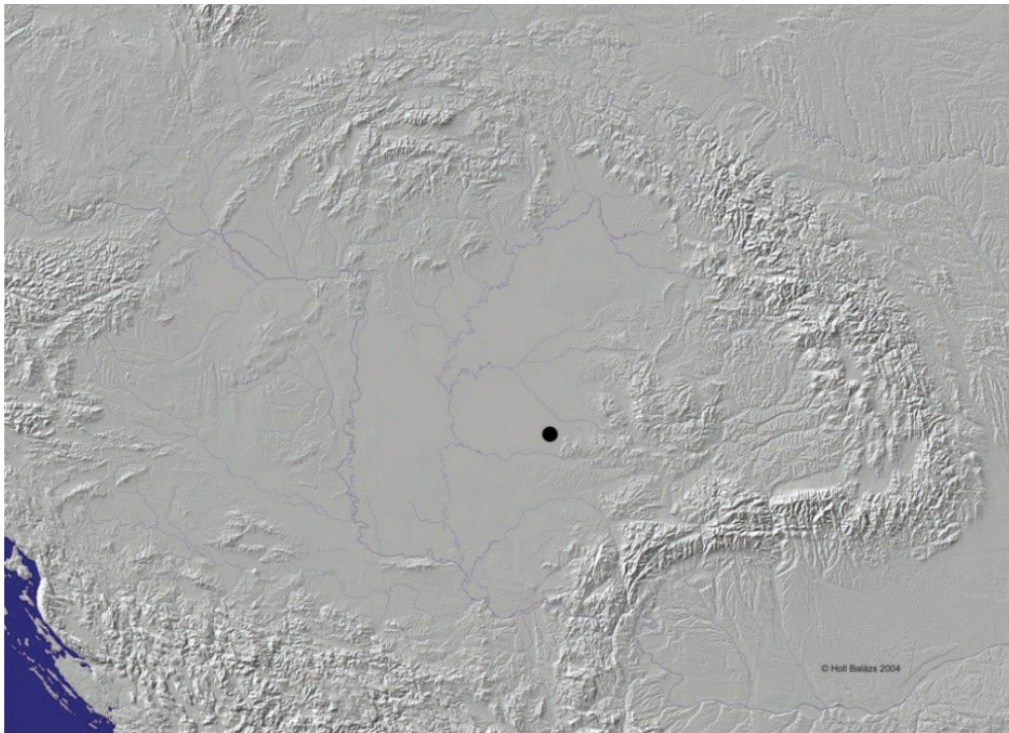


Fig. 1. Map of the Carpathian Basin with the localisation of the earthwork

The major anthropic modifications that took place starting with the eighteenth century render a difficult reconstruction of the Bronze Age fortification’s environment. One can only state now that the defensive ditch of the IIIrd enclosure was intentionally filled with earth. In the area that was archaeologically investigated, the deposition layers reach up to 1.50 m¹⁷, while behind the earth rampart

¹¹ Kristiansen 1978, 158–190.

¹² Kristiansen 1984, 187–208; Kristiansen 1999, 101–107; Kristiansen 2002, 319–332.

¹³ Kristiansen 1996, 255–270.

¹⁴ Kristiansen 1987, 74–85; Kristiansen 1994, 7–30.

¹⁵ Kristiansen 2005, 179–193; Kristiansen, Larsson 2005.

¹⁶ Earle, Kristiansen 2010, 218–256; Kristiansen 2011, 201–210; Kristiansen 2012, 381–392.

¹⁷ Gogăltan, Sava 2010, fig. 33–34; Gogăltan, Sava 2012, fig. 10.

they measure 50–60 cm. The pottery fragments discovered in this layer of rapid filling suggest that sometime between the eighteenth century and the beginning of the nineteenth this watery area was drained to leave place for agriculture. The deep plowing during the Communist period, together with those of the last years, have almost completely flattened the ramparts of enclosures I and II. Also, the tumulus located in the south-eastern corner of the fortification, depicted so preeminently on the Josephine map (Fig. 3), is now of a much more modest size (Fig. 6)¹⁸.

The prehistoric inhabitants of the “Cetatea Veche” area had chosen a location at ca. 15 km west of the resources in Zărandului Mountains and ca. 1.8 km away from the former branches of River Mureș. The deepest water sources are still visible on the Austrian military maps of the nineteenth century (Fig. 2) and on satellite photographs. The Bronze Age fortification in Sântana provided control over Mureșului Gorge and the copper deposits in Șiriei Hills. The relatively small distance between the fortification and the place where River Mureș exists into the plain can be covered on foot in ca. 5–6 hours, while a round-trip could be covered during a day’s walk¹⁹.



Fig. 2. The second military surveying (1819–1869); with the location of Sântana “Cetatea Veche” (in red) and reconstruction of the floodable area (in blue)

The History of research²⁰

The first depiction of the fortification’s features has been made on the Josephine topographic maps created at the end of the eighteenth century (1782–1785) (Fig. 3). In the nineteenth century

¹⁸ It can still be noted on the aerial photograph taken by A. Ștefan in 1965 (Ștefan 1999, 264, fig.1–2).

¹⁹ Gogâltan, Sava 2010, 12.

²⁰ For a more detailed history of research see Gogâltan, Sava 2010, 14–39.

the fortification was mentioned by various scholars, among which F. Gábor²¹, doctor I. Parecz²², and J. Miletz²³. The first detailed description of this archaeological monument, together with a few historical considerations, was written by historiographer S. Márki in 1882²⁴. He attributed the fortification to the Avars²⁵, as had J. Miletz before him. The newspapers of that time, informs us that on April 21st 1888 the workers who were constructing the railway in the “Avar ring” from Sântana discovered a “crown” made of gold leaves weighing 40 ducats, attributed to the “Barbarian Era”²⁶. More data became available in a short anonymous note entitled *Szent-Annai aranylelet* printed in the *Archaeologiai Értesítő* periodical in 1888. Thus, the workers presumably discovered primitive pots and skeletal remains, and a gold treasure in a destroyed tomb. The items were donated by Boros Béni, director of the Arad-Cenad railway company to the National Museum in Budapest²⁷ (Fig. 4–5).

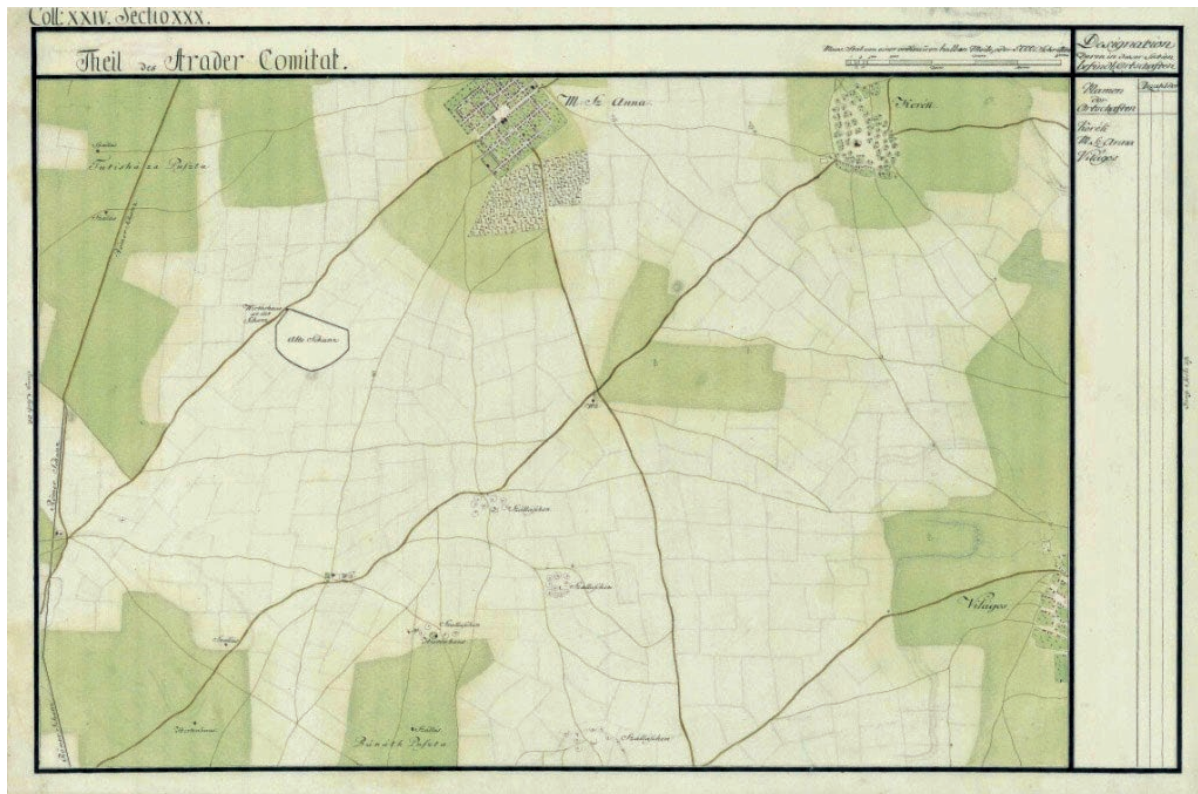


Fig. 3. First military surveying (1782–1785), with the location of Sântana “Cetatea Veche”

Rescue excavations coordinated by A. Török during the same year led to the discovery of coarse pots and the uncovering of two skeletons, one of an adult and another of a child, both without funerary inventory²⁸. In exchange for the original items, the Arad Museum received a galvanoplasty copy of the gold “crown” (*aranykoszorú*); the item is still preserved in its collection, together with other

²¹ Fábíán 1835, 91.

²² Parecz 1871, 8, 19.

²³ Miletz 1876, 166–167.

²⁴ Márki 1882, 112–121; Márki 1884, 185–194.

²⁵ Márki 1882, 115–118; Márki 1892, 39–40.

²⁶ Alföld, 95, 1888; Marki 1892, 39, n. 3.

²⁷ *Archaeologiai Értesítő* VII, 1888, 286; Marki 1892, 39, 34, 40–41; Dörner 1960, 472; Rusu 1972, 49, no. 58 (“the inventory of a tomb”); Rusu *et al.* 1996, 15; Rusu *et al.* 1999, 143. All these data on the conditions of discovery are absent from some of the subsequent publications: Mozsolics 1973, 208, Taf. 104–105 (“Das MNM erwarb den Goldfund durch Tausch von der Eisenbahngesellschaft”); Kemenczei 1999, 67, Kat. 52 (“Fundumstände sind unbekannt”). More so, as E. Dörner has also noted (Dörner 1960, 474), the hoard is not mentioned in the synthesis works of V. Pârvan (Pârvan 1926), I. Nestor (Nestor 1933) or D. Popescu on gold processing in Transylvania before the Roman conquest (Popescu 1956, 199). D. Popescu does not even mention the hoard after E. Dörner published the discovery (Popescu 1962; Popescu 1975, 59, 67, simple mentions). Illustrations in Dumitrescu 1974, 415, fig. 451; Burda 1979, 18, 65, n. 28.

²⁸ Arad, 99, 1888; *Archaeologiai Értesítő* VII, 1888, 286; Rusu *et al.* 1996, 15 (probably mother and child); Rusu *et al.* 1999, 143; Hügel *et al.* 2012, 9.

archaeological materials dated to different historical eras²⁹. The most important data on this discovery is also provided by S. Marki. He mentioned that the hoard consisted of 12 "laurel leaves" that were probably attached to each other in groups of four by gold wires, a bracelet made of gold wire, and another bracelet made of a gold bar. This discovery, just like the "earthen ring", was attributed to the Avar period³⁰. As we will subsequently show, in a manuscript work, E Dörner has attempted to reconstruct the entire gold treasure from Sântana³¹. No other specialist dealt, in a serious manner, with the fortification in Sântana, between the time of Márki and the middle of the twentieth century. Just general information, devoid of scientific value, was published in general works dealing with local history³².

Field research performed by E. Dörner and M. Rusu in the spring of 1952 was to radically change the entire chronological and cultural setting of the fortification in Sântana. They discovered on the surface numerous pottery fragments that they correctly attributed to the Bronze Age³³. Subsequently, other pottery fragments from the same period and several sling projectiles (balls) made of clay have been recovered³⁴.

In order to clarify the dating of the fortification, specialists have decided to perform an archaeological excavation, but this was only possible in the summer of 1963. The team included M. Rusu, E. Dörner, I. Ordentlich, and S. Dumitraşcu. The latter was to perform a test trench in Tiszápolgár tell from "Holomb", 4.5 km north-west of "Cetatea Veche"³⁵. A brief report of those excavations was published more than 30 years later³⁶. The opening of a section measuring 80 × 2 m³⁷ aimed at allowing research on the northern fortification system of "enclosure B" (in fact enclosure III, that is according to us, the largest). It has thus been noted that the fortification went through two construction phases, each including one ditch and one rampart crowned by a wooden palisade. The rampart was erected with soil brought from various locations; this explains the various soil lenses or stripes of various colors. All these elements were also encountered during our 2009 excavation. Also, a human skeleton deposited in a crouching position, with two complete vessels and a pincers placed on the chest as funerary inventory, was found behind the second earthen rampart (Cat.no. 6, Pl. 1/7a-b). The tomb was chronologically included in "H. B"³⁸. Behind the rampart we have also identified a necropolis that was earlier than the rampart's construction; several tombs have been recovered. Its dating can only be previous to the construction of enclosure III, so the skeleton does not belong to stage "H. B"³⁹.



Fig. 4. Gold artefacts discovered in 1888 (after Kemenczei 1999)

²⁹ Hampel 1889, 375; Hampel 1890, 190; Dörner 1960, 472. They are still to be found in the collection of the museum in Arad.

³⁰ Marki 1892, 39, 34, 40–41; Dörner 1960, 472.

³¹ Dörner 1960, 472–474.

³² Lejtényi 1913, 62–63; Covaciu 1944, 28.

³³ Report No. 271/1952 on the archaeological research performed in the district of Criş, written by Egon Dörner (Gogâltan, Sava 2010, 20).

³⁴ Gogâltan, Sava 2010, 21, fig. 9–10.

³⁵ Dumitraşcu 1975, 25–32.

³⁶ Rusu *et al.* 1996, 15–44; Rusu *et al.* 1999, 143–165. For other data on the 1963 research in Sântana see Gogâltan, Sava 2010, 22.

³⁷ Our 2009 excavation intersected this section. The width only measures 1.40 m.

³⁸ Rusu *et al.* 1996, 16, Pl. II/b, VI/17, 18, XIV/5; Rusu *et al.* 1999, 144, Abb. 2/2, 7/17–18, 15/5.

³⁹ The construction of the enclosure III and implicitly the destruction of this cemetery raises a series of problems. It is well known that the sacred area of the cemetery was strictly respected by the members of local community. In this case, we



Fig. 5. Gold artefacts discovered in 1888

Another section, of 150×1.20 m, was set inside the settlement, intersecting the fortification of enclosure A (or enclosure I according to us). From the published text one can hardly clarify the manner in which this fortification and its defensive elements were built. It seems that it went through three building stages and consisted of a wooden structure, as indicated by the pits of massive pillars that measured “50–80 cm in thickness.” The existence of this structure was also proven by geomagnetic measurements taken in that area by D. Micle (Fig. 6). The existence of a defensive ditch seems possible, as it is natural. As for the dating, period “H.A₁” was suggested on the basis of certain pottery fragments, a bronze saw blade (Cat. no. 11, Pl. 1/11a-b), and a “temple ring” (loop Cat.no. 4, Pl. 1/2a-b)⁴⁰. Two more surfaces were uncovered inside enclosure A (enclosure I according to us) besides the two above mentioned sections⁴¹. The first led to the identification of two large-size surface dwellings. The artefacts, especially the metal ones (a spiral-ended bracelet? – Cat.no. 13, Pl. 1/9a-b; a pin with twisted body in the upper part and contorted head – Cat.no. 12, Pl. 1/10a-b; a spearhead – Cat.no. 14, Pl. 1/14a-d; a button made of a concave bronze plate – Cat.no. 10, Pl. 1/3a-b; another button – Cat. no. 9, Pl. 1/1a-b; two loops fragments – Cat.no. 7–8, Pl. 1/5a-b, 1/8a-b; and another spearhead – Cat.no. 15, Pl. 1/13a-d), made M. Rusu date the two sections during the “H.A₁” stage⁴². K. Horedt also presumed that there were at least two stages in the development of the fortification in Sântana. Sântana I was thus dated to Bronze D like other discoveries in the area, such as those in Cruceni II, Bobda I, Timișoara “Pădurea Verde,” and Arad “Gai”. The gold treasure, through those leaf-shaped elements, seems to support this dating. Horedt then noted that “most of the pottery in Sântana belongs to the Late Bronze Age (Ha. A.) and can be paralleled to Bobda II”⁴³.

After the 1963 excavations, other interesting artefacts were also discovered on the surface of the earth fortification in Sântana, thus completing our image of this archaeological objective. These include foremost the bronze bracelets published by A. Mureșan⁴⁴ and other objects⁴⁵. We are convinced

can only presume that it was another community who built enclosure III or that this was done at least three generations after the last burial, thus after the followers forgot about the cemetery in question.

⁴⁰ Rusu *et al.* 1996, 18–19; Rusu *et al.* 1999, 148, 151–152.

⁴¹ Rusu *et al.* 1996, Pl. I; Rusu *et al.* 1999, Abb. 1.

⁴² Rusu *et al.* 1996, 21; Rusu *et al.* 1999, 162.

⁴³ Horedt 1967, 149.

⁴⁴ Mureșan 1987, 313–317.

⁴⁵ Mureșan 2007, 119–124.

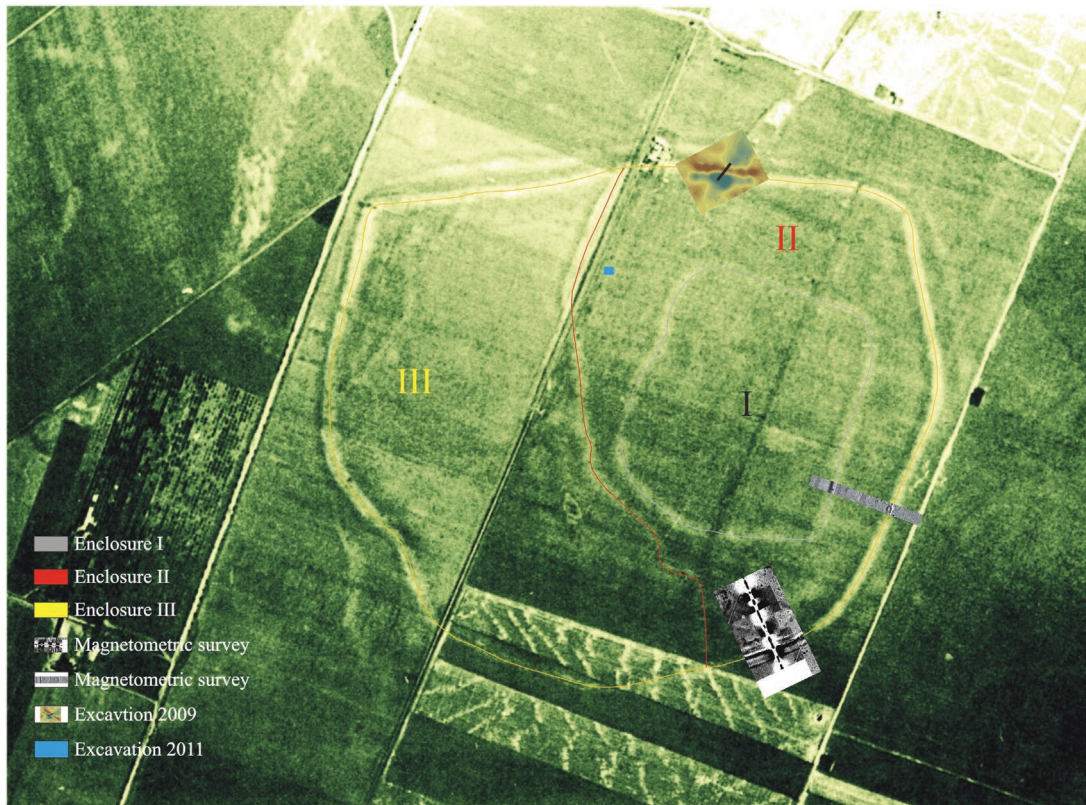


Fig. 6. Aerial photograph of the fortification (after Stefan 1999) and ground plan of the recent research areas

that after 1990 the settlement was often “visited” by antiquities lovers; the least interesting items, such as those bestowed by collector G. Ciaciş, ended up in the collections of the museum in Arad. Once the archaeological excavations in Corneşti “Iarcuri”, Timiş County⁴⁶ started, we aimed at commencing new systematic field researches and performing geomagnetometric measurements in Sântana “Cetatea Veche” as well. Besides the activity of the research team there⁴⁷, one could note L. Mercea’s interest in safeguarding a series of artefacts made of bronze. Mr. Mercea is the neo-Protestant pastor in Sântana.

Works envisaging the introduction of a new gas pipe started in the spring of 2009 and they partially affected enclosure II and the rampart of enclosure III. Rescue excavations thus became mandatory, but due to administrative reasons they could only be initiated on September 17th 2009 and ended on November 30th of the same year. Our sections were located along the course of the gas pipe. Section S 01 initially measured 80 × 4 m, but was later extended to 6.50 m, in front and behind the earthen rampart. S 02 initially had the same dimensions as S 03: 10 × 1.5 m. In order to fully uncover complexes Cx 02 and Cx 03 in S 02, two smaller trenches were opened: one, measuring 2.3 × 1 m, was located by Cx 02 and the other, measuring 2 × 1 m, was located by Cx 03. The complete uncovering of the complex we labeled Cx 04, in section S 03, required the extension of the section by 1.5 m in length and 2 m in width in that area. The entire area researched in 2009 measured 453.5 m² (Fig. 6)⁴⁸. Archaeological researches performed in 2009 were presented in a synthetic manner in a bilingual (Romanian-English) report, thus we shall not insist here on the obtained results. The context in which the metal items were discovered shall be subsequently presented.

