

Report on Archaeological Investigations at Pecica “Șanțul Mare”— 2013 Campaign

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Introduction

Pecica Șanțul Mare has long been hailed as one of the most important Bronze Age settlements in the Carpathian Basin. This prominent tell has been the focus of excavations since the early 1900s (Crișan 1978; Hügel, et al. 2012), which have helped to define the Mureș (Maros) culture and to establish broader regional chronologies. A recent collaborative project between the University of Michigan, Complexul Muzeal Arad, and Muzeul Banatului Timișoara, conducted excavations at Pecica from 2005 through 2011 with funding from the National Science Foundation (USA). This work greatly refined the chronological sequence for the Mureș Culture through a large-scale radiocarbon dating program. In addition, systematic excavations on and off of the tell have produced an unparalleled level of detail about Pecica’s Middle Bronze Age occupation and provided new, and often unexpected, insights into its development (Nicodemus 2012; O’Shea, et al. 2012; O’Shea, et al. 2006; O’Shea, et al. 2005).

After a study season in 2012, a multi-year collaborative project was renewed between the University of Michigan and the Complexul Muzeal Arad in 2013. This work is also funded by the National Science Foundation (USA). The principals of this collaboration are Dr. John O’Shea (University of Michigan) and Mr. George Pascu Hurezean (Arad). Dr. Peter Hügel and Dr. Victor Sava provided support from the Complexul Muzeal Arad. Dr. Amy Nicodemus (University of Michigan) helped to oversee day to day operations. Dr. Laura Motta (University of Michigan) consulted on the recovery and analysis of plant remains from the site. Metals and metalworking byproducts are being analyzed by Dr. Chris Papalas (Wayne State University).

Goals

The 2013 research campaign conducted systematic excavations on the central tell (Figure 1). The specific goals of the season were to 1) re-expose the guiding profile in Trench 1, 2) continue the layer by layer excavations in the 10 by 10 meter primary excavation block, 3) investigate deposits under the large platform construction, and 4) continue excavations of and identify new structures and associated features (Figures 2 and 3).

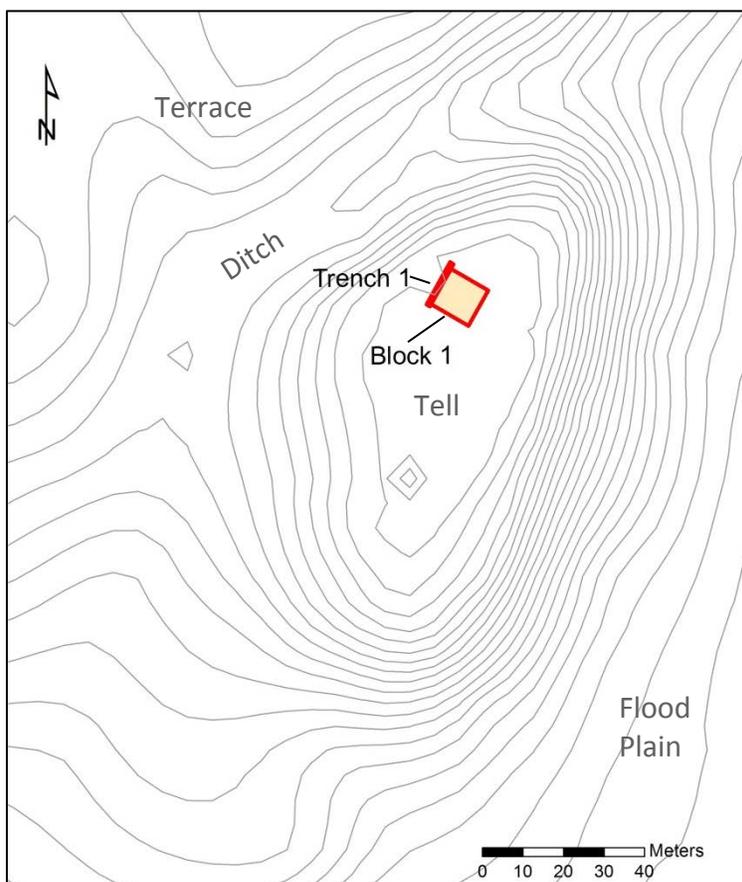


Figure 1: 2013 excavation areas

Methods

Field work at Pecica started on June 26 and ran through August 16, with an additional week of full-time laboratory analysis until August 22. Excavations began with the removal of backfilled sediment, cleaning of the trench and block profile walls, and re-establishment of the 10 by 10 meter grid that was placed in 2006 within the main excavation block. The grid is divided into 2 by 2 meter squares that serve as units for excavation and data recording within