A small archaeological test trench, measuring 3 × 3 m, was opened in the summer of 2011. It was located 20 m north-west-west from the gas pipe connection (on the right side of the Arad-Sântana railway), in the north-western part of the enclosure II. The trench was aimed at clarifying the stratigraphic situation in that area and at possibly identifying a culture layer contemporary to the Late Bronze Age fortification. The stratigraphic test trench revealed that the layer corresponding to the Late

⁴⁶ Gogâltan *et al.* 2008, 114–115.

⁴⁷ Gogâltan, Sava 2010, 25, 27.

⁴⁸ Gogâltan, Sava 2010, 28, Fig. 17.

Bronze Age period had been entirely destroyed by intensive and deep plowing (0.45 m). Nevertheless, a significant layer with depositions typical to the Baden communities has been preserved. Traces of the late Baden settlement were also discovered during the 2009 campaign, when two pits were researched at ca. 200 m north-north-east of this test trench. We remind that the skeleton of an adolescent was found inside one of the pits, with the cranium shattered in dozen pieces and the other bones broken and placed around the skull⁴⁹. Though no culture layer was identified in that area, such was found in the area tested during 2011⁵⁰.

Besides archaeological excavations, a series of on-surface researches were performed in the area of the city of Sântana. Even if un-systematic, they led to the identification of twelve more sites. Thus, five sites that can be attributed to the Late Bronze Age period have been identified just along the Sântana-Pâncota main gas pipe line over a distance of 7 km. They are contemporary to the different development stages of the fortification in “Cetatea Veche”⁵¹.

Catalogue of artefacts made of gold⁵²

1. *Temple ring with leaf-shaped ends* (Lockenring mit Blättern). The item consists of four leaves. Each leaf has two side veins and one central vein decorated with small notches. Length of the leaves: 6 cm; weight: 16.71 g. One cannot establish the nature of the measurement provided by T. Kemenczei:

⁴⁹ Hûgel *et al.* 2010, 302. On such special depositions see, more recently, Sachße 2010, 206–217.

⁵⁰ Gogâltan *et al.* 2012, 126–127.

⁵¹ Gogâltan, Sava 2010, 39–41, Fig. 36.

⁵² As previously indicated (see n. 27), conflicting data on the conditions of discovery and the number of gold objects in the treasure found in the spring of 1888 are still mentioned in specialized literature. The first written data remain unclear on the exact number of items (Archaeologiai Értesitô VII, 1888, 286; Hampel 1889, 375; Hampel 1890, 190). As previously mentioned, Marki described and illustrated twelve “laurel leaves” probably placed in groups of four, thus forming three temple rings, a bracelet made of gold wire, and one loop made of a gold bar (Marki 1892, 39, 34, 40–41; Dörner 1960, 472). In 1957 E. Dörner received from Amalia Mozsolics a photograph that includes some of the gold items from Sântana, preserved in the collection of the National Museum in Budapest. Besides the golden “laurel leaves,” the image also includes a bracelet made of gold wire and having closed ends (Dörner 1960, 472–473, Abb. 2). Starting from a manuscript by S. Marki (Marki mss), Dörner established the fact that the number of items was much bigger. To the above mentioned objects one could add three gold wire fragments (bracelets) and four loops attached to each other in groups of two or three (Dörner 1960, 473, Abb. 3). M. Rusu, in his synthesis work on gold processing in Transylvania during Bronze D and Hallstatt A believed that the treasure in Sântana included 22 items: “12 boat-shaped plates, connected together in groups of three or four with gold wire, a bracelet made of gold wire, a gold bracelet lozenge-shaped in section, three gold wire fragments, and five loops interconnected in groups of two or three” (Rusu 1972, 49, no. 58). Inexplicably, the “12 boat-shaped plates” were described as separate items. Dörner’s description was confirmed by A. Mozsolics in 1973 (Mozsolics 1973, 208, Taf. 104; 105). He thus talks of four loops, lozenge-shaped in section, one temple ring (*Lockenring*) with four “leaves”, another similar item which had one “leaf” broken off and preserved separately, probably parts of a third temple ring similar to the first two, a pluri-spiral gold wire with closed ends (bracelet), two gold wires with closed ends, and another with open ends. The entire group thus consisted of eleven items. Without mentioning his source and without describing the objects, M. Rusu took over from E. Dörner and A. Mozsolics the drawings of 15 items (Rusu *et al.* 1996, Pl. XII–XIII; Rusu *et al.* 1999, Abb. 13–14). The drawings of the gold wires in Rusu *et al.* 1996, Pl. XIII/1–3; Rusu *et al.* 1999, Abb. 14/1–3 are taken from Marki mss and E. Dörner respectively, identical to the items in Rusu *et al.* 1996, Pl. XIII/5–7; Rusu *et al.* 1999, Abb. 14/5–7, re-drawn after A. Mozsolics. For T. Kemenczei, the treasure included two decorated temple rings in the shape of four metal plate leaves (“verzierte Lockenringe mit vier Blechblättern”), part of two similar rings having two metal plate leaves each, a spiral loop with the wire partially twisted, two small undecorated loops, another small loop to which another, similar loop is attached, and two rings, with closed ends, made of gold wire (Kemenczei 1999, 67, Kat. 52). As compared to E. Dörner and A. Mozsolics, Kemenczei mentions ten objects, among which four temple rings, not three as described by Dörner and Mozsolics; the first also fails to mention the bracelet made of gold wire, with open ends (Dörner 1960, Abb. 3/10; Mozsolics 1973, Taf. 105/1). Related to this discovery, the repertory of the Lower Mureş area contains the following details: “The following items were found in 1888, during terracing works for the Arad – Oradea rail way, in the first ditch in front of the rampart: one pot made of coarse fabric, human bones, and a treasure consisting of 23 gold items: 12 boat-shaped plates, in groups of three, two gold bracelets, three wire fragments and five loops, all made of gold, dated to the end of the Bronze Age and the beginning of the Iron Age” (Vasiliev, Barbu 1999, 90). Without verifying the information, we also erroneously took over these data (Gogâltan, Sava 2010, 17). Until we will be able to research the gold treasure at the National Museum in Budapest we have to accept the number of items suggested by E. Dörner and A. Mozsolics, i.e. eleven. Considering the state of the treasure at the moment of its discovery, the number of items was certainly much bigger. The objects are currently preserved at the Magyar Nemzeti Múzeum, Budapest, under inventory numbers 71/1889/1–14. The piece of information provided by T. Kemenczei, according to which the treasure entered the collection of this museum in 1899 (Kemenczei 1999, 67), on the basis of an exchange with the rail way society in Sântana, is contradicted by the fact that the items were inventoried in 1889 and by the older literature (Archaeologiai Értesitô VII, 1888, 286; Hampel 1889, 375; Hampel 1890, 190). It is probably a typing error.

"L. 7.1". Bibliography: Dörner 1960, 472, Abb. 1/1; 2/3; Mozsolics 1973, 208, Taf. 104/3; Rusu *et al.* 1996, Pl. XII/5; Rusu *et al.* 1999, Abb. 13/5; Kemenczei 1999, 67, Kat. 52; Gogâltan, Sava 2010, Fig. 5.

2. *Temple ring with leaf-shaped ends* (Lockenring mit Blättern). The item currently has three leaves, but it probably had four in the beginning, as seen on the original 1888 photograph. Weight: 14.08 g. One cannot establish the nature of the measurement provided by T. Kemenczei: "L. 6.6". Bibliography: Dörner 1960, 472, Abb. 1/4; 3/4,5; Mozsolics 1973, 208, Taf. 104/1, 5⁵³; Rusu *et al.* 1996, Pl. XII/7; Rusu *et al.* 1999, Abb. 13/7; Kemenczei 1999, 67, Kat. 52; Gogâltan, Sava 2010, Fig. 5.

3. *Temple ring with leaf-shaped ends* (Lockenring mit Blättern). Today it consists of two items, each with two leaves. According to E. Dörner and A. Mozsolics the two items were part of the same temple ring. For T. Kemenczei they were two independent items. Weight: 14.02 g. One cannot establish the nature of the measurement provided by T. Kemenczei: "L. 4.2; 2.9". Bibliography: Dörner 1960, Abb. 1/2-3, 3/6, 7; Mozsolics 1973, 208, Taf. 104/2, 4; Rusu *et al.* 1996, Pl. XII/4, 6; Rusu *et al.* 1999, Abb. 13/4, 6; Kemenczei 1999, 67, Kat. 52; Gogâltan, Sava 2010, Fig. 5.

4. *Bracelet* consisting of four spirals, made of a wire with connected ends, partially twisted. One of the ends is turned for the closing. Weight: 23.80 g. Diameter: 8.9 cm. Bibliography: Dörner 1960, 473, Abb. 2/5; 3/11; Mozsolics 1973, Taf. 104/7; Rusu *et al.* 1996, Pl. XIII/4, 6; Rusu *et al.* 1999, Abb. 14/4, 6; Kemenczei 1999, 67, Kat. 52.

5. *Loop* with overlapping ends, made of a bar lozenge-shaped in section. Initially it seems that this loop was connected to the subsequent one. Diameter: 3.1 cm; weight: 10.65 g. Bibliography: Dörner 1960, 473, Abb. 3/1; Mozsolics 1973, 208, Taf. 105/5; Rusu *et al.* 1996, Pl. XII/1; Rusu *et al.* 1999, Abb. 13/1; Kemenczei 1999, 67, Kat. 52.

6. *Loop* with overlapping ends, made of a bar lozenge-shaped in section. Initially it seems that this loop was connected to the previous one. Diameter: 3.6 cm; weight: 10.25 g. Bibliography: Dörner 1960, 473, Abb. 3/1; Mozsolics 1973, 208, Taf. 105/4; Rusu *et al.* 1996, Pl. XII/3; Rusu *et al.* 1999, Abb. 13/3; Kemenczei 1999, 67, Kat. 52.

7. *Loop* with overlapping ends, made of a bar lozenge-shaped in section. Diameter: 3.2 × 3.8 cm. In Kemenczei it features with the following measurements: Diameter: 3.5 cm; weight: 16.43 g. Bibliography: Dörner 1960, 473, Abb. 3/2; Mozsolics 1973, 208, Taf. 105/6; Rusu *et al.* 1996, Pl. XII/2; Rusu *et al.* 1999, Abb. 13/2; Kemenczei 1999, 67, Kat. 52.

8. Small size *loop* made of a bar lozenge-shaped in section, connected to the previous loop. Bibliography: Dörner 1960, 473, Abb. 3/2; Mozsolics 1973, 208, Taf. 105/6; Rusu *et al.* 1996, Pl. XII/2; Rusu *et al.* 1999, Abb. 13/2; Kemenczei 1999, 67, Kat. 52.

9. *Wire* with closed ends, probably from a bracelet like the one at Cat.no. 4. Weight: 9.47 g. Bibliography: Dörner 1960, 473, Abb. 3/9; Mozsolics 1973, Taf. 105/2; Rusu *et al.* 1996, Pl. XIII/3=XIII/7; Rusu *et al.* 1999, Abb. 14/3=14/7; Kemenczei 1999, 67.

10. *Wire* with closed ends, probably from a bracelet like the one at Cat.no. 4. Weight: 10.52 g. Bibliography: Dörner 1960, 473, Abb. 3/8; Mozsolics 1973, 208, Taf. 105/3; Rusu *et al.* 1996, Pl. XIII/2=XIII/6; Rusu *et al.* 1999, Abb. 14/2=14/6; Kemenczei 1999, 67.

11. *Wire* with the ends initially open, but currently intertwined. Weight: 5 g. Bibliography: Dörner 1960, 473, Abb. 3/10; Mozsolics 1973, 208, Taf. 105/1; Rusu *et al.* 1996, Pl. XIII/1=XIII/5; Rusu *et al.* 1999, Abb. 14/1=14/5.

Catalogue of artefacts made of bronze/copper

Stray finds, I. Mărinouiu 1954

1. *Socket axe* (Inv. No. 12642 – Museum Arad; Pl. 1/6a-c). The socket is straight and thickened on the margin. A thick notch is placed under the margin, parallel to it. The loop starts from the edge of the socket and has been displaced to one side due to the impact with another object. The blade, slightly curved, show traces of use. The item was very well finished. The dark green patina is evenly distributed. Stray find by I. Mărinouiu in 1954. Length: 8.98 cm; blade width: 3.46 cm; socket diameter: 2.74 × 2.32 cm; socket depth: 6.3 cm; weight: 151.8 g. Bibliography: Rusu *et al.* 1996, 22, n. 2, Pl. XIV/12; Rusu *et al.* 1999, 143, Anm. 4, Abb. 15/12; Gogâltan, Sava 2010, Fig. 13, Fig. 15.

⁵³ Mozsolics 1973, 208 believes that the leaf illustrated on Taf. 104/5 was part of the temple ring on Taf. 104/1.

2. *Sickle fragment* (Inv. No. 12643 – Museum Arad; Pl. 1/12). One knows from the description and drawings published by M. Rusu that the item is fragmentarily preserved (just the tip). It shows a central groove and the blade displays traces of use or deterioration. We were unable to find the item in the storage rooms of the museum in Arad. Bibliography: Rusu *et al.* 1996, 22, no. 2, Pl. XIV/12; Rusu *et al.* 1999, 143, Anm. 4, Abb. 15/12; Gogâltan, Sava 2010, 23, Fig. 15.

Stray finds from the 1950s

3. *Belt* (Inv. No. A7905 – Brukenthal National Museum; Pl. 2). It is decorated in the “au repoussé” technique. The decorative motifs are placed in six rows, consisting of several arches, hachured triangles, circles, anchors, “boeotian shields” etc. In its actual state of preservation, the belt is circular in shape, but one can note that, upon discovery, it had been “folded”. In the central area one can note the fact that a small part has been cut out. There is also a small circular perforation (0.5 × 0.6 cm), performed from the outside in, with a sharp edge measuring 0.3 cm in width. On the inside, the item displays a series of successive scratch marks. The patina is dark green, in some areas light green; a few parts are gold-like in color, probably due to restoration attempts. Length: 82 cm; width: 8.4/10.3 cm; thickness: 0.05 cm. According to M. Rusu and I. Paul the belt is partially gilded, it's length: 87 cm, maximum width: 10 cm. Bibliography: Rusu 1963, 188, Anm. 35; Horedt 1967, 149; Rusu, Chițu 1982, 47; Paul 1994, 137, no. 36; Rusu *et al.* 1996, 22, no. 3, Pl. XIV/12; Rusu *et al.* 1999, 143, Anm. 4, Abb. 15/12; Gogâltan, Sava 2010, 23.

1963 archaeological excavations

4. *Loop* (without Inv. No. – Museum Arad; Pl. 1/2a-b). The item was intentionally bent, is rectangular in section, and has the margins and ends rounded. One of the ends was broken “during antiquity.” The loop's body is covered in dark green patina. “Surface I, on the dwelling's platform, depth: 0.35 m”⁵⁴; Rusu *et al.* 1996, 18; Rusu *et al.* 1999, 151 note that the loop (“the temple ring”) was discovered in a surface dwelling that occupied the area between meters 27 and 39 of section S II. Subsequently, this construction element was connected to the fortification system of enclosure I⁵⁵. Length: 6.8 cm; width: 0.42 cm; thickness: 0.2 cm; weight: 2 g. Bibliography: Rusu *et al.* 1996, 18, Pl. XV/3; Rusu *et al.* 1999, 151, Abb. 15/3.

5. *Ring* (without Inv. No. – Museum Arad; Pl. 1/4a-c). The bar is triangular in section and the ends are pointy and overlapped. The patina is dark green in color. “Section S II, square 58.” Inner diameter: 1.46 × 1.34 cm; outer diameter: 1.92 × 1.8 cm; length: 8 cm; width: 0.4 cm; thickness: 0.21 cm; weight: 2 g. Bibliography: Rusu *et al.* 1996, Pl. XIV/9; Rusu *et al.* 1999, 151, Abb. 15/9.

6. *Pincers* (without Inv. No. – Museum Arad; Pl. 1/7a-b). With one arm shorter than the other, the item is broken in two; in the upper part the bar is square in section and in the lower part it is rectangular-flat in section. The patina is dark green. “Section S I, square 92, tomb M1, found on the chest”; in Rusu *et al.* 1996, 16 and Rusu *et al.* 1999, 144 the author states that tomb M1 was identified between meters 31–32, at a depth of 1.30 m, and contained an inventory consisting of two entire pots and a “pendant” (pincers?). Length: 8.5 cm; maximum width: 0.39 cm; thickness: 0.16 cm; weight: 1 g. Bibliography: Rusu *et al.* 1996, Pl. XIV/5; Rusu *et al.* 1999, 144, Abb. 15/5.

7. *Loop fragment* (without Inv. No. – Museum Arad; Pl. 1/5a-b). Made of a bar that is rectangular in section, with the ends separated and made thinner. The patina is dark green in color. “Surface I, depth: 0.35 m, on the platform.” Length: 3.3 cm; width: 0.3 cm; thickness: 0.18 cm; weight: 0.5 g. Bibliography: Rusu *et al.* 1996, 20, Pl. XIV/4 (bracelet); Rusu *et al.* 1999, 158, Abb. 15/4.

8. *Loop* (without Inv. No. – Museum Arad; Pl. 1/8a-b). Made of a bar that is rectangular in section, with the ends separated and made thinner. The patina is dark green in color. “Surface I, depth: 0.35 m, on the platform.” Inner diameter: 2.48 × 2.6 cm; outer diameter: 2.78 × 2.98 cm; length: 9.1 cm; width:

⁵⁴ The data subsequently provided between quotation marks are those found on the notes that accompany the items. In most cases they are in M. Rusu's handwriting. The items were recently identified in the storage rooms of the Institute for Archaeology and Art History in Cluj and transferred to the Museum in Arad. This footnote applies to Cat.nos. 4–15.

⁵⁵ As indicated above, data on fortification I are presented in an extremely confusing manner. Even more, it has been stated that a layer of compact clay, measuring 0.60–1.00 m in thickness, was deposited over the dwelling (Rusu *et al.* 1996, 18; Rusu *et al.* 1999, 151–152). The note that accompanied this loop records very clearly the depth of 0.35 m (!) as in the case of the saw blade (Cat.no. 11).

0.32 cm; thickness: 0.18 cm; weight: 1 g. Bibliography: Rusu *et al.* 1996, Pl. XIV/4 (bracelet); Rusu *et al.* 1999, 158, Abb. 15/4.

9. *Button* (without Inv. No. – Museum Arad; Pl. 1/1a-b). Provided with two holes (performed from the inside) placed on the sides, measuring 0.1 cm in diameter. The patina is dark green. "Section S II, square 4, depth: 0.40 m". Preserved diameter: 1.6 × 1.6 cm, thickness: 0.08 cm; weight: 0.6 g. Bibliography: Rusu *et al.* 1996, Pl. XIV/2; Rusu *et al.* 1999, 158, Abb. 15/2.

10. *Button* (without Inv. No. – Museum Arad; Pl. 1/3a-b). Provided with two holes (performed from the inside) placed on the sides, measuring 0.3 cm in diameter. The margin is slightly bent and displays a small brakeage. The patina is dark green. "Surface S I, depth: 0.45 m, under the demolition layer of the dwelling"; in Rusu *et al.* 1996, 20 and Rusu *et al.* 1999, 158 the author states that the item was discovered in areas 3–4, in square 1–2/5–6. Preserved diameter: 1.6 × 1.6 cm, thickness: 0.08 cm; weight: 0.8 g. Bibliography: Rusu *et al.* 1996, 20, Pl. XIV/1; Rusu *et al.* 1999, 158, Abb. 15/1.

11. *Saw blade* (without Inv. No. – Museum Arad; Pl. 1/11a-b). The blade is rectangular in section. The upper part was intentionally broken. The patina is dark green. "Section II, depth: 0.35 m"; in Rusu *et al.* 1996, 18 and Rusu *et al.* 1999, 151 the author mentions that the item was discovered in an on-surface dwelling that occupied an area between meters 27 and 39 of section S II. Length: 16.1 cm; width: 1.88 cm; thickness: 1.9 cm; weight: 18 g. Bibliography: Rusu *et al.* 1996, 18, Pl. XIV/10; Rusu *et al.* 1999, 151, Abb. 15/10.

12. *Pin* (without Inv. No. – Museum Arad; Pl. 1/10a-b). The body is slightly deformed, the upper part twisted, and the head turned. The lower part of the item is round in section, while the upper part is lozenge-shaped in section. The patina is light green. "Section S I, square 25, depth: 1.30 m"; in Rusu *et al.* 1996, 20 and Rusu *et al.* 1999, 158 one finds the item mentioned in surfaces 3–4, square 7–8/6, at a depth of 0.50 m. Length: 20 cm; thickness: 0.28 cm; weight: 8 g. Bibliography: Rusu *et al.* 1996, 20, Pl. XIV/7; Rusu *et al.* 1999, 158, Abb. 15/7.

13. *Bracelet?* (without Inv. No. – Museum Arad; Pl. 1/9a-b). Made of a bar that is lozenge-shaped in section, the item has one end thinned and the other ending in a spiral. The item was well finished and displays light green patina. "Section I, thrown-in soil"; Rusu *et al.* 1996, 20; Rusu *et al.* 1999, 158 mention the items in areas 3–4, square 13–14/2, at a depth of 0.40 m. Length: 15.3 cm; thickness: 0.3 cm; weight: 4.5 g. Bibliography: Rusu *et al.* 1996, 20, Pl. XIV/8; Rusu *et al.* 1999, 158, Abb. 15/8.

14. *Spearhead* (without Inv. No. – Museum Arad; Pl. 1/14a-d). With the blade in the shape of a laurel leaf (*Lorbeerblattförmigen Lanzen spitzen*), well equilibrated as compared to the socket tube. The latter displays a pair of circular perforations (measuring 0.44 cm in diameter) used for fixing. Both tube and the blade's margins display hit marks, the tip is slightly cracked and bent, and a small part of the socket tube is broken. The light green patina covers the entire surface of the item. "Square 1, depth: 0.35 m." According to Rusu *et al.* 1996, 20 and Rusu *et al.* 1999, 158 the item was discovered "In square 6–7/2–3, also at a depth of 0.50 m." Length: 14.16 cm; maximum width of the blade: 3.46 cm; diameter of the socket tube (at the base): 2.28 × 2.3 cm; length of the socket tube: 11.5 cm; weight: 81 g. Bibliography: Rusu *et al.* 1996, 20, Pl. XIV/13; Rusu *et al.* 1999, 158, Abb. 15/13.

15. *Spearhead* (without Inv. No. – Museum Arad; Pl. 1/13). The tip of the item is missing, but the blade has the shape of a laurel leaf. The socket tube, slightly trapezoidal in shape, displays a pair of circular perforations (measuring 0.38 cm in diameter) used for fixing; on one side, the perforation has been widened and another orifice can be noted under it. Both the tube and the margins of the blade display hit marks; a small part of the socket tube has been broken, and the lower part has a crack. The item does not display patina, it is gold-like in color, and the margins are slightly oxidized. "spearhead found on the surface." Length: 9.32 cm; maximum width of the blade: 2.5 cm; diameter of the socket tube (at the base): 2.2 × 2.2 cm; weight: 43 g. Bibliography: Rusu *et al.* 1996, 20, Pl. XIV/11; Rusu *et al.* 1999, 158–159, Abb. 15/11.

Stray finds during the 1980s

16. *Mold* (unknown place of preservation⁵⁶). Fragment from a sandstone mold, probably employed in the casting of certain tutuli. Bibliography: Mureșan 2007, 120, no. 8.

⁵⁶ The mold valve was donated in 1980 by A. Mureșan to Florin Medeleț from Banatului Museum in Timișoara. The item is currently lost. We thank A. Mureșan for the information.

17. *Bracelet*. (Inv. No. 16510 – Museum Arad; Pl. 3/8). Made of a bar that is circular in section. The ends, brought close together, are thinner towards the margins. The body of the item is decorated with incisions placed in nine rows; the rows are ordered according to oblique and vertical incisions. The bracelet displays dark green patina. Length: 16.3 cm, inner diameter: 5.2 × 4.2 cm, thickness: 0.9 cm, weight: 51.50 g. Bibliography: Mureşan 1987, Fig. 1, 1a.

18. *Bracelet*. (Inv. No. 16509 – Museum Arad; Pl. 3/7). Made of a bar that is D-shaped in section; the ends are close together and thinner towards the margins. Part of the item's decoration is worn out; the remaining part consists of oblique and horizontal incisions grouped in nine rows. The bracelet displays light green patina. Length: 16.5 cm, inner diameter: 4.6 × 4.5 cm, thickness: 1.1 cm, weight: 68.50 g. Bibliography: Mureşan 1987, Fig. 1, 1a.

Field research, G. Ciaciş, 1990s

19. *Sickle fragment* (Inv. No. 16742 – Museum Arad; Pl. 3/2a-b). The handle is missing, but it was probably of the button type. In the middle of the item one can note a rectangular part cut out from the blade; in the same area, the item was bent. By the broken part, the item displays a slight in-turned bending. The casting traces were not completely removed from the outer edge and from one part of the inner side. The blade displays slight traces of deterioration towards the tip. The patina is dark green, with traces of oxidizing towards the tip, on the inner side the patina is only preserved in some areas, while the others are copper-colored. The item was discovered during field research performed by G. Ciaciş in 1997. Length: 8.96 cm; width: 2.34 cm; weight: 39.2 g. Bibliography: Gogâltan, Sava 2010, Fig. 13⁵⁷.

Cat. No.	Cu	Sn	Pb*	Zn	As*	Ni	Ag	Fe	Sb
	%	%	%	%	%	%	%	%	%
P4	90.3	6	1.9	0.3	0.4	0.4		0.5	traces

20. *Sickle fragment* (Inv. No. 16743 – Museum Arad; Pl. 3/4a-b). Only the part towards the tip has been preserved. In the braking area the item is slightly bent towards the inside. The casting traces were not completely removed from the edges. The blade is slightly chipped. The patina is dark green and traces of oxidizing can be noted towards the tip. Discovered during field research performed by G. Ciaciş in 1997. Length: 7.7 cm; width: 2.34; weight: 16.9 g. Bibliography: Gogâltan, Sava 2010, Fig. 13.

Cat. No.	Cu	Sn	Pb*	Zn	As*	Ni	Ag	Fe	Sb
	%	%	%	%	%	%	%	%	%
P5	93.7	4.8	0.1		0.4	0.4		0.5	

21. *Sickle fragment* (Inv. No. 16748; 16751 – Museum Arad; Pl. 3/5a-b). The tip (Inv. No. 16751) was intentionally broken from the rest of the item. The blade (Inv. No. 16748) was cut out in the bending area. The braking from the tip is outwardly bent and that from the base is inwardly bent. The blade is well sharpened, but it displays slight deteriorations. The patina preserved over the entire surface is light green in color, with some exceptions, i.e. in areas where it has been removed. Traces of scratching can be noted on the surface of the sickle. Discovered during field research performed by G. Ciaciş in 1997. Inv. No. 16748: Length: 8.78 cm; width: 2.96 cm; weight: 42.8 g. Inv. No. 16751: Length: 4.88 cm; width: 2.18 cm; weight: 9.1 g. Bibliography: Gogâltan, Sava 2010, Fig. 14.

22. *Fragment from a sickle with button on the handle* (Inv. No. 16749 – Museum Arad; Pl. 3/1a-b). Only the part by the handle has been preserved, where the button is prominent. The item displays a slight bending of the blade, half in-turned, half out-turned. The patina is even and is dark green in color. Discovered during field research performed by G. Ciaciş in 1997. Length: 5.88 cm; width: 2.5 cm; weight: 28.8 g. Bibliography: Gogâltan, Sava 2010, Fig. 13.

⁵⁷ Monica Macovei, PhD, from the University of Bucharest, Faculty of Geology and Geophysics performed the metallographic analyses; we hereby thank her.

23. *Sickle fragment* (Inv. No. 16750 – Museum Arad; Pl. 3/3a-b). Only the part by the tip has been preserved. The tip and the blade are well sharpened. By the breaking area, the blade displays an in-turned bending. The blade is slightly chipped by modern "manipulations". The patina is dark green and evenly distributed. Discovered during field research performed by G. Ciaciş in 1997. Length: 6.1 cm; width: 1.8 cm; weight: 13.8 g. Bibliography: Gogâltan, Sava 2010, Fig. 13.

24. *Ingot fragment* (Inv. No. 16752 – Museum Arad; Pl. 3/6a-b). The patina is even, dark green in color, with slight traces of oxidizing. Discovered during field research performed by G. Ciaciş in 1997. Length: 4.64 cm; width: 5.29 cm; thickness: 2.91; weight: 279 g. Bibliography: Gogâltan, Sava 2010, Fig. 13.

Field research by L. Mercea

25. *Dagger fragment* (Inv. No. 17425 – Museum Arad; Pl. 5/8a-b). Only the lower part of the blade has been preserved. The cutting edge is sharp and displays strong traces of deterioration. The hilt is triangular and displays three rivets that allowed for the handle to be fixed. The area around the middle rivet is slightly cracked on the inside. The patina is light green in color, with numerous traces of oxidizing. Discovered during field research performed by L. Mercea in 2008 in the southern part of the fortification, in enclosure III. Total length: 6.7 cm, blade width: 3.58 cm, thickness: 0.2 cm, weight: 30 g. Bibliography: Gogâltan, Sava 2010, Fig. 14.

26. *Belt fragment* (Inv. No. 17421a-c – Museum Arad; Pl. 4/4a-b). It is decorated in the "au repoussé" technique, with the decoration placed in three rows. Each row is framed by a stripe consisting of two parallel lines divided by a series of small incisions. The rows consist of arches, created through the association of three lines. The first row contains a single series of arches, the second – two series of arches, while the third – a single series. The item has been repeatedly bent and the entire body is undulated (after its discovery, the item has been "straightened", thus one can no longer establish its initial shape). A strong brakeage is visible on one side; the item was probably bent there with the intention of braking. On the same side with the breaking one can note two deteriorations of the plate due to strong oxidizing. The light green patina is preserved in some parts; a large area is copper-colored and the upper part is strongly oxidized. Discovered during field research performed by L. Mercea in 2008 on the rampart of enclosure I, close to the north-eastern corner. Length: 14.32 cm; maximum width 6.4 cm; thickness: 0.04 cm; weight: 33 g. Bibliography: Gogâltan, Sava 2010, Fig. 14.

27. *Belt fragment* (L. Mercea collection no. 10 – Museum Arad; Pl. 4/2). Decorated identical to fragments recorded at Inv. No. 17421 (they were most probably part of the same girdle). The edges show repeated bending. The dark green patina is not evenly distributed; in some areas the item is copper-colored. Discovered during field research performed by L. Mercea in 2011 on the rampart of enclosure I, close to the north-eastern corner. Length: 5.5 cm; width: 6.4 cm; thickness: 0.04 cm; weight: 20 g. Bibliography: previously unpublished.

28. *Belt fragment* (L. Mercea collection no. 7 – Museum Arad; Pl. 4/3a-b). Item decorated identical to those recorded at Cat.nos. 26 and 27. The plate is nevertheless narrower. Ca. half of the item's body is inwardly bent. Cracks can be observed on one of the girdle's edges. The patina is dark green in the central part of the item and light green on the sides. Discovered during field research performed by L. Mercea in 2010 on the rampart of enclosure I, close to the north-eastern corner. Length: 7 cm; width: 5.48 cm; thickness: 0.06 cm; weight: 22 g. Bibliography: previously unpublished.

29. *Belt fragment?* (Inv. No. 17423 – Museum Arad; Pl. 4/1a-b). It is decorated in the "au repoussé" technique. The decoration, hardly visible, consists of six approximately parallel lines, placed in the center of the item. On one side the item it is inwardly bent, as a consequence of having been broken, and on the other it displays one breaking. On the surface of the item the patina is even and reddish in color, in some areas of the back side it is green, while the rest of the body is copper-colored. Discovered during field research performed by L. Mercea in 2008 on the rampart of enclosure I, close to the north-eastern corner. Length: 4.2 cm; width: 2.42 cm; thickness: 0.06 cm; weight: 3 g. Bibliography: Gogâltan, Sava 2010, Fig. 14.

Cat. No.	Cu	Sn	Pb*	Zn	As*	Ni	Ag	Fe	Sb
	%	%	%	%	%	%	%	%	%
P16	88.3	9.6	0.3		0.3	0.2		1.4	traces

30. *Belt fragment* (L. Mercea collection no. 1; Pl. 4/5a-b). It is decorated in the middle with five prominences, hardly visible, surrounded by a circle. One of the margins is decorated with an incised line performed in the “au repoussé” technique. Only the end of the girdle has been preserved and it was discovered “folded.” Cracks can be noted on one of the margins. The patina is light green in color. Discovered during field research performed by L. Mercea in 2010 on the rampart of enclosure I, close to the north-eastern corner. Length: 18.1 cm; width: 6.1 cm; thickness: 0.06 cm; weight: 28 g. Bibliography: previously unpublished.

31. *Bracelet* (L. Mercea collection no. 6; Pl. 5/12a-b). Made of a bar that is D-shaped in section. The ends, brought close together, are thinner towards the margins. The outer side is decorated with small rows of vertical incisions. The entire decoration cannot be observed due to the strong oxidizing. The item is well finished. The patina is unevenly distributed on the entire surface and is light green in color. Over a large part of its body, the bracelet is strongly oxidized. In those areas that are not covered with patina, the item is copper-colored. Discovered during field research performed by L. Mercea in 2010 on the rampart of enclosure I, close to the north-eastern corner. Length: 17.3 cm, inner diameter: 5.2 × 4.4 cm, outer diameter: 6.58 × 5.34 cm, thickness: 0.88 cm, weight: 45.6 g. Bibliography: previously unpublished.

32. *Bracelet* (L. Mercea collection no. 8; Pl. 5/11). Made of a bar that is D-shaped in section. The ends, brought close together, are thinner towards the margins. The upper side is decorated with rows of vertical incisions placed in groups. Due to the item’s deterioration, the decoration is barely visible. Traces of light green oxidizing can be seen on the entire body. A white calcareous deposition can be observed on one side. Discovered during field research performed by L. Mercea in 2010 on the rampart of enclosure I, close to the north-eastern corner. Length: 17.5 cm, inner diameter: 5.78 × 4.4 cm, outer diameter: 7.36 × 5.4 cm, thickness: 0.98 cm, weight: 45.6 g. Bibliography: previously unpublished.

33. *Pendant* (L. Mercea collection no. 2; Pl. 5/2a-c). The body has the shape of a crescent moon, consisting of two parallel veins. The upper part of the rod displays a hollow part, formed during casting. The item is covered in an uneven dark green patina, with traces of oxidizing; in those areas of the pendant’s body uncovered by patina, it is silver-like colored. The pendant was discovered together with the loop described at Cat.no. 38; the loop was hanging from the pendant’s rod. Discovered during field research performed by L. Mercea in 2010 on the rampart of enclosure I, near the north-eastern corner. Height: 3.4 cm; width: 2.38 cm; thickness: 0.6 cm; weight: 6 g. Bibliography: previously unpublished.

34. *Saltaleon* (L. Mercea collection no. 4; Pl. 5/9a-b). It displays dark green patina; the item is oxidized in some areas. Discovered during field research performed by L. Mercea in 2010 on the rampart of enclosure I, near the north-eastern corner. Height: 2.42 cm; thickness: 0.06 cm; weight: 1 g. Bibliography: previously unpublished.

35. *Button* (L. Mercea collection no. 5; Pl. 5/3a-b). Provided with two perforations (performed from the inside), placed sideways, measuring 0.2 cm in diameter. The item is broken in the middle. The patina is light green in color. Discovered during field research performed by L. Mercea in 2010 on the rampart of enclosure III, on the southern side. Preserved diameter: 2.3 × 1.7 cm, thickness: 0.02 cm; weight: 0.8 g. Bibliography: previously unpublished.

36. *Tutulus* (L. Mercea collection no. 11; Pl. 5/1a-b). The item is worn out and its irregular edges are the result of repeated deteriorations. The middle grooves are also strongly worn, mainly on the sides. The patina is dark green in color, though in some areas it is light green. Discovered during field research performed by L. Mercea in 2011 on the rampart of enclosure I, near the north-eastern corner. Height: 1.24 cm; diameter: 2.16 × 2.2 cm; weight: 6 g. Bibliography: previously unpublished.

37. *Loop* (Inv. No. 17424 – Museum Arad; Pl. 5/10a-b). Made of round-section wire, its ends are close together and made thinner. The patina is dark green and in some areas the item is copper-colored. Discovered during field research performed by L. Mercea in 2008 in the southern part of the fortification, in enclosure III. Inner diameter: 2.1 × 1.96 cm; outer diameter: 2.6 × 2.4 cm; length: 7.6 cm; thickness: 0.3 cm; weight: 3 g. Bibliography: Gogăltan, Sava 2010, Fig. 14.

38. *Loop* (L. Mercea collection no. 3; Pl. 5/6a-b). Made of triangular-section wire. The item does not display patina, is partially oxidized and the oxide is dark green; the rest of the loop is silver-like in color. The loop was hung from the rod of the crescent moon pendant (Cat.no. 33) discovered during field research performed by L. Mercea in 2010. Inner diameter: 0.9 × 0.9 cm; outer diameter: 1.98 × 1.9 cm; length: 4.5 cm; thickness: 0.26 cm; weight: 3 g. Bibliography: previously unpublished.

39. *Plate fragment* (Inv. No. 17427 – Museum Arad; Pl. 5/5a-b). One of the sides is well finished. The patina is light green. Discovered during field research performed by L. Mercea in 2009. Length: 2.68 cm; width: 2.1 cm; thickness: 0.21 cm; weight: 3 g. Bibliography: previously unpublished.

40. *Band fragment* (Inv. No. 17422 – Museum Arad; Pl. 5/4a-b). One end has been preserved. The band becomes narrower towards the end. On the surface of the body one can note traces from casting. The entire surface of the item is strongly oxidized. Discovered during field research performed by L. Mercea in 2008 on the rampart of enclosure III, on the northern side. Length: 4.28 cm; width: 1.68 cm; thickness: 0.28 cm; weight: 5 g. Bibliography: Gogâltan, Sava 2010, Fig. 14.

Cat. No.	Cu	Sn	Pb*	Zn	As*	Ni	Ag	Fe	Sb
	%	%	%	%	%	%	%	%	%
P13	93.8	4.2	0.5		0.1		slight traces	1.4	traces

41. *Ingot* (L. Mercea collection no. 9; Pl. 5/7). Small-size ingot; the patina is light green in color. Discovered during field research performed by L. Mercea in 2010 ca. 100 m south-east from the south-eastern corner of enclosure III. Length: 3.56 cm; width: 3.02 cm; thickness: 1.12 cm; weight: 33 g. Bibliography: previously unpublished.

42. *Plate fragment?* (Inv. No. 17426 – Museum Arad; Pl. 5/13a-b). The item is rectangular, slightly concave in shape, and has a small circular orifice on one side. The patina is dark green, in some areas light green. Discovered during field research performed by L. Mercea in 2008 in the southern side of the fortification in enclosure III. Length: 2.3 cm; width: 2.2 cm; thickness: 0.21 cm; weight: 5 g. Bibliography: previously unpublished.

Field research performed by the team organizing the archaeological investigation in Sântana "Cetatea Veche"

43. *Pendant* (Inv. No. 17418 – Museum Arad; Pl. 6/2a-c). Only the item's body has been preserved; the rod is broken from the base. The body is shaped as a crescent moon, consisting of three grooves on each side. The first groove is cracked and that part is slightly inwardly bent. The item was most probably destroyed intentionally and it cracked during bending. Slight deteriorations can be observed on the surface, probably caused by plowing. One of the "grooves" has been notched, in preparation for the item to be sectioned (?) or showing traces of some marking. The patina is dark green in color, with traces of oxidizing in those areas where it was deteriorated. Discovered during field research performed by the team organizing the archaeological investigation in Sântana "Cetatea Veche" in 2008 in the southern end of enclosure II. Height: 2.58 cm; width: 3.21 cm; thickness: 0.52 cm; weight: 6.9 g. Bibliography: Gogâltan, Sava 2010, Fig. 14.

44. *Fragment from a tongue handle knife?* (Inv. No. 17419 – Museum Arad; Pl. 6/4a-b). Only the part by the socket tongue has been preserved, and part of the blade. The cutting edge is straight and the edge is curved. A circular orifice can be noted above the tongue, for the fixing of the handle. Around the circular orifice one can observe two vertical cracks caused by bending. Near the braking area the blade displays traces of having been inwardly bent, and by the breaking it was outwardly bent. The blade displays two fissures and traces of slight use. The patina is light green in color, with traces of oxidizing by the breaking and on the body. Discovered during field research performed by the team organizing the archaeological investigation in Sântana "Cetatea Veche" in 2008 in the southern end of enclosure II. Length: 5.28 cm; width: 2.1 cm; thickness: 0.12 cm; weight: 5.7 g. Bibliography: Gogâltan, Sava 2010, Fig. 14.

45. *Belt fragment* (Inv. No. 17420 – Museum Arad; Pl. 6/6a-b). Made of a thin plate. It is decorated in the "au repoussé" technique and the decoration is placed in two rows. The first is delimited from the margin through two parallel straight lines; underneath, there are three parallel lines in the shape of a triangle. The second row consists of a straight line that separates the rows and arches with the lower part twice underlined. The item was repeatedly bent, as the entire body is undulated. One can note a cut mark on the lower side of the item. The patina is dark green in color and the front side is entirely covered in oxides. Discovered during field research performed by the team organizing the archaeological investigation in Sântana "Cetatea Veche" in 2008 in the southern end of enclosure II. Length: 3.72 cm; width: 2.41 cm; thickness: 0.04 cm; weight: 2.5 g. Bibliography: Gogâltan, Sava 2010, Fig. 14.

46. *Loop* (Inv. No. 17428 – Museum Arad; Pl. 6/1a-b). Made of wire that is round in section. The ends are overlapping. The patina is light green in color. Discovered during field research performed by the team organizing the archaeological investigation in Sântana “Cetatea Veche” in the north-eastern area of enclosure II or III in 2009. Inner diameter: 1.7×1.58 cm; outer diameter: 2.02×2.1 cm; length: 10.2 cm; thickness: 0.14 cm; weight: 1 g. Bibliography: Gogâltan, Sava 2010, Fig. 14.

47. *Socket* (Inv. No. 17407 – Museum Arad; Pl. 6/9a-b). It has the shape of a small cylinder, with the ends enforced by grooves. Such a groove is also placed on the middle of the item. On one side one can note traces of deterioration, in the form of four orifices produced during casting. The inner diameter is circular, while on the outside the three grooves are rectangular in shape, with rounded corners. Discovered during field research performed by the team organizing the archaeological investigation in Sântana “Cetatea Veche” in the north-eastern area of enclosure II or III in 2009. Height: 1.94 cm; inner diameter: 0.9×0.92 cm; outer diameter: 1.52×1.64 cm; maximum thickness: 0.4 cm; weight: 13 g. Bibliography: previously unpublished.

48. *Ingot* (Inv. No. 17411 – Museum Arad; Pl. 6/10a-b). The outer surface shows traces of slight oxidizing and is in some parts covered with a lime film. On one side it has a relatively smooth surface, while on the other it displays irregularities. Discovered during field research performed by the team organizing the archaeological investigation in Sântana “Cetatea Veche” in the north-eastern area of enclosure II or III in 2009. Length: 6.9 cm; width: 5.31 cm; maximum thickness: 1.9 cm; weight: 231 g. Bibliography: previously unpublished.

Cat. No.	Cu	Sn	Pb*	Zn	As*	Ni	Ag	Fe	Sb
	%	%	%	%	%	%	%	%	%
P9	98		0.1	0.1	traces			1.5	traces

49. *Ingot* (Inv. No. 17412 – Museum Arad; Pl. 6/8a-b). The outer surface is covered with a lime film. Discovered during field research performed by the team organizing the archaeological investigation in Sântana “Cetatea Veche” in the north-eastern area of enclosure II or III in 2009. Length: 2.5 cm; width: 1.48 cm; maximum thickness: 0.84 cm; weight: 12 g. Bibliography: previously unpublished.

50. *Plate* (Inv. No. 17413 – Museum Arad; Pl. 6/5a-b). The item is almost rectangular in shape, folded in two, and the margins seem to have been cut out. The patina is even and is light green, in some areas dark green in color. Length: 6.8 cm; width: 1.88 cm; thickness: 0.06 cm; weight: 5 g. The plate connected three small-size bronze objects (Cat.nos. 51–53, Pl. 6/5c). Discovered during field research performed by the team organizing the archaeological investigation in Sântana “Cetatea Veche” in the north-eastern area of enclosure II or III in 2009. Bibliography: previously unpublished.

51. *Saltaleon* (Inv. No. 17413 – Museum Arad; Pl. 6/5d). Fragmentary and bent in two. Light green patina. Length: 3 cm (stretched, and 1.2 cm bent); width: 0.9 cm; diameter: 0.38 cm; thickness: 0.04 cm; weight: 0.5 g. Discovered during field research performed by the team organizing the archaeological investigation in Sântana “Cetatea Veche” in the north-eastern area of enclosure II or III in 2009. Bibliography: previously unpublished.

52. *Loop* (Inv. No. 17413 – Museum Arad; Pl. 6/5f). Made of wire that is circular in section. Light green patina. Length: 4.1 cm; thickness: 0.18 cm; weight: 1 g. Discovered during field research performed by the team organizing the archaeological investigation in Sântana “Cetatea Veche” in the north-eastern area of enclosure II or III in 2009. Bibliography: previously unpublished.

53. *Loop?* (Inv. No. 17413 – Museum Arad; Pl. 6/5e). Made of wire that is round in section. One of the ends is flat in section and ends in a spiral. Light green patina. Length: 6.7 cm; thickness: 0.58 cm; weight: 1.5 g. Discovered during field research performed by the team organizing the archaeological investigation in Sântana “Cetatea Veche” in the north-eastern area of enclosure II or III in 2009. Bibliography: previously unpublished.

54. *Wire fragment, circular in section* (Inv. No. 17429 – Museum Arad; Pl. 6/3a-b). The body is bent. The patina is light green. Discovered during field research performed by the team organizing the archaeological investigation in Sântana “Cetatea Veche” between sections S2 and S3, thus in enclosure II or III, in 2009. Length: 7 cm; thickness: 0.2 cm; weight: 1 g. Bibliography: previously unpublished.

55. *Bracelet* (without Inv. No. – Museum Arad; Pl. 6/7a-b). Made of a bar that is D-shaped in section; the ends are close together and thinner towards the margins. It is well finished. On the inside, the item was struck and this caused a slight deterioration. The patina is light green, in some areas dark green. Discovered during field research performed by the team organizing the archaeological investigation in Sântana "Cetatea Veche" in 2012 at the northern base of the tumulus. Length: 18.3 cm; inner diameter: 5.22 × 4.6 cm; outer diameter: 6.8 × 5.78 cm; thickness: 0.82 cm; weight: 76 g. Bibliography: previously unpublished.

56. *Transylvanian-type socket axe* (Inv. No. 17405 – Museum Arad; Pl. 7/1a-e). The socket is straight and thicker on the margin. A thick groove is placed parallel to and under the margin. The loop starts from the edge of the socket and is oval in section. The body is almost straight, massive, and becomes wider towards the slightly arched cutting edge. On one side it is decorated with a V-shaped groove placed under the rim (Pl. 7/1c). On the opposite side, the item displays, even since it was cast, an almost oval perforation. The cutting edge shows one trace of use, under the shape of an oblique hit mark. The dark green patina shows traces of oxidizing and lime depositions. Discovered during field research performed by the team organizing the archaeological investigation in Sântana "Cetatea Veche" in 2009 in the north-eastern area of enclosure II or III. Length: 11.9 cm; width of the cutting edge: 4.56 cm; socket diameter: 3.12 × 2.56 cm; socket depth: 7.6 cm; weight: 320 g. Bibliography: Gogâltan, Sava 2010, Fig. 42; Gogâltan, Sava 2012, Fig. 6/3.

Cat. No.	Cu	Sn	Pb*	Zn	As*	Ni	Ag	Fe	Sb
	%	%	%	%	%	%	%	%	%
P14	93.6	4.4	0.2		0.5	0.3		1	traces

57. *Spiral bracelet with a knob in the middle of the spiral* (Inv. No. 17406 – Museum Arad; Pl. 7/2a-c). The bracelet is made of a bar that is round in section; the spiral consists of nine concentric circles with a cone-shaped knob in the middle. The last two spirals are covered by the knob and are thin and rectangular in section. The outer surface of the item is decorated with rows of oblique or angular notches, sometime intercalated by simple or double X-shapes. The even patina is dark green in color; slight traces of oxidizing can be noted. The item was discovered 350 m north of the fortification (46°18'50.27"N; 21°27'14.76"E), during field researches performed by the team organizing the archaeological investigation in Sântana "Cetatea Veche" in 2009. Length: 21 cm; width: 12.5 cm; maximum diameter of the spiral: 7.22 × 6.72 cm; knob diameter: 1.6 × 1.56 cm; maximum thickness of the bar: 0.58 cm; weight: 194 g. Bibliography: Gogâltan, Sava 2010, Fig. 41.

Cat. No.	Cu	Sn	Pb*	Zn	As*	Ni	Ag	Fe	Sb
	%	%	%	%	%	%	%	%	%
P15	89	7.3	0.6		0.3	0.2		2.6	traces

2009 archaeological excavations

58. *Bracelet* (Inv. No. 17403 – Museum Arad; Pl. 8/1a-b). Made of a bar that is lozenge-shaped in section. The ends are slightly thinned. The item is undecorated but it is well finished on the outside. The body displays certain deteriorations. One of the ends is outwardly bent, while the middle is slightly bent. The patina is even and light green in color. Section S1, square 36 A, depth: 107.70 m. The item was identified between the soil lenses of the rampart. Length: 15.6 cm, inner diameter: 6.54 × 4.5 cm, outer diameter: 7.4 × 4.7 cm, thickness: 0.44 cm, weight: 15 g. Bibliography: previously unpublished.

Cat. No.	Cu	Sn	Pb*	Zn	As*	Ni	Ag	Fe	Sb
	%	%	%	%	%	%	%	%	%
P8	95.3	2.2	0.1		0.4	0.5		1.4	

59. *Ring* (Inv. No. 17410 – Museum Arad; Pl. 8/5a-b). Made of a bar that is almost triangular in section. The ends are overlapping. The item is strongly corroded, but one can note the light blue

patina. Section S1, Cx_05 (incineration tomb, Pl. 8/6). Length: 6.3 cm; width: 0.46 cm; inner diameter: 1.3 × 1.1 cm; outer diameter: 1.7 × 1.7 cm; thickness: 0.12 cm; weight: 2 g. Bibliography: previously unpublished.

60. *Saltaleon* (Inv. No. 17414 – Museum Arad; Pl. 8/7a-b). Dark green patina, in some areas dark green, and red oxides. Section S1, square 50 A, depth 107.70 m. The item was identified between the soil lenses of the rampart (Pl. 8/8). Length: 1.46 cm; diameter: 0.38 × 0.41 cm; thickness: 0.18 cm; weight: 0.8 g. Bibliography: previously unpublished.

61. *Bronze piece* (without Inv. No. – Museum Arad; Pl. 8/4a-b). The section is almost circular. The body of the item is strongly corroded. Section S1, square 38. The item was identified between the soil lenses of the rampart. Length: 2.18 cm; diameter: 0.38 × 0.34 cm; weight: 0.8 g. Bibliography: previously unpublished.

62. *Saltaleon* (Inv. No. 17415 – Museum Arad; Pl. 8/2a-b). Dark green patina, in some areas dark green, and red oxides. Section S1, square 6 B, depth 104.50 m. The item was identified between the soil lenses of the rampart. Length: 2.31 cm; diameter: 0.49 × 0.46 cm; thickness: 0.12 cm; weight: 1 g. Bibliography: previously unpublished.

63. *Casting scrap* (Inv. No. 17416 – Museum Arad; Pl. 8/3a-b). Dark green patina, in some areas light green. Section S1, square 6, depth: 107.50 m. The item was identified between the soil lenses of the rampart. Length: 2.88 cm; width: 1.06 cm; thickness: 0.3 cm; weight: 1 g. Bibliography: previously unpublished.

64. *Needle with “eye”* (Inv. No. 17408 – Museum Arad; Pl. 9/1a-b). The “eye” is of small size and oval in shape. The needle’s body is slightly arched and the tip well sharpened. The needle displays an even patina over the lower half, light green in color, while the upper half is covered with a lime film. Section S1, square 5B, depth: 104.48 m (Pl. 9/2). Length: 8.6 cm; maximum thickness: 0.21 cm; weight: 1 g. Bibliography: Gogâltan, Sava 2010, Fig. 39.

65. *Arrow head* (Inv. No. 17409 – Museum Arad; Pl. 9/3a-b). Arrow head with two wings, central groove, and tube for the shaft. The light green patina displays traces of ferrous oxidizing. Section S1, square 2B, depth: 104.50 m (Pl. 9/4). Length: 4.19 cm; width: 1.9 cm; maximum preserved diameter of the tube: 0.7 cm; weight: 3 g. Bibliography: Gogâltan, Sava 2010, Fig. 40.

66. *Tutulus* (without Inv. No. – Museum Arad; Pl. 10/3a-b). The irregular margins were caused by breaking. The patina is bluish-green; the entire surface is strongly corroded. Section S1, Cx_40 (incineration tomb). Length: 1 cm; diameter: 2.6 × 2.68 cm; weight: 8 g. Bibliography: previously unpublished.

67. *Pendant* (Inv. No. 17404 – Museum Arad; Pl. 11/2a-b). The loop and a “thorn” are broken since antiquity. Decorated with one groove in the middle; the back side is flat; the body is well finished. The dark green patina was largely covered by light green corrosion. Section S2, depth: 0.50 m; the item was identified in the upper level of pit Cx_02 (Pl. 11/4–5). Height: 6 cm; width: 2.9 cm; thickness: 0.2 cm; weight: 3 g. Bibliography: previously unpublished.

68. *Casting scrap?* (Inv. No. 17417 – Museum Arad; Pl. 11/1a-b). Light green patina. Section S2, Cx_02 (Pl. 11/4–5). Length: 2.2 cm; width: 1.3 cm; thickness: 0.68 cm; weight: 3 g. Bibliography: previously unpublished.

Context of discoveries

The context and number of gold items discovered in the spring of 1888 have been discussed above. As inventory of an incineration tomb, eleven items were handed down to us

(Cat.nos. 1–11). It is possible that there were more objects in the lot, some of a different type, as in the case of other contemporary discoveries.

The first bronze objects found on this site that we are aware of are a sickle (Cat.no. 2, Pl. 1/12) and a celt (Cat.no. 1, Pl. 1/6) discovered by I. Mărinouiu in 1954. A beautiful bronze girdle (Cat.no. 3, Pl. 2) was also recovered during the 1950s⁵⁸. Unfortunately, these artifacts were stray finds, discovered in the plowing layer, and we have no data on their context or exact place of discovery.

⁵⁸ As previously indicated, according to M. Rusu and I. Paul the girdle was partially gilded. In its current state, it was simply cleaned of the patina.

The excavation performed in 1963 led to the identification of certain bronze artefacts; their place of discovery is sometimes mentioned, though at time debated. Thus, a skeleton placed in a crouching position, having as funerary inventory two entire pots and a bronze pincers placed on the chest (Cat. no. 6, Pl. 1/7a-b) was researched in section S I (that sectioned the rampart of enclosure III), meter 31–32, depth 1.30 m, or, as one reads on the note that accompanies the item, in "Section S I, square 92." The tomb was chronologically dated to period "H. B"⁵⁹. As we have previously mentioned and as we will subsequently show, we have identified more tombs behind the rampart of enclosure III. They can be dated to the late period of the Bronze Age and we believe that the tomb under discussion can be dated to the same period. The blade of a bronze saw (Cat.no. 11, Pl. 1/11a-b)⁶⁰ and a loop (Cat.no. 4, Pl. 1/2a-b)⁶¹ were found in section S II, the one that cut through the fortification system of enclosure I; M. Rusu dated these items, together with the pottery fragments, to "Ha A₁."

The two surfaces, S3 and S4, opened in the central-north-eastern part of enclosure I, led to the discovery of certain artefact concentrations that the research team in Sântana believed to have been dwellings. Inside these dwellings, at depths that vary between 0.40 and 0.50 m (measured from the 1963 ground level) archaeologists have also found several bronze artefacts associated to the numerous pottery fragments. These were a bracelet? with spiral-like head (Cat.no. 13, Pl. 1/9a-b), a pin with twisted body in the upper part and turned head (Cat.no. 12, Pl. 1/10a-b), a spearhead (Cat. no. 14, Pl. 1/14a-d), and a button made of a concave bronze plate (Cat.no. 10, Pl. 1/3a-b). Another button (Cat.no. 9, Pl. 1/1a-b), two loops fragments (Cat.nos. 7–8, Pl. 1/5a-b, 1/8a-b), and another spearhead (Cat.no. 15, Pl. 1/13a-d) "were found in the ground, but they could not be associated to the pottery"⁶².

Two bronze bracelets were found in 1982 during plowing (Cat.nos. 17–18, Pl. 3/7–8). No data is available on the exact area where they were found inside the fortification⁶³. According to A. Mureşan's presentation during the Thracology symposium organized in 1986 in Oradea and through information he kindly provided, it seems that the items were caught in the tractor's plow. It is possible that they are part of a deposition disturbed by agricultural works, but this is naturally just a supposition.

Several years later, in 1997, collector G. Ciaciş from Arad donated to the Museum Complex in Arad five sickle fragments (Cat.nos. 19–23, Pl. 3/1–5) and a fragmentarily preserved bronze ingot (Cat.no. 24, Pl. 3/6a-b). The items were identified inside the fortification during field research, but one cannot state in which enclosure.

Starting with 2008 L. Mercea performed numerous field researches that led to the identification of eighteen bronze artifacts (Fig. 7). Most of them were recovered from the rampart of enclosure I, near the north-eastern corner. The following object were recovered from the surface, during repeated field walks: girdle fragments (Cat.nos. 26–30, Pl. 4/1–5), two bracelets (Cat.no. 31–32, Pl. 5/11–12a-b), one tutulus (Cat.no. 36, Pl. 5/1a-b), one saltaleon (Cat.no. 34, Pl. 5/9a-b), and one pendant (Cat.no. 33, Pl. 5/2a-c) with a small loop attached to its rod (Cat.no. Pl. 5/6a-b). Such a concentration of items, discovered during successive years, makes us think of a possible bronze deposition scattered by the annual plowing works. Naturally, this observation too remains a simple supposition. In the southern side of the fortification, in enclosure III, L. Mercea found one loop (Cat.no. 37, Pl. 5/10a-b), one dagger fragment (Cat.no. 25, Pl. 5/8a-b), and a bronze fragment of unidentified function (plate fragment?, Cat.no. 42, Pl. 5/13a-b). A fragment from a bronze band (Cat.no. 40 – Pl. 5/4a-b) was discovered on the rampart of enclosure III, on the northern side, and a button (Cat.no. 35, Pl. 5/3a-b) was found on the southern side. A small bronze ingot (Cat.no. 41, Pl. 5/7) was identified on the surface, ca. 100 m south-east of the south-eastern corner of enclosure III.

The first systematic researches inside the fortification in Sântana were organized in 2008 when specialists performed a series of magnetometric measurements. Several objects were found on the surface during one such campaign (Fig. 7), at the southern end of enclosure II: one fragment from a crescent-moon-shaped pendant with perforated rod (Cat.no. 43, Pl. 6/2a-c), one fragment from a

⁵⁹ Rusu *et al.* 1996, 16, Pl. II/b, VI/17, 18, XIV/5; Rusu *et al.* 1999, 144, Abb. 2/2, 7/17–18, 15/5.

⁶⁰ "Section II, depth: 0.35 m". In Rusu *et al.* 1996, 18 and Rusu *et al.* 1999, 151 one can read that the saw blade and loop were discovered in an on-surface dwelling that developed between meters 27 and 39 of section S II.

⁶¹ "Surface I, on the dwelling's platform, depth: 0.35 m."

⁶² Rusu *et al.* 1996, 20 and Rusu *et al.* 1999, 158–159.

⁶³ Mureşan 1987, 313, note 2.

possible knife blade (Cat.no. 44, Pl. 6/4a-b), and one fragment that was probably once part of a bronze girdle (Cat.no. 45 Pl. 6/6a-b).

Artefacts made of bronze were discovered in 2009 during field research. Thus, in the north-eastern area of enclosure II or III⁶⁴, several items were found in the freshly plowed field: one loop (Cat.no. 46, Pl. 6/1a-b), one celt (Cat.no. 56, Pl. 7/1a-e), one socket (Cat.no. 47, Pl. 6/9a-b), one copper ingot (Cat. no. 48, Pl. 6/10a-b), a fragment from another such ingot (Cat.no. 49, Pl. 6/8a-b), and a small plate (Cat.no. 50, Pl. 6/5a-b) that contained in its folds (Pl. 6/5c) a fragmentarily preserved saltaleon (Cat. no. 51, Pl. 6/5d) and two small loops (Cat.no. 52–53, Pl. 6/5e-f). A small bronze wire fragment was discovered in the plowing layer between sections S2 and S3, therefore in enclosure II or III (Cat.no. 54, Pl. 6/3a-b). Two other artifacts were found during on-surface research outside the fortified enclosures: an spiral bracelet (Cat.no. 57, Pl. 7/2a-c), identified 350 m north of the fortification⁶⁵, and a bracelet (Cat.no. 55, Pl. 6/7a-b) discovered at the northern base of the tumulus.

We identified several metal objects through out rescue excavation performed in the autumn of 2009. Thus, in section S1 that partially uncovered the fortification system of enclosure III, among the clay lenses that form the rampart, we found the following artefacts: one bracelet (Cat.no. 58, Pl. 8/1a-b), one saltaleon (Cat.no. 50, Pl. 8/7a-b, 8/8), one bronze piece with unknown function (Cat. no. 61, Pl. 8/4a-b), and a ring (Cat.no. 59, Pl. 8/5a-b). A small concentration of human bones (with a diameter of 0.15 × 0.12 m) was revealed ca. 3.70 m from the southern profile at a depth of 0.80 m. One must mention that no trace of a possible pit could be identified. The bones were not deposited in anatomical position and most of them were part of a skullcap (Pl. 8/6). The bronze ring (Cat.no. 59, Pl. 8/5a-b) that still contained part of the phalanx was found close to this concentration. Based on the three discovered canine teeth, specialists could estimate that the remains belonged to a child who died at less than two years of age⁶⁶. As for the context, one can state with certainty that these were the remains of an inhumation tomb that ended up in the soil lenses of the rampart part of enclosure III. Another bronze item, a tutulus (Cat.no. 66, Pl. 10/3a-b), was discovered in square 34 A and is an item of funerary inventory (Cx_40). A bowl (Pl. 10/5) and a small cup (Pl. 10/4a-b) were deposited in a small alveolus, probably the bottom of the pit (Pl. 10/1), a little over the yellow soil (archeological sterile). Numerous incinerated bone remains were identified under these artifacts and around the deposition one could note pieces of coal, small-size adobe fragments, and incinerated human bone parts (Pl. 10/2). To these two funerary contexts one could add another inhumation tomb that was identified in the western profile of the section. Several phalanges and a calcaneus were actually identified, as the rest of the skeleton entered the profile. Near these remains we have identified a small cup, fragmentarily preserved, typical to the late period of the Bronze Age. The tomb was not researched. To all these tombs discovered behind the earthen rampart of enclosure III we must add the one discovered during the 1963 excavation. It becomes apparent that a necropolis was disturbed by the erection of the earthen rampart. This probably also explains the presence of the bronze artefacts⁶⁷ and of larger or smaller pottery fragments among the earthen rampart's lenses. On the basis of funerary discoveries we can state that this was a bi-ritual necropolis, used for a longer period (from Bronze D until HA₁, late bronze II-III). The construction of the fortification's rampart required, besides the extraction of soil from the defensive ditch, the transportation of a large volume of soil from inside the fortification. The extraction of the soil from inside the fortification led to the creation of a ditch with a maximum depth of 2.06 m, identified in our section between meters 0 and 33. Between meters 0 and 12 the bottom

⁶⁴ As one can see on the 1965 aerial photograph (Fig. 6) or a satellite photograph (Fig. 7), the largest fortification in Sântana (according to us, enclosure III), includes two smaller fortifications (enclosure I and II) (Gogâltan, Sava 2010, 36, 38–39). The rampart of enclosure III overlaps the northern area of fortification II. As the 1963 excavations (Rusu *et al.* 1996, Pl. III; Rusu *et al.* 1999, Abb. 4.) and partially our 2009 section (Gogâltan, Sava 2012, Fig. 10) have attested, two stages of fortification existed in this area. We cannot avoid the thought that the oldest rampart and ditch could be in fact fortification elements of enclosure II. Once the fortification was extended, the rampart of enclosure III was built on top of this system. It is thus hard to establish if the discoveries behind this rampart belong to enclosure II or III.

⁶⁵ As previously mentioned, field research performed north of enclosure III led to the identification of several small sites contemporary to the fortification. One must mention that no on-surface traces of habitation have been identified in the area where the spiral bracelet was discovered.

⁶⁶ Luminița Andreica (Museum Arad) performed the anthropological analyses and we hereby thank her again.

⁶⁷ We initially thought that some small items could have been lost by those who have built the rampart (Gogâltan, Sava 2010, 43).

of the ditch stopped by a compact level of calcareous concretions. We believe that it might have been the bottom of a former water course. Here, besides a few pottery fragments, we discovered a bronze needle (Cat.no. 64, Pl. 9/1a-b, 2), an arrow head (Cat.no. 65, Pl. 9/3a-b, 4), and a saltaleon (Cat.no. 62 – Pl. 8/2a-b). A casting trace was also discovered in this area (Cat.no. 63, Pl. 8/3a-b).

An almost circular pit was identified in section S2, half in the south-eastern profile, labeled Cx_02 (Pl. 11/5). The filling consisted of dark grey soil, with nuances of yellow, in which we discovered pottery fragments (Pl. 11/3), a bronze pendant (Cat.no. 64, Pl. 11/2a-b), a casting trace (Cat.no. 68, Pl. 11/1a-b), coal, animal bone fragments, and an adobe fragment that has been fired to vitrification.



Fig. 7. Satellite photograph of the fortification with the location of the bronze items (after Google Earth)

Dating of metal artefacts

In order to provide a relative dating and to establish typological analogies for the metal objects discovered in Sântana we will mainly focus on the Lower Mureş area. If no analogies can be found there, we will attempt to establish the closest analogies in Late Bronze Age II-III (Bronze D-Ha A) contexts from the Carpathian Basin.

Temple rings with leaf-shaped ends (*Lockenring mit Blättern*), bracelets made of wire, with connected or open ends and partially twisted, and loops that are lozenge-shaped in section and pointy ends, part of the gold treasure in Sântana, are considered typical items for the period Bronze D – Ha A (Late Bronze II-III). The best analogies for the temple rings can be identified further north-east in Transylvania, in the hoard in Sărmășag, Sălaj County. Though not accompanied by further details, three rings were illustrated in 1901, each consisting of four leaves connected through gold wire⁶⁸ The discovery drew V. Pârvan's attention; he believed that this find, besides other gold hoards, can probably be dated to "the still pure Bronze [Age]"⁶⁹. Later on, without providing further information, M. Roska mentioned that eleven gold leaves and five ornaments made of gold wire are preserved in the collection of the Museum in Cluj⁷⁰. D. Popescu mentioned fifteen items from Sărmășag, though nothing was known on their context of discovery⁷¹. E. Dörner was the first to establish a connection between

⁶⁸ Archaeologiai Értesítő 1901, 250.

⁶⁹ Pârvan 1926, 681.

⁷⁰ Roska 1942, 241, no. 12.

⁷¹ Popescu 1956, 231, Fig. 138/9–11.

the twelve gold leaves from Sărmășag and the items from Sântana. He noted the identical production method of the temple rings, i.e. connecting four decorated leaves with gold wire⁷². These data were taken over by M. Rusu⁷³ and A. Mozsolics⁷⁴. G. Lazarovici wrote the note on the hoard from Sărmășag for the 1994 exhibition in Frankfurt entitled *Goldhelm, Schwert und Silberschätze: Reichtümer aus 6000 Jahren rumänischer Vergangenheit*⁷⁵. Almost one century later, this important find was finally published. The hoard was presumably found near the settlement in little known conditions, as the above mentioned author of the note mentioned; we believe that in fact these conditions remain unknown. The find was bought in 1900 by the Museum in Cluj. The inventory numbers are different from those initially published by Roska⁷⁶. According to Lazarovici, the discovery included four “diadems” consisting of four gold plates in the shape of willow leaves, that display veins decorated with dots, one twisted earring with pointy ends, and two wires (one round and another lozenge-shaped in section). Seven items in total. The bracelets consisting of spirals, made of wire with connected or open ends, partially twisted, are well-known items from gold hoards in the Lower Mureș⁷⁷ and the rest of the Carpathian Basin⁷⁸. Gold loops with lozenge-shaped section, sometimes improperly called bracelets⁷⁹ or spirals⁸⁰ due to their shape, are also items often encountered among gold hoards found in the area. One should foremost mention the items in Sacoșu Mare, Timiș County⁸¹. On the basis of quoted analogies, E. Dörner believed that the hoard in Sântana can be dated “in die Übergangsperiode zwischen dem Ende der Bronzezeit und dem Beginn der früheren Eisenzeit”⁸². K. Horedt placed it, on the basis of the leaf-shaped gold jewels, during Bronze D⁸³. For M. Rusu the bracelets in Sântana or Carani “can be dated, with enough accuracy, to Hallstatt A₁”⁸⁴ while the temple rings, according his classification type B, made of thin plate and boat-shaped, can be dated to “Bronze D and Hallstatt A₁”⁸⁵. Subsequently, he insisted on the fact that “it is certain that the bracelets (? n.n.) made of gold, consisting of four willow leaves, of the Sărmășag type, are a product typical to goldsmith masters active during H.A₁”⁸⁶. A. Mozsolics placed both the hoard in Sântana and the one in Sărmășag to (what he considered to be) stage B IVb (the Ópályi horizon)⁸⁷. He believed the bracelets in Békésszentandrás, Kosd, and Ófehértó to have been a bit younger (“Vielleicht jünger als Stufe B IVb”)⁸⁸. The bracelets in the hoard from Hinova were also dated during “Late Bronze and Early Hallstatt”⁸⁹. On this latter discovery, M. Gumă noted that on the basis of the pot in which the hoard was deposited the latter could be dated to “the interval Ha A1 – Ha A2”⁹⁰. H. Cigudean and I. A. Aldea adopted similar opinions when dating the deposition from Cugir to Ha A⁹¹. Placing the hoard in Sărmășag to the Middle Bronze Age, more precisely to the sixteenth century B.C., has no support and must be completely ignored⁹².

Today it is clear that one cannot suggest a more precise dating for the gold hoard found in Sântana. It cannot be related with certainty to the necropolis in use behind the rampart of precinct III, as that would have dated it before the rampart. Two temple rings in shape of willow leaves, made of bronze,

⁷² Dörner 1960, 474, Abb. 4.

⁷³ Rusu 1972, 48, no. 53.

⁷⁴ Mozsolics 1973, 205.

⁷⁵ Lazarovici 1994, 126–127.

⁷⁶ In Roska 1942, 241, no. 12 features as “I. 453.—61” while in Lazarovici 1994 one finds inventory numbers I 453–456, 461, 466/6a.

⁷⁷ Carani (Popescu 1956, 229–230, Fig. 142/2–3; Mozsolics 1973, 95, 205, Taf. 106/1–6).

⁷⁸ Ófehértó (Mozsolics 1973, Taf. 97/4–6, 98/1–14), Pétervására (Mozsolics 1973, Taf. 103/1–11), Kosd (Mozsolics 1973, Taf. 107/1), Békésszentandrás (Mozsolics 1973, Taf. 107/2), Hinova (Davidescu 1981, 10/3–6).

⁷⁹ See also Popescu 1956, 212; Popescu 1975, 41.

⁸⁰ Leahu 1994, 134.

⁸¹ Popescu 1975, 41, Pl.III/1–7; Leahu 1994, 134, 33.8.

⁸² Dörner 1960, 479.

⁸³ Horedt 1967, 149.

⁸⁴ Rusu 1972, 38.

⁸⁵ Rusu 1972, 41.

⁸⁶ Rusu *et al.* 1996, 22; Rusu *et al.* 1999, 162.

⁸⁷ Mozsolics 1973, 205, 208

⁸⁸ Mozsolics 1973, 190–191, 197

⁸⁹ Davidescu 1981, 19–21.

⁹⁰ Gumă 1993, 248.

⁹¹ Ciugudean, Aldea 2005, 106.

⁹² Lazarovici 1994, 126.

discovered in the cave in Igrița nevertheless drew our attention⁹³. As I. Emödi previously noted, they bear a striking resemblance to our gold rings⁹⁴. Unfortunately, this discovery also lacks a clear context and thus cannot be dated to a more restricted interval. Another bronze analogy for our items consists of objects found in the Cruceni-Belegiš necropolis in Vojlovica "Rafinerja" (necropolis 2) near Pančevo, dated to Bronze D – Ha A⁹⁵. The three items under discussion were found in tomb 116, but they consist of three leaves with central vein instead of four. We are thus forced to support a wider dating of the gold hoard from Sântana to Late Bronze II-III (Bronze D – Ha A).

Both celts belong to the same type, with the one discovered in 1954 being ca. 3 cm smaller (Cat. no. 1, Pl. 1/6) than the one found in 2009 (Cat. no. 56, Pl. 7/1a-e). According to shape, they can be included in variant B3 according to M. Rusu's typology of Transylvanian-type celts⁹⁶. We must clarify the fact that this variant includes items that had a vein under the socketing mouth, such as the items in Sântana, but also items that do not display this vein. B3-type celts were discovered in the area of the Lower Mureș in the depositions in Pecica IV⁹⁷ or Zimandu Nou⁹⁸, all dated to stage Ha A₁. Celts such as the two discovered in Sântana can also be found near Beliu, Arad County⁹⁹, or much further, part of the hoards in Galoșpetreu¹⁰⁰, Dipșa¹⁰¹, and Bükkaranyos I¹⁰². The local production of B3-variant celts of the Transylvanian type is proven by the molds that have been recently discovered in the settlement of Șagu, Arad County¹⁰³. From a chronological perspective, the above mentioned celts belong to stages Bronze D and Ha A₁, but as C. Kacsó recently mentioned while completing M. Rusu's older list, the widest geographical distribution of Transylvanian-type celts took place during "Late Bronze 3 (approximately Reinecke Hallstatt A.)"¹⁰⁴.

As compared to other areas¹⁰⁵, the bronze pincers (Cat. no. 6, Pl. 1/7a-b) discovered on the chest of one of the deceased, is a rather rare item. Such objects feature in the Lower Mureș area ever since stage Bronze B₂-C. Four such artifacts were found in the cemetery from Tápé, in tombs 462, 604, and 680¹⁰⁶. We were unable to identify other analogies in the area surrounding the earthen fortification in Sântana.

Saw blades are a category of artefacts mainly discovered in bronze depositions. In our area of interest we are aware of no less than 27 items in the deposition in Pecica II¹⁰⁷ and 15 items in Pecica IV¹⁰⁸. Three more items were part of the deposition in Sânpetru German¹⁰⁹. They are also present in neighboring settlements, such as proven by the items in Șagu "Site A1_1"¹¹⁰ and Hódmezővásárhely "IV. Téglagvár"¹¹¹. From a chronological perspective, both the depositions and the items discovered in settlements belong to stage Late Bronze II-III (Bronze D – Ha A).

An interesting artefact, so far unique in the area of the Lower Mureș, is a shaft insert in the shape of a cylinder (Cat. no. 47, Pl. 6/9a-b). The closest geographic analogies can be found in the small bronze deposition in the area of Suceava¹¹² or the deposition in Velemszentvid II, in western Hungary¹¹³.

⁹³ Emödi 1980, 255, nos. 95–96, 265, Fig. 13/95–96.

⁹⁴ Emödi 1980, 265.

⁹⁵ Bukvić 2000, 151, Tabla 32/4–6.

⁹⁶ Rusu 1966, 25–26, Fig. 2.

⁹⁷ Petrescu-Dîmbovița 1977, Pl. 176/29–30.

⁹⁸ Petrescu-Dîmbovița 1977, Pl. 277/14.

⁹⁹ Boroffka, Luca 1995, Abb. 1/15.

¹⁰⁰ Chidioșan, Soroceanu 2005, Abb. 2/9.

¹⁰¹ Ciugudean *et al.* 2006, Pl. XXII/6.

¹⁰² Mozsolics 1985, Taf. I/20.

¹⁰³ Sava *et al.* 2011, 52, Fig. 92–95.

¹⁰⁴ Kacsó 2010, 32. See also Annex 1 with the completions to M. Rusu's list of 1966.

¹⁰⁵ Gedel 1988, 15–63.

¹⁰⁶ Trogmayer 1975, Taf. 41; 52; 56. Tombs 462 and 680 belong to adult men and a young individual, whose gender could not be established, was found in tomb 604.

¹⁰⁷ Petrescu-Dîmbovița 1977, 101; Kemenczei 1991, Abb. 7.

¹⁰⁸ Petrescu-Dîmbovița 1977, 102. The bronze depositions labeled Pecica II, III, and IV were discovered by chance inside the perimeter of the settlement in Pecica "În Vii". Numerous field researches performed between 2008 and 2013 led to the identification of numerous pottery fragments decorated with grooves that can be dated to stage BD/HA1; besides the pottery fragments, a saw blade made of bronze was also discovered on the surface.

¹⁰⁹ Petrescu-Dîmbovița 1977, 107.

¹¹⁰ Sava *et al.* 2011, Fig. 90; Sava *et al.* 2012, Pl. 3/5, 8.

¹¹¹ V. Szabó 1996, Kép. 22/16.

¹¹² Hänsel 2000, 113, 116, Abb. 3/6, 9; Hänsel 2005, 289, 292, Fig. 3/6; 9.

¹¹³ Kemenczei 1996, 459, Abb. 6/6–9.

Some similar discoveries from the environment of the urn fields culture in Central Europe (Hart an der Alz, Saalfelden-Magnesitfeld) have determined A. Hänsel to accept for the item from Suceava the interpretation suggested by H. Müller-Karpe. Such objects probably allowed for the attachment of the two side bars of cart boxes¹¹⁴. Even if it has the shape of a cart wheel hub¹¹⁵, it is too large to have been used on a miniature bronze wagon¹¹⁶. The best analogy, also according to the small size, is nevertheless a cylindrical shaft insert from the gold hoard in Hinova¹¹⁷. In this case, it must have been used as a jewelry item. The dating of the shaft insert to Ha A (Late Bronze III) is ensured by the above mentioned contexts.

A large number of bronze girdles was found in Sântana (Cat.no. 3, Pl. 2, Cat.no. 26–30, Pl. 4/1–5, Cat.no. 45, Pl. 6/6a-b). The first items of this type feature in the Carpathian Basin in the beginning of the Late Bronze Age and can be connected to manifestation of the *Hügelgräberkultur* type¹¹⁸. Such girdles feature in the Lower Mureş area in tombs 73 and 132 in Tápé, dated to stage Bronze B₂-C (Late Bronze I)¹¹⁹. They were used until the beginning of the first Iron Age (Ha B₁)¹²⁰. In most cases they are nicely decorated with various types of rows. One cannot expect perfect analogies for such decorations. In case of the so-called gilded girdle from Sântana (Cat.no. 3, Pl. 2), the decoration resembles that on one of the girdles part of the deposition in Pecica II¹²¹, dated to stage Ha A₁¹²². Unfortunately, our items were found during on-surface researches, thus lacking a context of discovery. We must thus accept their wider dating to the period Late Bronze II-III (Bronze D – Ha A)¹²³.

We were unable to find analogies in the same area for the pin with twisted upper body and turned head (Cat.no. 12, Pl. 1/10a-b). C. Kacsó describes thus an item discovered in 1870 in the deposition from Vânători (municipality of Mişca, Arad County), ca. 50 km north-east of Sântana: “Fragment from a bracelet made of partly twisted wire, with turned head”¹²⁴. The drawing of the item, unfortunately not accompanied by profile representations, is slightly different from the one published by S. Marki¹²⁵. Taking into consideration its fragmentary state, it is difficult for us to decide if it is a bracelet or a pin. Without quoting analogies, just simple bibliographical references, Kacsó believed that “this type of bracelet is typical to period Hallstatt A”¹²⁶. The best and closest analogies for this type of pin have been found in the Serbian Banat. One *Rollenkopfnadeln mit tordiertem Schaft* was found in a (presumably Gáva) settlement in Banatski Karlovac¹²⁷. Another item was part of the inventory of tomb 18 in Vojlovica “Rafinerija” (necropolis 2)¹²⁸. Just like other necropolises and settlements, L. Bukvić erroneously attributed them to the Gáva Culture. In our opinion, these reflect the realities of the local Late Bronze Age of Cruceni-Belegiş origin (Late Bronze II-III/Bronze D – Ha A).

Field researches performed by L. Mercea led to the discovery of a tutulus (Cat.no. 36, Pl. 5/1a-b). Another tutulus (Cat.no. 66, Pl. 10/3a-b) of the same type has been deposited in the incineration tomb that we labeled Cx_40. Near it we found a fragment from a bowl with in-turned rim and tubular handle (Pl. 10/5) and a small bi-trunk-shaped vessel (Pl. 10/4a-b). From a chronological perspective, this type of tutus was very much spread during stage Late Bronze II-III (Bronze D – Ha A)¹²⁹. In the area they can also be found in a discovery from the northern part of the city of Arad¹³⁰.

¹¹⁴ Hänsel 2000, 116; Hänsel 2005, 292.

¹¹⁵ For the items from Romania see Rusu 1997, 529–544.

¹¹⁶ Hänsel 2000, 116; Hänsel 2005, 292; Soroceanu 2008, 217–223.

¹¹⁷ Davidescu 1981, 17, Fig. 6/4, 12/9.

¹¹⁸ Mozsolics 1973, 49; Kilian-Dirlmeier 1975, 100–104.

¹¹⁹ Trogmayer 1975, 25, 36.

¹²⁰ During stage Ha B₁ such artifacts enjoy a limited distribution; the geographically closest discoveries in the Lower Mureş are those in Brâglez (Bejinariu 2007, Pl. XVI/80, 81; XVIII).

¹²¹ Kemenczei 1991, Ábr. 3/1.

¹²² The same dating of the girdle from Sântana also in M. Rusu (Rusu 1963, 188) and K. Horedt (Horedt 1967, 149).

¹²³ Rusu *et al.* 1996, 21.

¹²⁴ Kacsó 1993, 172, no. 8, fig. 2/3.

¹²⁵ Marki 1892, 14, Ábr. 11.

¹²⁶ Kacsó 1993, 176.

¹²⁷ Vasić 2003, 24, Taf. 9/113.

¹²⁸ Bukvić 2000, 151, Tabla 17/2.

¹²⁹ A selective list of this type of items in Kacsó 1995, 116–117, Liste 6 (*Bronzекnöpfe mit abgetreppter Mitte*).

¹³⁰ There are five items (Dömötör 1897, 261. As analogy, the author mentions one item from the deposition in Poşaga de Sus taken from Hampel 1892, Táb. CLXV/12). Kacsó 1995, 116, Liste 6, No. 1.

and in depositions from the area surrounding the fortification in Sântana: Lipova¹³¹, Pecica II¹³², and Pecica IV¹³³. The association of the bronze tutulus with the pottery in tomb Cx_40 can contribute to establishing the chronology of the complex. A possible analogy for the bi-trunk-shaped vessel (Pl. 10/4a-b) is a pot of the same type found in the contemporary settlement from Battonya "Georgievics-tanya"¹³⁴. The decoration is nevertheless different, as the neck is ornamented with horizontal grooves. The thin grooves forming a garland placed on the neck and the oblique groove on the pot's belly are decorative elements with wide distribution in the area, typical to stage Late Bronze II-III (Bronze D – Ha A)¹³⁵. The bowl with in-turned rim and tubular handle (Pl. 10/5) also has analogies in south-eastern Hungary and not very far from Sântana, in a contemporary funerary context in Jánoszállás¹³⁶.

The two crescent moon perforated pendants with the rod pierced vertically (*Durchbrochene halbmondformige Anhänger mit vertikal durchlochtem Stiel*) discovered in Sântana (Cat.no. 33, Pl. 5/2a-c; Cat.no. 43, Pl. 6/2a-c) have the closest and best analogies in the deposition in Pecica II¹³⁷ and a discovery made in the northern part of the city of Arad¹³⁸. Pendants of this type feature even since stage Bronze D and are widely spread during the subsequent period, when they reach beyond their area of origin (Ha A)¹³⁹. They are ornaments typical to jewelry depositions of the Arpășel type, but they also feature in some Igrîța discoveries in the caves of the Apuseni Mountains¹⁴⁰.

The pendant discovered in the upper part of pit Cx_02 (Pl. 11/4–5) certainly belongs to the Late Bronze (Cat.no. 64, Pl. 11/2a-b), as indicated by the pottery fragments (Pl. 11/3)¹⁴¹. Through the dimensions of the loop, the two thorn-shaped endings, the central vein, and the concave shape of the lower part, it differs from the category of hourglass-shaped pendants (*die sanduhrförmigen Anhänger*) that are so common among Arpășel type depositions in western Romania and beyond¹⁴². We found a similar item rather far away, in Ocna Mureș in central Transylvania¹⁴³. This latter deposition also includes a crescent moon pendant with perforated rod, similar to the two jewelry items in Sântana¹⁴⁴. Probably the best analogy is also to be found in Transylvania, in the fortified settlement in Teleac, Alba County, dated to the first Iron Age. It is a sandstone mold in which several types of items have been cast. According to V. Vasiliev, the author of the corresponding chapter in the monograph work focusing on the above mentioned settlement, the mold displays the wide cutting edge of a small-size celt, "a type of pin (?) with three-lobed head, another pin,

¹³¹ Small bronze deposition consisting of three tutuli, six conical phalerae with central spine and loop, and a small phalera with loop. The items are preserved in the collection of the City Museum Lipova, Inv. No. 2617–2626.

¹³² Kemenczei 1991, Ábr. 6/34.

¹³³ Petrescu-Dîmbovița 1977, Pl. 177/6–8.

¹³⁴ Bondár *et al.* 1998, 21, Kép. 18/1.

¹³⁵ See for example Kemenczei 1991, Ábr. 8/51 (Pecica), Stratan, Vulpe 1977, Taf. 6/9, 94 (Susani "Grămurada lui Ticu"); Pădureanu 1985, Pl. VII/2 (Vladimirescu); Gumă 1993, Pl. IX/7 (Cruceni); Gumă 1993, Pl. XVII/3 (Moldova Nouă "Cariera de banatite"); Gumă 1993, Pl. XVI/3 (Timișoara "Fratelia"); Gumă 1997, Pl. LXXXIII (Cruceni); V.Szabo 2004, Kép 10/5 (Igrici), etc.

¹³⁶ V. Szabó 1996, 24, Kép. 46/3.

¹³⁷ Kemenczei 1991, Abb. 6/3–8.

¹³⁸ Dömötör 1897, 261; Kacsó 1995, 115, Liste 4, No. 1.

¹³⁹ Dumitrașcu, Crișan 1989, 39–41; Kemenczei 1991, 40, 42; Kacsó 1995, 101; Kacsó 2009, 168–170.

¹⁴⁰ Kacsó 1995, 100–101, Liste 4; Kacsó 2009, 169.

¹⁴¹ The complex did not include black pottery fragments polished on the outside and red on the inside. Besides, such fragments have not been found in the entire area researched in 2009 and 2011. They were also not found during repeated filed walks performed during recent years in Sântana "Cetatea Veche". Such a situation was also noted in the case of settlements in Șagu (Sava *et al.* 2011, 90–96, Fig. 100–102, 170–183), Pecica "În vii", Pecica "site 15" (excavations by L. Marta 2011), Pișchia (excavations by D. Țeicu 2010–2011) or the fortified settlements in Cenad (inf. V. Szeverényi), Munar, and Cornești. None of these elements that are typical to the First Iron Age the pots have been found in the deposition from Pecica II (Kemenczei 1991, Ábr. 8/51) and Arad "Gai" (Rusu *et al.* 1996, Pl. IX/2; Rusu *et al.* 1999, Abb 10/2 – Inv. no. 642 is mentioned to have been found during 1902 excavations, but there is no mention of its place of discovery. Inside the pot we could find a note written in the 1950s–1960s that records the finding place in Arad "Gai". From what is currently known, black pottery polished on the outside and red on the inside has been found in the Lower Mureș area in the settlements of Arad (see Dörner 1970, 449–450, Fig. 8/1; Sava, Pădurean 2009, 36–39), in an Iron I horizon (Ha B₁).

¹⁴² Chidioșan 1977, 59–67; Kacsó 1995, 97–99, Liste 3.

¹⁴³ Measuring 4.4 cm in length, the item is slightly smaller than our pendant (Franz 1922, 69, Abb. 1/9). This deposition is not mentioned in Petrescu-Dîmbovița 1977 or Petrescu-Dîmbovița 1978.

¹⁴⁴ Franz 1922, 69, Abb. 1/8. This item must be also added to the list of perforated crescent moon pendants with the rod pierced vertically.

with circular head, and two other items, probably from a horse's tack"¹⁴⁵. The quoted analogies are far from acceptable. Several years later, H. Ciugudean completed the item¹⁴⁶. On that occasion he discussed the mold of the small celt that "is very similar to the items in the Singeorgiu de Pădure – Fizeșu Gherlii series"¹⁴⁷. being thus dated to the Ha B₂ stage. To these, one can add the "almost identical" analogy of the anchor-shaped pendant from the reverse of this mold in the deposition from Sângiorgiu de Pădure¹⁴⁸. Though hard to understand, the discussion of the other items impressed in this mold is yet again avoided. The mold was used for casting three loops, one object consisting of three inter-connected loops, and a pendant similar to those in the shape of an hourglass but having a wider loop. As mentioned above, on the reverse of the mold one can note an anchor-shaped pendant with a large loop. A good analogy for the object consisting of three small loops can be found in the deposition from Lengyeltóti III¹⁴⁹. Among other items, the deposition included one perforated crescent moon pendant with pierced rod; the deposition is attributed to the Kurd Horizon (Ha A₁). Another mold from level I in Teleac was attributed to the category of hourglass-shaped pendants with analogies among the Arpășel and Cincu-Suseni depositions in Transylvania¹⁵⁰. Items with large loops, from the deposition in Hajdusámson III¹⁵¹ or farther in western Hungary, in Badacsony¹⁵², suggest a possible later dating of this type of pendant, during the first Iron Age (Ha B₁ or even Ha B₃). Through the absence of the central vein and the shape in general, they are nevertheless different from the item that could have been cast in the mold from Teleac. In recent years, the beginning of the settlement in Teleac (Teleac I) has been dated to a Ha A₂ horizon¹⁵³. The chronological position of the molds from Teleac seems settled. The pendant discovered in pit Cx_02 in Sântana is thus much earlier. We have noted that there are no arguments to support its dating to the first Iron Age and it remains for future discoveries to clarify if there is any connection between them.

For the dagger fragment with triangular hilt and three rivets for attaching the handle (Cat. no. 25, Pl. 5/8a-b) one can find analogies in the area in Hajducovo, in the environment of the tumular horizon¹⁵⁴. For a later stage we were unable to find acceptable analogies, as both swords and daggers in the Lower Mureș display a tongue by the handle¹⁵⁵.

The arrow head discovered behind the rampart of precinct III (Cat.no. 65, Pl. 9/3a-b, 4) is among the items more rarely encountered in settlements. A similar object has been recently found in the Late Bronze Age fortification in Csanádpalota. From a chronological perspective, the precinct was attributed to a "pre/proto-Gáva" horizon dated sometime between 1300–1100 B.C.¹⁵⁶ To the same period one can date the arrow head with a relatively triangular body and short shaft insert from Ungurului cave in Șuncuius¹⁵⁷. Nevertheless, its context of this discovery is funerary or ritual.

Undecorated buttons made of concave bronze plates (Cat.no. 9, Pl. 1/1a-b; Cat.no. 10, Pl. 1/3a-b; Cat.no. 35, Pl. 5/3a-b) are a category of artifacts very common during the Bronze Age, but they lack chronological value¹⁵⁸. Six items of this type were found in the deposition in Pecica II¹⁵⁹. The same is

¹⁴⁵ It was found in a secondary position in the soil employed in the reconstruction of the rampart (stage III) and might "belong to habitation stages I or II" Vasiliev *et al.* 1991, 48, Fig. 23/9; Ciugudean *et al.* 2008, 44. It has been subsequently stated that it was found in square 2 in section 3 at a depth of ca. 1.20 m in the second layer of the wall's erection (Ciugudean 2009, 70).

¹⁴⁶ Ciugudean *et al.* 2008, Pl. XXIII/4.

¹⁴⁷ Ciugudean *et al.* 2008, 44. See also Ciugudean 2009, 70, Taf. X/2–2a.

¹⁴⁸ Ciugudean *et al.* 2008, 44; Ciugudean 2009, 70, Taf. X/2a. See Petrescu-Dîmbovița 1977, Pl. 352/11.

¹⁴⁹ Mozsolics 1985, Taf 108/23.

¹⁵⁰ In Vasiliev *et al.* 1991, 48, Fig. 23/5 one can find no comment on this item. A recent opinion in Ciugudean 2009, 67. C. Kacsó did not include it in the category of those "Sanduhrförmige Anhänger" (Kacsó 1995, Liste 3).

¹⁵¹ Kacsó 1995, Liste 3, no. 17; Mozsolics 2000, 48 Taf. 37/5 (Hajdúböszörmény horizon, B VIa).

¹⁵² Darnay-Dornay 1958, 52, Táb. XX/9; Kacsó 1995, 99, Liste 3, no. 2; Mozsolics 2000, 34, Taf 2/3 (Badacsonytomaj, Bükkszentlászló horizon, B VIc).

¹⁵³ Ciugudean 2009, 68.

¹⁵⁴ Trogmayer, Szekeres 1968, Tab. II/15 (the hilt is rather trapezoid-like in shape).

¹⁵⁵ One cannot be certain that the fragmentarily preserved dagger in the deposition in Pecica II did not display a tongue by the handle (Kemenczei 1991, Ábr. 6/32).

¹⁵⁶ Czukor *et al.* 2013, 13–14. On this horizon from south-eastern Hungary see V. Szabó 1996, 31–46; V. Szabó 1999, 66–70.

¹⁵⁷ Emődi 1997, 487, 502, no. 77.

¹⁵⁸ Gogâltan 1999, 173–174.

¹⁵⁹ Kemenczei 1991, Ábr. 6/12–17.

true for the four saltaleons (Cat.no. 34, Pl. 5/9a-b; Cat.no. 50, Pl. 8/7a-b, 8/8; Cat.no. 51, Pl. 6/5d; Cat. no. 62 – Pl. 8/2a-b)¹⁶⁰.

Field researches have led to the discovery of a sickle with knob (*Knopfsicheln*) (Cat.no. 22, Pl. 3/1a-b). It probably belongs to the Pecica type, according to M. Petrescu-Dîmbovița¹⁶¹, and was also found in the deposition in Pecica II¹⁶². We believe that other fragmentary items can also be attributed to the same type (Cat.no. 2, Pl. 1/12; Cat.no. 19–21, Pl. 3/2a-b, 4a-b, 5a-b). One fragment from the tip of another sickle was probably part of the Șpálnaca II type of sickles with knob¹⁶³. Near Sântana, items of the Pecica type have been identified, besides Pecica II, in the northern part of the city of Arad¹⁶⁴ or in the depositions in Igrîș¹⁶⁵, Pecica IV¹⁶⁶, and Sânpetru German¹⁶⁷. All belong to stage HA₁. Sickles with knob spread during stages Bronze D – Ha B₁, but were more frequent during stage Ha A₁¹⁶⁸.

Simple spearheads with the blade in shape of a laurel leaf (*Lorbeerblattförmigen Lanzen Spitzen*) are common items in the Carpathian Basin and beyond¹⁶⁹. They started to feature in the Lower Mureș area during the Middle Bronze Age¹⁷⁰, and enjoyed the widest distribution in depositions of the Late Bronze¹⁷¹. The fragmentarily preserved spearhead from the deposition in Pecica II probably belongs to the same simple type as the items from Sântana¹⁷². They cannot be dated to a shorter interval than the Late Bronze period II-III (Bronze D-Ha A).

The bracelet with lozenge-shaped section bar (Cat.no. 50 – Pl. 8/1a-b) is of a type that can also be found in depositions starting with stage Bronze D¹⁷³; such pieces of jewelry were used during an extensive period, until stage Ha B₁¹⁷⁴. The four bracelets made of a bar that is D-shaped section, decorated and undecorated, (Cat.no. 17, Pl. 3/8; Cat.no. 32, Pl. 5/11; Cat.no. 31, Pl. 5/12a-b; Cat.no. 55, Pl. 6/7a-b) feature in tombs from stage Bronze D and in the deposition of stage Ha A₁¹⁷⁵. Such items can also be found in the area of Sântana in the deposition from Pecica II.¹⁷⁶ To the same Late Bronze II-III (Bronze D-Ha A) chronological horizon one can also attribute the bracelets made of a bar that is round in section¹⁷⁷ and the item illustrated on Pl. 3/8 (Cat.no. 18).

The spiral bracelet decorated with a knob in the middle of the spiral and made of a bar that is round in section, of the so-called Salgótarján type (Cat.no. 57, Pl. 7/2a-c), appeared during stage Bronze D¹⁷⁸ and was also spread during stage Ha A₁¹⁷⁹. The item from Sântana does not have the rolled end featured by most bracelets in the Carpathian Basin¹⁸⁰. Such objects are nevertheless found in the center of Transylvania, in the deposition from Aiud dated to Ha A₁¹⁸¹.

For the sewing needle from Sântana (Cat.no. 64, Pl. 9/1a-b) we were unable to find acceptable analogies in the area. Another variant was used in the contemporary environment of Igrîța, with the

¹⁶⁰ Gogâltan 1999, 176–177. Several such items were also part of the Pecica II deposition (Kemenczei 1991, Ábr. 6/18, 37.

¹⁶¹ Petrescu-Dîmbovița 1978, 17–18, Taf. 1/B125.

¹⁶² Kemenczei 1991, Ábr. 4/4–11.

¹⁶³ Petrescu-Dîmbovița 1978, 18, Taf. 1/B162.

¹⁶⁴ Dömötör 1897, 261–262. As analogy, the author cites after Hampel 1896, Táb. CCXXX/25, an item from the deposition in Kemecei.

¹⁶⁵ Petrescu-Dîmbovița 1977, 98, Pl. 162/8.

¹⁶⁶ Petrescu-Dîmbovița 1977, Pl. 176/32.

¹⁶⁷ Petrescu-Dîmbovița 1977, Pl. 187/5–6, 13–14, 16.

¹⁶⁸ Petrescu-Dîmbovița 1978, 24–25.

¹⁶⁹ Jacob-Friesen 1967; Avila 1983; Říhový 1996; Kobal' 2000, 33–35; Dergačev 2002, 132–133; Kytlicová 2007, 106–107; Gedl 2009.

¹⁷⁰ Gogâltan 1999, 152–154.

¹⁷¹ For the Carpathian Basin see Kemenczei 1984, 22, 32, 54, 74, 83; Mozsolics 1985, 20; Dumitrașcu, Crișan 1989, 28.

¹⁷² Kemenczei 1991, Ábr. 6/33.

¹⁷³ Mozsolics 1973, 60–61.

¹⁷⁴ Petrescu-Dîmbovița 1998, 118; Bejinariu 2008, 88.

¹⁷⁵ Petrescu-Dîmbovița 1998, 137.

¹⁷⁶ Kemenczei 1991, Ábr. 5/6–10, 6/1.

¹⁷⁷ Petrescu-Dîmbovița 1998, 54–55. See an item with a similar decorative motif in the deposition from Pecica II (Kemenczei 1991, Ábr. 5/11).

¹⁷⁸ Kemenczei 1965, 111–113; Bader 1972, 89; Mozsolics 1973, 63; Petrescu-Dîmbovița 1998, 30–31, 35–37.

¹⁷⁹ Mozsolics 1985, 29; Petrescu-Dîmbovița 1998, 35–37; Kobal' 2000, 29.

¹⁸⁰ Tóth Farkas 2010, 63–65.

¹⁸¹ Petrescu-Dîmbovița 1998, Taf. 17/135–136.

bar split in the upper part of the head¹⁸². Nevertheless, we found an item resembling that from Sântana in Mișidului cave in Șuncuiuș¹⁸³.

Other items, such as the small loops and rings (Cat.no. 4, Pl. 1/2a-b; Cat.no. 5, Pl. 1/4a-c; Cat. no. 7, Pl. 1/5a-b; Cat.no. 8, Pl. 1/8a-b; Cat.no. 38, Pl. 5/6a-b; Cat.no. 37, Pl. 5/10a-b; Cat.no. 46, Pl. 6/1a-b; Cat.no. 52–53, Pl. 6/5e-f; Cat.no. 59, Pl. 8/5a-b) or bronze wires (Cat.no. 54, Pl. 6/3a-b) have no chronological value, but reflect the diversity of worn jewels. One ring (Cat.no. 59, Pl. 8/5a-b) was found on a fragment of human phalanx.

Discussion

At this point of the paper we believe some statistical interpretations can be drawn upon the metal items discovered so far at Sântana “Cetatea Veche”. It is a common thing to find inside a settlement fewer gold artefacts than copper or bronze ones (Fig. 8). In the majority of cases they were found as hoards, which means the deposition of several objects together¹⁸⁴. Eleven items have been preserved from the gold hoard discovered in 1888 that seems to have been a funerary inventory.

Even if no systematic field researches have been yet performed, most objects were found during on-site surveys or as stray finds by non-specialists (Fig. 9)¹⁸⁵. Nevertheless, among the 23 items revealed during the 1963 and 2009 excavations, “Cetatea Veche” is one of the most important Late Bronze Age sites in Lower Mureș area, as we will subsequently show.

Among all metal objects presented here, jewelry items are clearly the largest group, including 50 items (Fig. 10). This happens because jewelry items are most used as part of funerary inventories or were lost accidentally in a settlement. Other artefacts that can be found, but in a smaller number, are tools and weapons¹⁸⁶. Both older and newer excavations were unable to identify clear traces of metal processing. Besides the numerous metal objects, the existence of metallurgical activity in this fortified settlement is attested by the copper lump fragments (Cat.no. 48, Pl. 6/10a-b), bronze (Cat.no. 24, Pl. 3/6a-b; Cat.no. 41, Pl. 5/7; Cat.no. 49, Pl. 6/8a-b) and scraps from bronze casting (Cat.no. 63, Pl. 8/3a-b; Cat.no. 68, Pl. 11/1a-b). The hypothesis is also supported by the discovery of the mold valve made of sandstone found by A. Mureșan in 1980 and that was presumably used for casting the tutuli (Cat.no. 16)¹⁸⁷.

As for the proportion between fragmentary and fully preserved artefacts, the situation in settlements is different than what can be observed on objects collected in gold hoards or bronze depositions¹⁸⁸. Many jewels and tools are deteriorated through use and wear¹⁸⁹ (Fig. 11). The large number of fully preserved items is due to the fact that they were elements of funerary inventory or they are weapons, tools, and jewelry items treasured or lost. The jewels are by far the objects that were found in the greatest proportion¹⁹⁰. In this sense, one must foremost note the bracelets and the different types of loops (Fig. 12–13).

¹⁸² Chidioșan, Emödi 1982, 80–81, Fig. 8/6–7; Igrîța (Emödi 1980, 256, Fig. 26/228), Izbândiș (Chidioșan, Emödi 1983, 19, Fig. 9/1–2), Peștera Ungurului (Emödi 1997, 487, 502, no. 19, 73)

¹⁸³ Chidioșan, Emödi 1981, 163, no. 4, Fig. 5/1.

¹⁸⁴ It is also the case of recent discoveries performed with metal detectors in eastern Hungary: Bukkszerc “Hódostető” (V. Szabó, Bíró 2010, 78–79, Kép. 13), Baks “Temetőpart” (V. Szabó 2011, Kép. 5), Abasár “Hajnácskő” (V. Szabó 2012, 342, Taf 6/3–4).

¹⁸⁵ The sandstone mold was not included in this statistic.

¹⁸⁶ In the statistic, the celts were included among the weapons and the pincers among the tools. The sandstone mold was not included.

¹⁸⁷ Mureșan 2007, 120, no. 8. This item was not included in the graph in fig. 8.

¹⁸⁸ On the fragmentation of bronze items in the depositions from Transylvania see more recently Rezi 2011, 303–334 with the bibliography of the issue.

¹⁸⁹ A case also noted on contemporary sites in eastern Hungary that have been researched with metal detectors (V. Szabó 2010, 20, no. 8).

¹⁹⁰ In the statistic, the saltaleons (Cat.no. 34, Pl. 5/9a-b; Cat.no. 50, Pl. 8/7a-b, 8/8; Cat.no. 51, Pl. 6/5d; Cat.no. 62 – Pl. 8/2a-b) and the wire fragment probably made of bronze (Cat.no. 54, Pl. 6/3a-b) were included among fragmentarily preserved jewelry items.

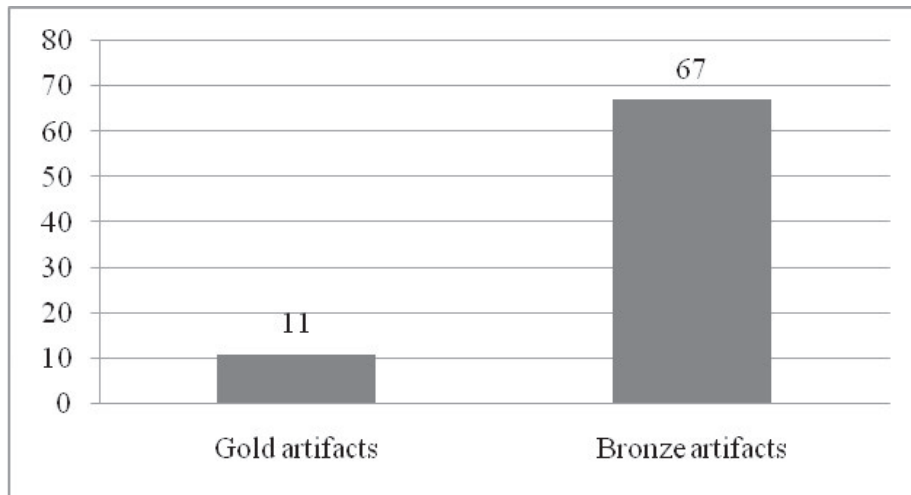


Fig. 8. Distribution of the items according to the metal employed

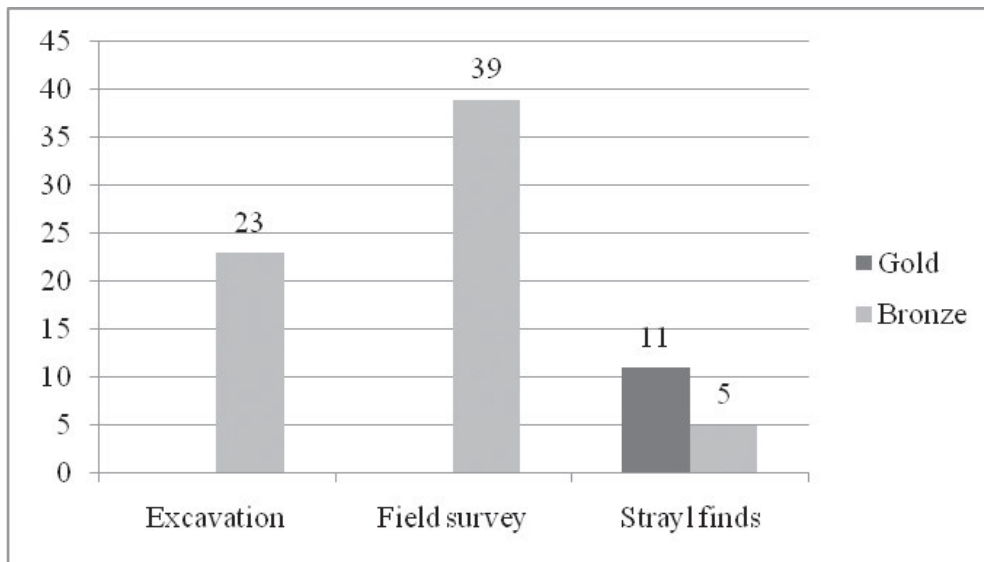


Fig. 9. Distribution of the items according to the conditions of their discovery

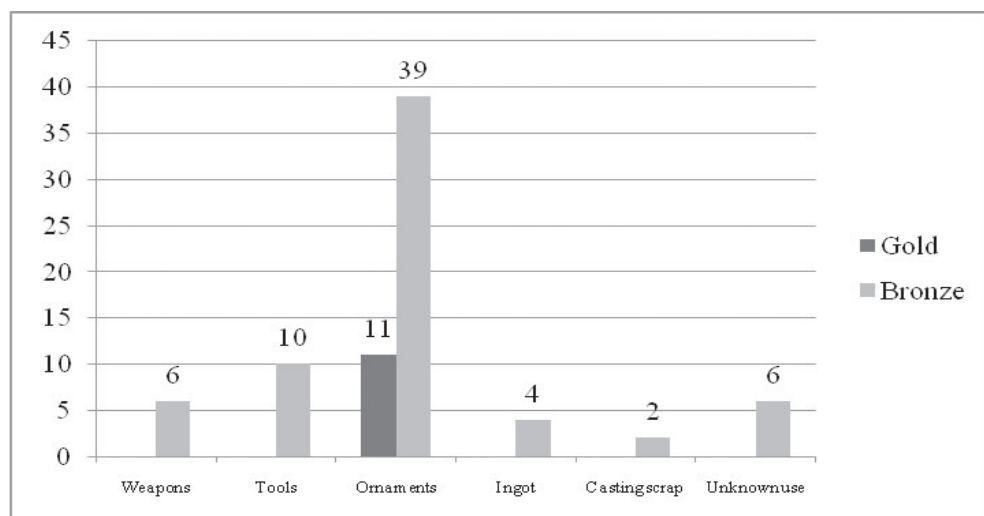


Fig. 10. Distribution of the items according to categories

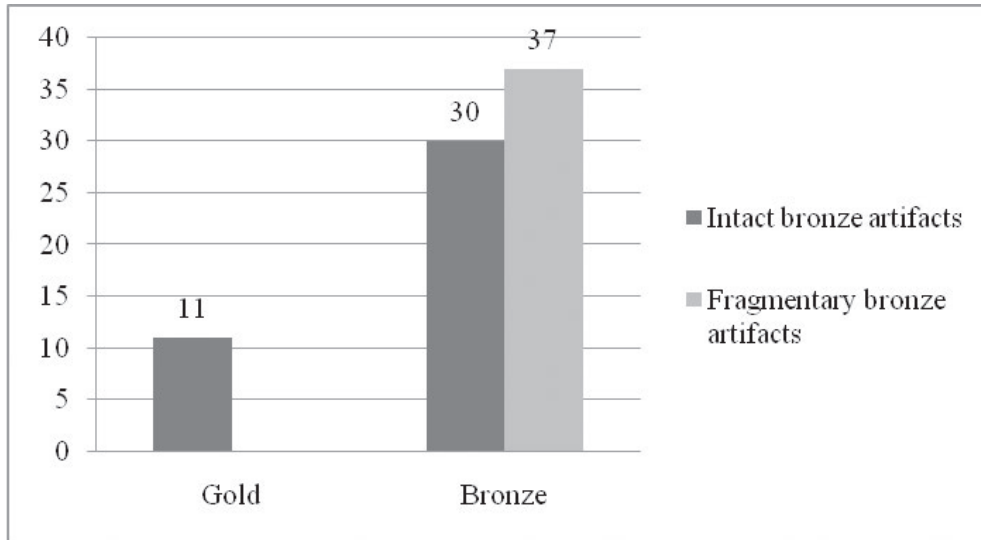


Fig. 11. The ratio of intact and fragmentary objects

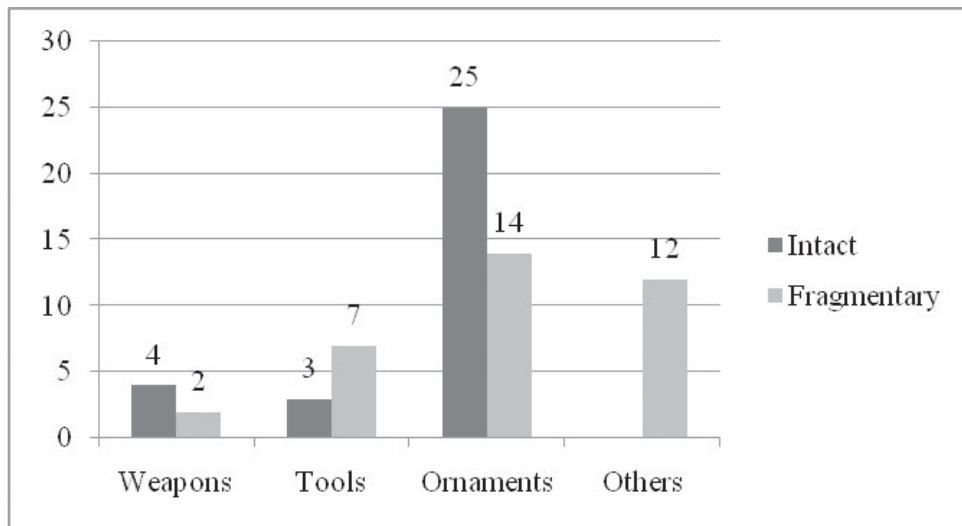


Fig. 12. Fragmentation of bronze object categories

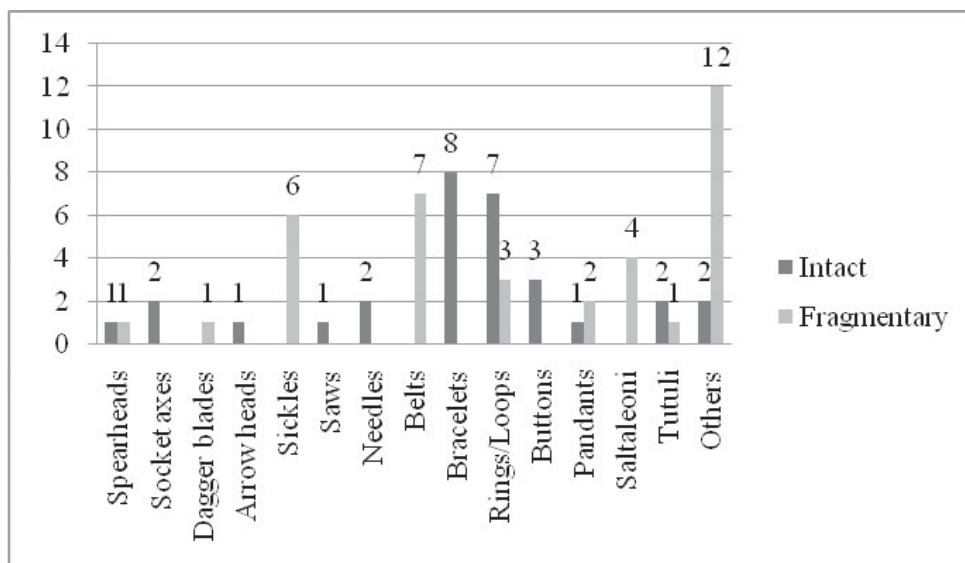


Fig. 13. Fragmentation of bronze object types

For a better understanding of the great number of metal items found in Sântana fortification, one must compare this situation to the others from contemporary settlements in the same area. Older and newer researches have led to the identification in the Lower Mureş area of several large earthen fortifications and a few open settlements. One of the most impressive earthen fortifications of the Bronze Age in Europe is the one in Corneşti "Iarcuri", Timiş County¹⁹¹ (Fig. 14). I. Miloia's and M. Moga's older investigations do not provide data on the discovery of metal artefacts there¹⁹². Recent excavations aimed at studying the defensive elements and at completing systematic on-surface researches¹⁹³. During the 2008 excavations no metal item has been mentioned, though one small bronze loop was found in the rampart of precinct I. As we have already mentioned, field researches in the first fortification from Corneşti did not lead to the discovery of any metal object¹⁹⁴.

B. Milleker mentioned about the fortification in Munar "Wolfsberg/Dealul Lupului"¹⁹⁵ (Fig. 14) that "Numerous archeological traces can be seen from Munar. Thus, on Jost Ivan's land plot, located towards Sânpetru German, a financial inspector discovered numerous clay pots in 1904. These were black urns with prominences, one containing bronze objects"¹⁹⁶. Unfortunately, no further details are provided on the number and type of items discovered on that occasion.

Another large earthen fortification that stands out in the Late Bronze Age landscape in this area is the one in Orosháza "Nagyatársánc"¹⁹⁷ (Fig. 14). The only archaeological excavations performed in "Nagyatársánc" are those coordinated by J. Banner in the summer of 1939. As for the discovery of metal artefacts, Banner's investigations have only identified a seal-headed pin from the inner ditch, at a depth of 50 cm¹⁹⁸.

Another fortification was researched in 2011: it was oval in shape, measured ca. 250x350 m, and was attributed to the Late Bronze Age. It is located several hundred meters from the Hungarian-Romanian border, south of the settlement of Csanádpalota and ca. 6–7 km north of River Mureş (Fig. 14). Several pits are contemporary with the Late Bronze Age ditches excavated in the area that was about to be affected by the future highway sector. One of these pits contained eight bronze artifacts, among which there were three needles, a chisel, a knife, an arrow head, and two plate fragments¹⁹⁹.

Other fortifications dated to the late Bronze Age were also identified through surveys in the county of Csongrád: Makó "Rákos-Császárvár" and Szentes "Várhát"²⁰⁰. One can add several other similar sites discovered in the county of Békés, in south-eastern Hungary²⁰¹. No data is available on the discovery of metal artefacts there.

Bronze artefacts and traces of bronze processing were also identified in some of the large settlements in the area of the Lower Mureş that were not fortified or that do not display visible fortifications. In this category one can mention the settlement in Pecica "În vii=Între vii=Vii" where three bronze deposits were discovered by chance and labeled Pecica II, III and IV²⁰². Recent field researches have led to the identification of a saw blade made of bronze and also of numerous pottery fragments collected over a surface of ca. 20 ha.

¹⁹¹ See the older bibliography in Gogâltan, Sava 2010, 62–69.

¹⁹² Medeleţ 1993, 124–133.

¹⁹³ Szentmiklosi *et. al.* 2011, 823–834. Unfortunately, no reports have been published on the 2010–2012 campaigns.

¹⁹⁴ Gogâltan, Sava 2012, 66–67.

¹⁹⁵ For more details on this fortification see Gogâltan, Sava 2010, 57–61.

¹⁹⁶ Milleker 1906, 98.

¹⁹⁷ Gogâltan, Sava 2010, 52–57 with the older bibliography.

¹⁹⁸ Banner 1939, 105.

¹⁹⁹ Czukor *et al.* 2013, 14.

²⁰⁰ Czukor *et al.* 2013, 15.

²⁰¹ Lichtenstein, Rózsa 2008, 43–65.

²⁰² We are aware of 143 items and one pottery vessel from Pecica II deposition bought by the National Museum in Budapest in 1901 and 1986 (Petrescu-Dîmboviţa 1977, 101–102, Pl. pl. 169/5–18; 170–177; 178/1; Kemenczei 1991). The deposit labeled Pecica III was bought to the Museum in Arad by 1966 from the villagers, as it was discovered in the same settlement, in the spot called "Între vii". The deposit consisted of four items (Dörner 1970, 460, Fig. 14/4) to which M. Petrescu-Dîmboviţa added another celt and a sickle fragment (Petrescu-Dîmboviţa 1977, 102, Pl. 176/24–28). The deposit Pecica IV was found on the same spot, during ploughing works performed in 1969. M. Petrescu-Dîmboviţa mentioned 97 artifacts and illustrated 40 (Petrescu-Dîmboviţa 1977, 102, Pl. 176/29–33, 177, 178/1). As the inventory numbers indicate, the lot counted in fact 99 artifacts.

The excavations performed by F. Móra between 1928 and 1931 have revealed a significant settlement from the end of the bronze Age in Szőreg C. In a pit, maybe a dwelling, at a depth of 1.1m there were found 17 mold fragments²⁰³. A dagger and a sword were discovered as stray finds on the surface of the site in Szőreg C²⁰⁴.

The settlement from Şagu “Site A1_1” was a real surprise, also through the discovery of bronze processing traces. To the 19 small bronze items (weighing together ca. 45 g.) one can add other proof that attest to the existence of a metallurgical activity. Thus, 30 entire and fragmentarily preserved molds made of clay and sandstone were found in features Cx_25, Cx_182, Cx_194 and Cx_198 and can be associated to stage Late Bronze II-III (Bronze D – Ha A). The identified molds were mostly used in the casting of socketed axes and chisels. Most of the molds were found in features Cx_194 and Cx_198. Besides a series of bronze items and molds, archaeologists have also uncovered pottery fragments with traces of bronze smelting inside (thus employed as crucibles) in pit Cx_198, but also bronze casting traces in pits Cx_66, Cx_182, and Cx_193²⁰⁵.

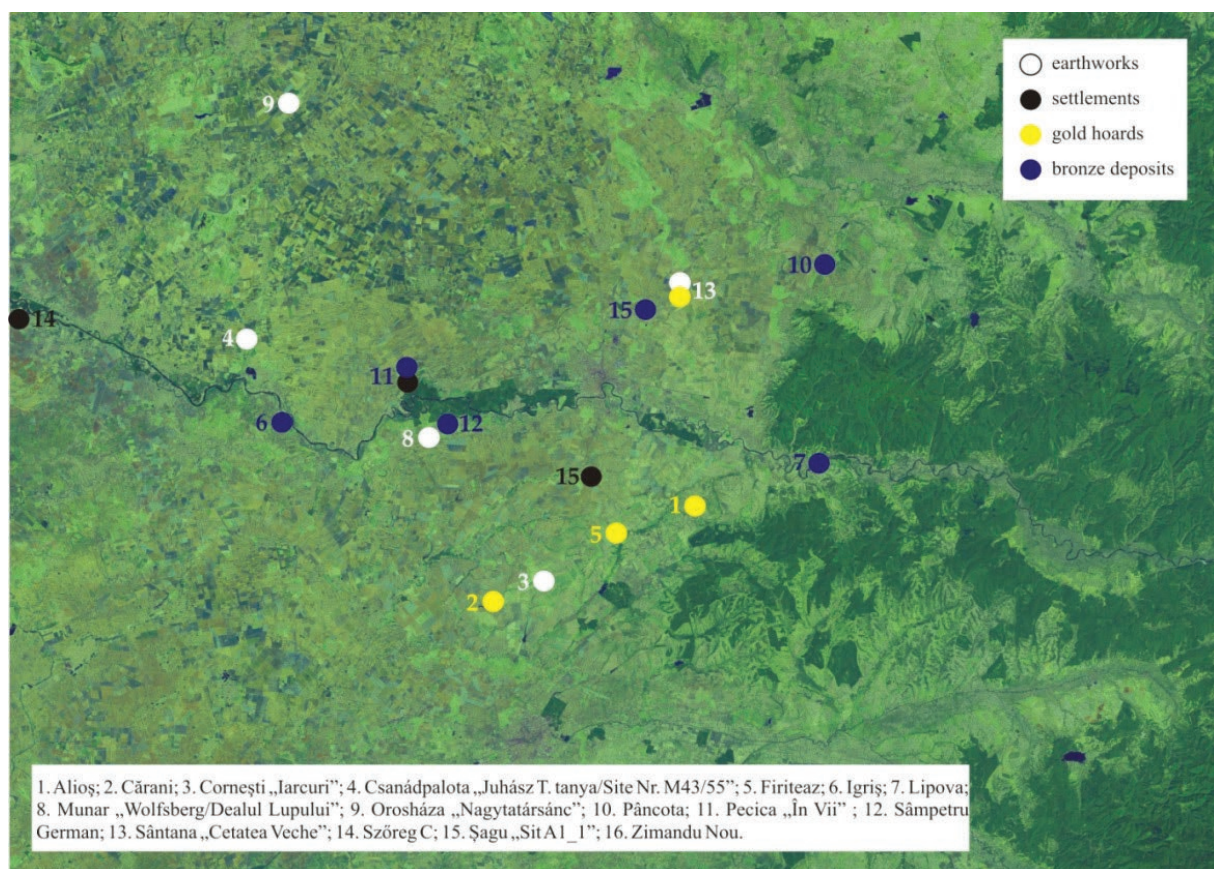


Fig. 14. Satellite photograph of the lower valley of River Mureş with sites that contained metal artifacts and traces of bronze processing dated to Late Bronze II-III (Bronze D-Ha A)

In this context, it is worth mentioning the gold objects found in the surrounding area (Fig. 14). The most significant hoard in the Lower Mureş area was found by chance in 1905 near the fortification at Firiteaz, Arad County. It consisted of 16 bracelets that weigh together 1.29 kg of gold²⁰⁶. There can also be mentioned another hoard consisting of bracelets (0.224 kg of gold), in Carani, Timiş County, near the Corneşti fortification, also consisting of bracelets (0.224 kg of gold)²⁰⁷, and the hoard in Alioş, Timiş County, that had four gold rings²⁰⁸. To these gold hoards one can add eight bronze deposits,

²⁰³ Mozsolics 1985, 196–197, Taf. 273–274; Fischl 2000, Abb. 20–21.

²⁰⁴ V. Szabó 2002, 20, Kép 90/ 4–5.

²⁰⁵ For a more detailed discussion see Sava *et al.* 2011, 50–55, Sava *et al.* 2012, 83–107.

²⁰⁶ Mozsolics 1973, 194; Taf. 78–79; 80/1–5.

²⁰⁷ Mozsolics 1973, 199–200; Taf. 106.

²⁰⁸ Mozsolics 1973, 207.

discovered in Lipova²⁰⁹, Igrış²¹⁰, Pecica II²¹¹, Pecica III²¹², Pecica IV²¹³, Sânpetru German²¹⁴, Zimandu Nou²¹⁵ and probably Pâncota²¹⁶.

From what is currently known, except the deposits discovered in the settlement from Pecica „În vii”, the most numerous metal items in the Lower Mureș area were found in the fortification of Sântana "Cetatea Veche". The striking difference in the number of metal objects or traces of metal processing in settlements has also been noted in eastern Hungary. There are thus settlements such as Baks "Temetőpart", with more than 1700 objects, Szilvásvár "Kelemen széke" with over 300, and Bükkzsérc "Hódos-tető" with 81 metal objects. On the other hand, there are sites such as those in Abasár "Rónya-bérc", Abasár "Hajnácskő", and Mátraszentimre "Óvár" with less than five discovered metal items²¹⁷. A similar situation has been attested through classical archaeological researches in northern Hungary²¹⁸.

As for their interpretation, as previously indicated, some artefacts were part of funerary inventories, but most were found out of context. In eastern Hungary, researches with metal detectors in contemporary open or fortified settlements have revealed several bronze depositions, gold hoards, or isolated items made of gold or bronze. According to G. V. Szabó, it is hard to tell if all these finds had been intentionally hidden or ended up in the soil by chance. Szabó nevertheless concludes that: "Our experiences suggest that most of these objects were accidentally buried due to some profane reasons"²¹⁹. We believe this hypothesis as probable also for most of the metal items found in Sântana.

We have started this study with a quote from Homer on the riches of the fortification in Mycena. The association between metal and power/prestige, either divine or lay, is much older than the information in Homer's *Odyssey*. In order to remain in the field of literary sources, the archives from the palaces in Ebla, Ugarit, Akkad, and Ur provide, starting with the third millennium B.C., interesting data on the inter-regional commerce in which copper and the noble metals played a very important role²²⁰. The same pieces of information on the role of metal and prestige military equipment (chariots, helmets) in Bronze Age society can also be found in Linear B writings²²¹.

Does the large number of gold, copper, and bronze items reflect the position that the settlement in Sântana "Cetatea Veche" had in the area of the Lower Mureș? We have seen that some sites have revealed numerous objects made of metal, while other almost none²²². There may be different explanations, ranging from the state of research to the attitude of different communities on the issue of depositing metal items and the manner in which the settlements were abandoned. The settlement in Șagu, with discoveries that reflect a significant metallurgical activity, was probably part of the *hinterland* of the large fortification in Cornești²²³. A settlement's size and impressive fortified elements best define its status²²⁴. As mentioned above, it is possible that the prosperity enjoyed by the inhabitants of "Cetatea Veche" in Sântana was also based on the control they had on the copper and gold resources in the area²²⁵. The presence of stone at the base of the enclosure III and the immense quantity of timber

²⁰⁹ See no. 131.

²¹⁰ Petrescu-Dîmbovița 1977, 98, Pl. 162; 163/1.

²¹¹ Petrescu-Dîmbovița 1977, 101–102, pl. 169/5–18; 170–175; 176/1–23; Kemenczei 1991.

²¹² Dörner 1970, fig. 14/4; 460; Petrescu-Dîmbovița 1977, 102, pl. 176/24–28.

²¹³ Petrescu-Dîmbovița 1977, 102, pl. 176/29–33; 177; 178/1.

²¹⁴ Petrescu-Dîmbovița 1977, 107; pl. 186/17–18; 187.

²¹⁵ Petrescu-Dîmbovița 1977, 119; pl. 277/14–16.

²¹⁶ Petrescu-Dîmbovița 1977, 157, pl. 374/8–10. M. Petrescu-Dîmbovița believes that this deposition is uncertain.

²¹⁷ V. Szabó 2010, 21. Eight more items were found during the 2009 research campaign in Mátraszentimre "Óvár" (V. Szabó 2010, 23). On the other hand, the research of more than 40 ha, i.e. the area covered by the fortified settlement in Abasár "Rónya-bérc", has only led to the discovery of two new items (V. Szabó 2010, 24).

²¹⁸ Thirteen items were found during archaeological excavations in the settlement of Bükkzsentszlászló "Nagysánc" alone (Matuz, Nováki 2002, 33, Abb. 110/1–13).

²¹⁹ V. Szabó 2010, 21.

²²⁰ Klengel 1995, 39–48.

²²¹ Ventris, Chadwick 1973, 352–381.

²²² It is also the case of other contemporary settlements that have been recently researched. In Vlaha "Pad", Cluj County, despite the fact that the settlement was almost entirely excavated (more than 16.000 m²) and hundreds of complexes were identified, hardly a few bronze objects were discovered (Gogâltan *et al.* 2011, 164–167). A similar situation was also noted in Petea "Csengersima" (Marta 2009, 44–45) and Nyíregyháza-Oros "Úr Csere" (Bejinariu 2010, 47–53).

²²³ Gogâltan, Sava 2012, 64.

²²⁴ On "Constructing Power" see the studies in Maran *et al.* 2006.

²²⁵ Gogâltan, Sava 2012, 67.

required in the erection of the defensive rampart indicate that the territory of the settlement extended at least as far as to include the surrounding hills (Fig. 2). As it is natural, a series of smaller settlements were found around the fortification²²⁶. These were most probably “dependent settlements”, part of the tributary economic system developed around the central settlement²²⁷. The copper lump fragment (Cat.no. 48, Pl. 6/10a-b) is yet another discovery that suggests these people processed metal locally and had access to the copper ores in Zărand Mountains²²⁸. It is hard to establish the nature of this type of access, and the various hypotheses that can be formulated remain purely speculative. What is certain is that the metal objects described above can be connected to the power and prestige that Sântana “Cetatea Veche” seems to have enjoyed among its contemporaries.

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²²⁶ Gogâltan, Sava 2010, 39–41.

²²⁷ Model presented for example in Bernbeck 1997, 163–174.

²²⁸ Duma 1998.

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Plate 1. 1-5, 7-11, 14. Artifacts discovered in 1963's excavation; 6. Socket axe discovered by I. Măriñoiu in 1954; 12. Sickle discovered by I. Măriñoiu in 1954 (after Rusu *et al.* 1996); 13. Spearhead discovered in 1963.

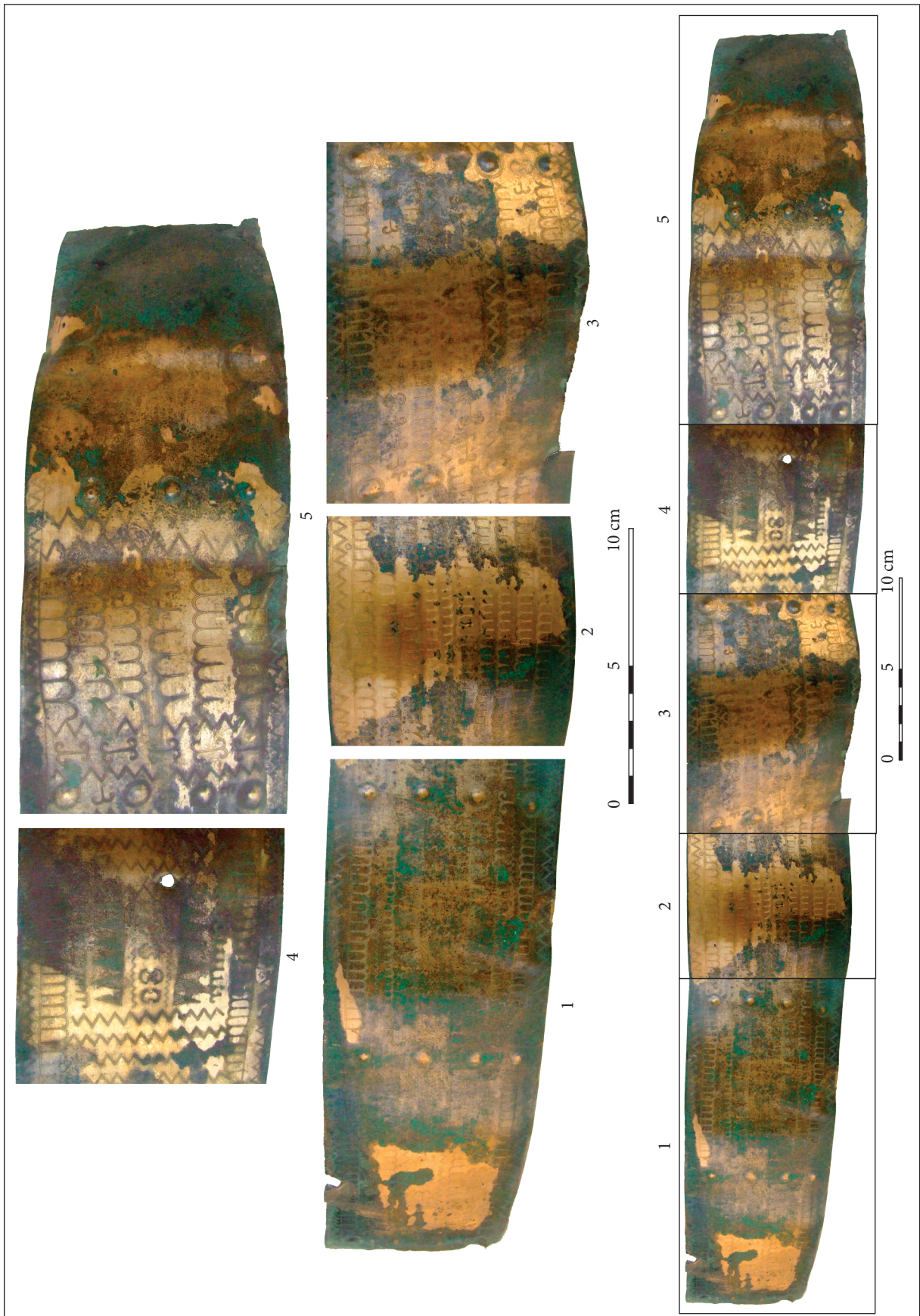


Plate 2. Belt discovered in the 1950's.

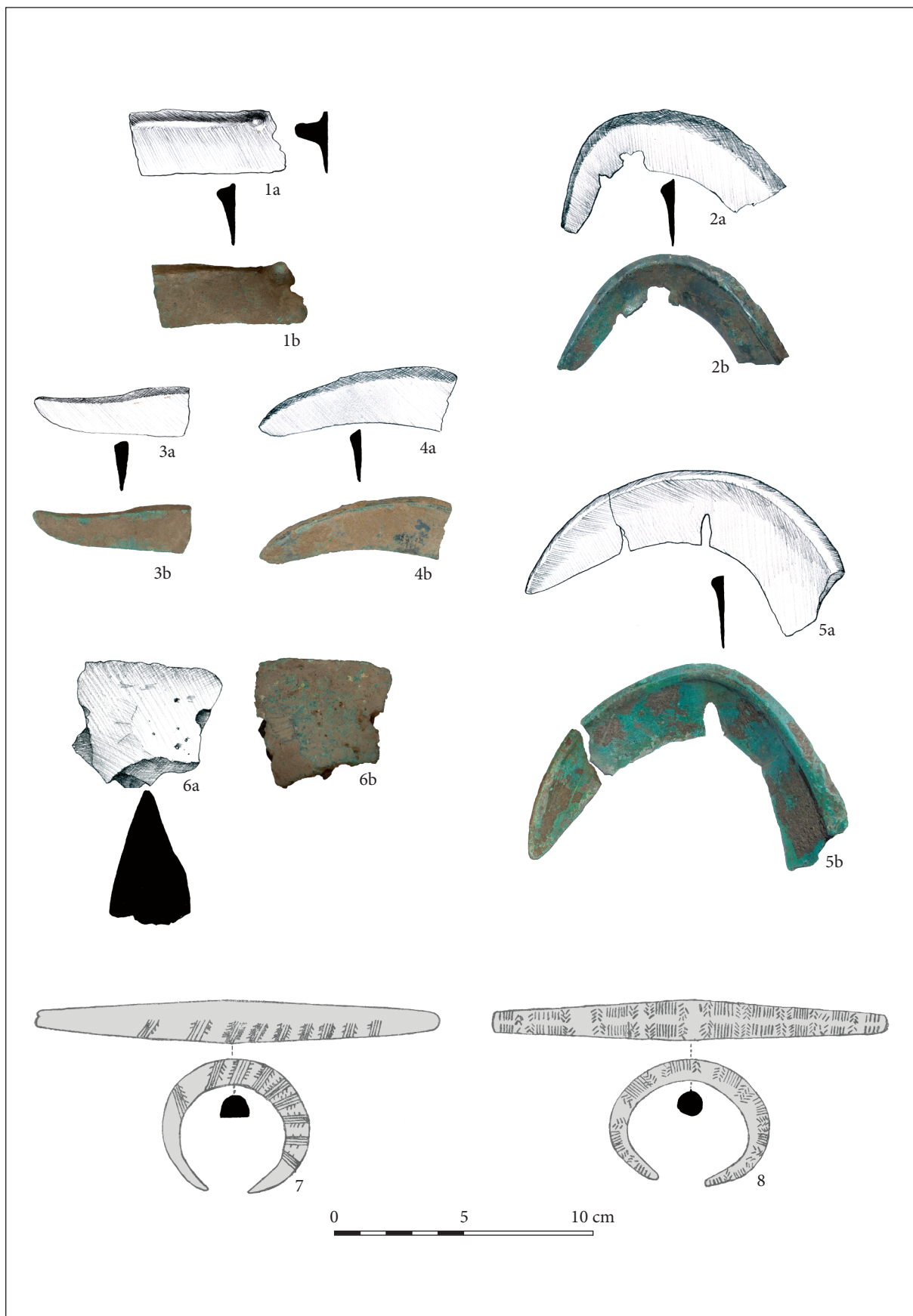


Plate 3. 1-6. Artifacts discovered by G. Ciaciş in 1997; 7-8. Artifacts discovered by A. Bulza in 1982 (after Mureşan 1987).

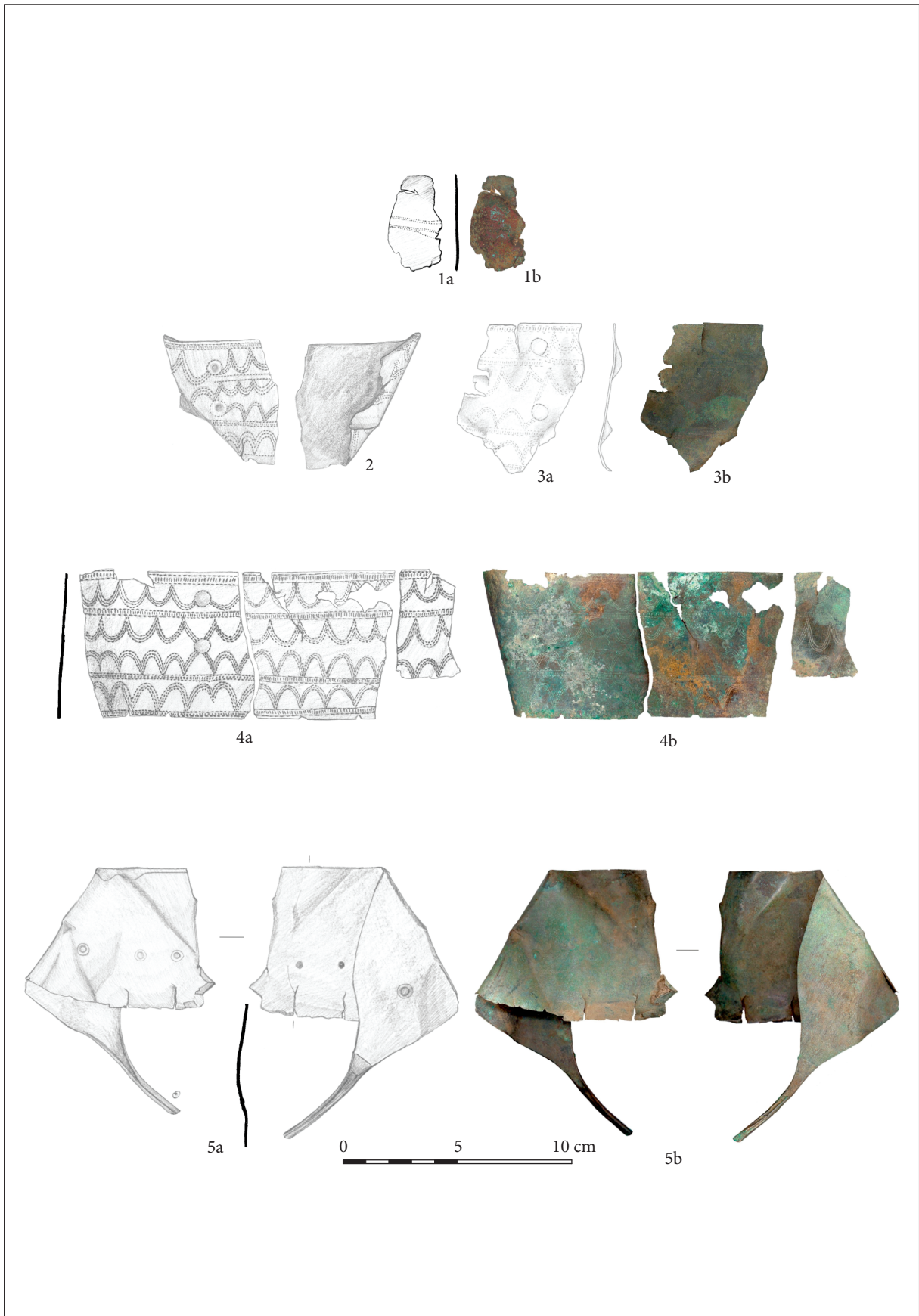


Plate 4. Artifacts discovered by L. Mercea, between 2008-2011.



Plate 5. 1-5. Artifacts discovered by L. Mercea, between 2008-2011.



Plate 6. Artifacts discovered by archaeological research team, between 2008-2012.

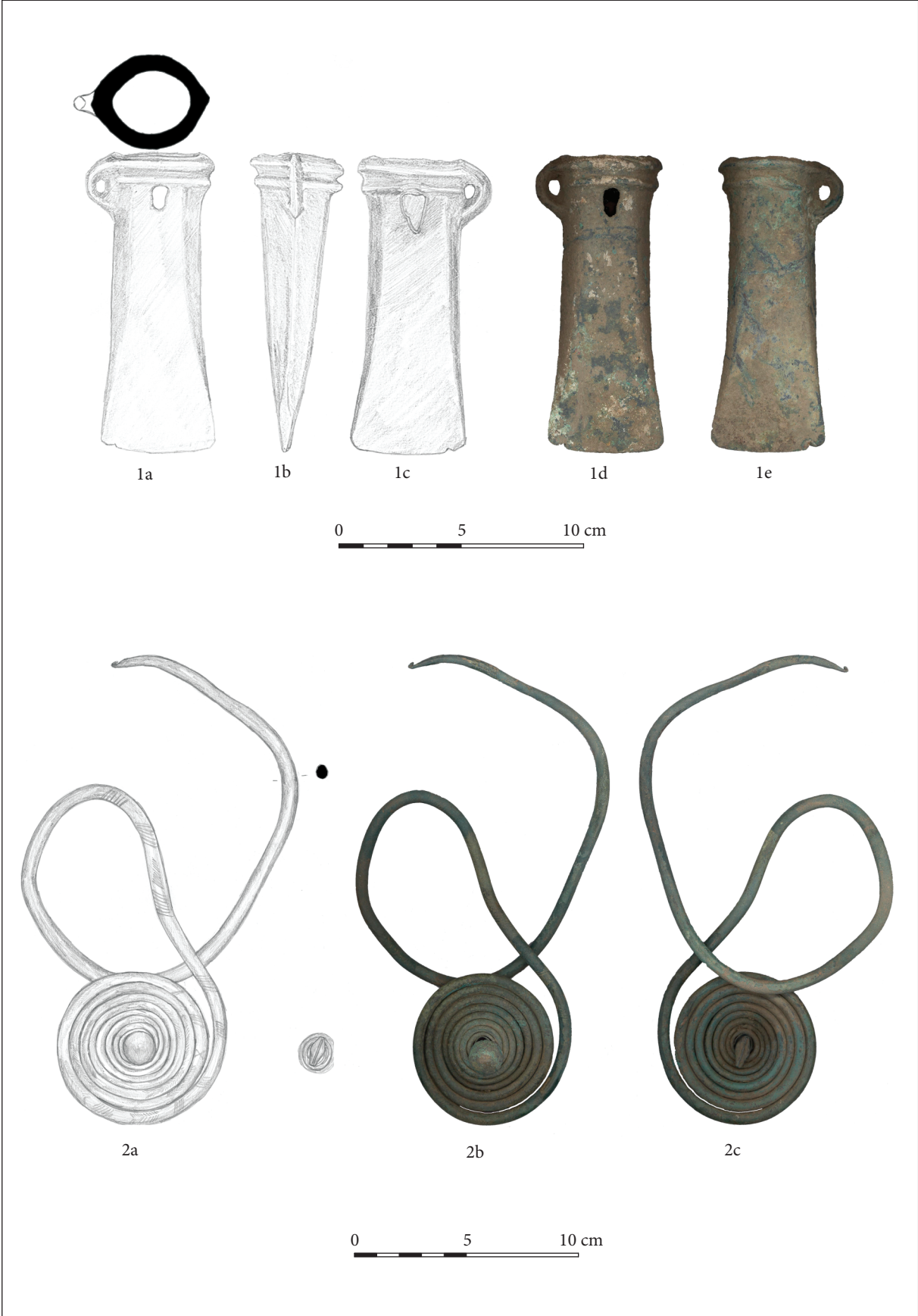


Plate 7. Artifacts discovered by archaeological research team, between 2008-2012.



Plate 8. Artifacts discovered in 2009's excavation.

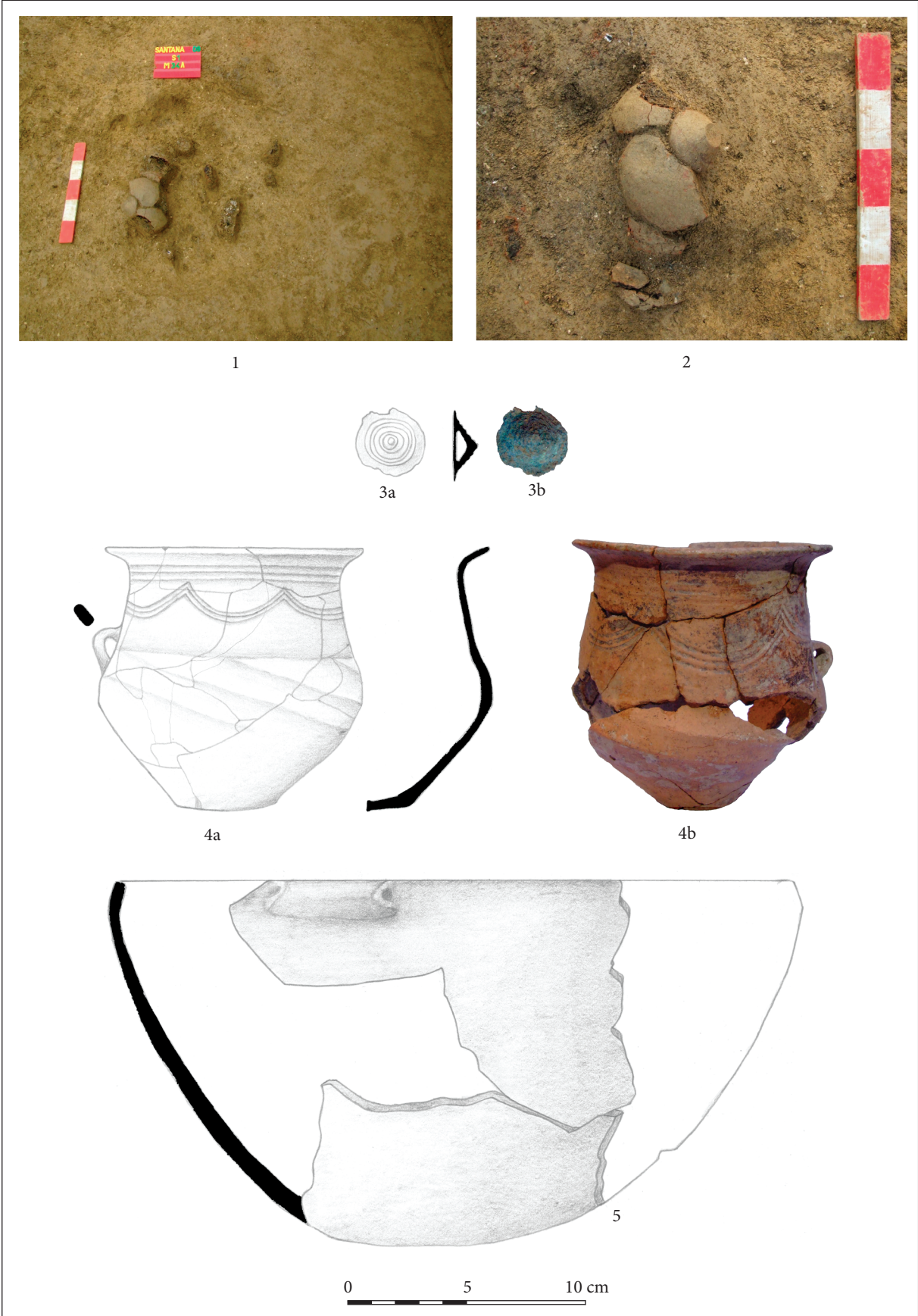


Plate 9. Artifacts discovered in 2009's excavation.



Plate 10. Artifacts discovered in 2009's excavation, feature Cx_40.



Plate 11. Artifacts discovered in 2009's excavation, feature Cx_02.