general fill layers. Fill is removed by natural stratigraphic layers; very thick, undifferentiated deposits are subdivided into arbitrary 15 centimeter levels. Features and structures are excavated as discrete contexts by internal stratigraphic layers. Large structures are also divided into 2 by 2 meter units to maintain spatial control over artifact recovery. Portions of the block were left unexcavated to create walkways and preserve underlying deposits.

Excavation, data collection, and artifact sampling strategies follow methods established in previous years (O'Shea, et al. 2012; O'Shea, et al. 2006; O'Shea, et al. 2005). Excavations are conducted on a layer by layer basis using small hand tools. The volume of soil removed per discrete context is recorded to calculate artifact densities. In general fill layers, 10% of the sediment is dry screened with a 0.65 centimeter mesh. Within features, all of the sediment is screened. Flotation samples are collected systematically from each context in order to recover botanicals and to obtain a 100% sample of cultural materials, including micro-artifacts, which provides a control for hand and screen collected assemblages. Two 10-liter samples of sediment are taken from each 2 by 2 meter unit in general fill layers, one from the northwest corner and the other from the southeast. Within features, at least one 10-liter sample is taken from within each internal layer. Additional samples are taken as needed from special deposits. Flotation samples are processed in the field using a Flote-tech automatic flotation system.

A Sokkia total station is used to map in three dimensions the location of significant finds, including all diagnostic ceramics, stone, metal, and worked bone/antler artifacts. Perimeters and elevations of fill layers, features, and structures are also electronically mapped, which supplements hand drawn plans and profiles and digital photographs. Special samples are collected for intact botanical deposits (seeds, pollen, unburned wood), carbon samples for radiometric dating, and sediment for geological micro-morphological study. These samples are all mapped and photographed *in situ* prior to removal.

Primary processing of artifacts and various samples are done in the field laboratory during the excavations. This includes cleaning, sorting, counting, and weighing materials collected from excavations and flotation samples. All diagnostic artifacts are photographed. Individual artifact classes are then inventoried and packaged for storage at the Complexul Muzeal Arad. Specialist analysis of materials is currently on-going. At the end of the 2103 excavations, the excavation surface and profile walls were covered with plastic sheeting and securely anchored with sediment.

Results

The 2013 season was successful in achieving the planned research goals. The results presented here must be treated as preliminary as analysis of this year's data and artifacts are in process and subject to change upon further work.

In the western portion of the block, excavations targeted a series of structures comprising occupation Phases 5a and 5b (Table 1, Figures 2 and 3), which span the period from c. 2000 to 1850 cal. BC. Excavations of Structure 5 continued from 2009 in the southwest portion the block. Only a corner of the structure lies within the excavation area, but two walls and several internal layers of fill and floor were encountered. Other than a lined basin found in the previous season, there are no additional features within this structure.

Table 1: Pecica stratigraphy and radiocarbon dates¹

Pecica Period	Phase	Site Layer	Date (cal. BC)	Architecture	Ceramics	Comments
Late Period	1	B1-3	Post-1600	Fragments only	Baroque styles, Classic Mureş vessels	Final BA occupation, possibly deteriorating environment
	2	C1-3	1600-1700	Structures 0, 1	Baroque styles, Classic Mureş vessels	
Florescent Period	3	C4-5/ D0-2	1700-1775	Platform, Structures 2, 4 (upper), final horse bone features?	Baroque styles, Classic Mureş vessels	Intensive metallurgy and horse rearing
	4	D3, Upper E	1775-1850	Structures, 3, 4 (lower), horse bone features, unburned wood planks	Baroque styles, Classic Mureş vessels	Intensive metallurgy and peak horse rearing
	5a	Lower E	1850-2000	Structures 5-8, earliest horse bone features, unburned wood planks	Initial baroque styles, Classic Mureş vessels	
	5b			Structure 11	Classic Mureş vessels	
Early Period	6+	F+	Pre-2000		Classic Mureş vessels, 'rusticated' wares	Lower trench deposits, end of EBA sequence

To the north, Structure 8 was further exposed after initial identification at the end of the 2009 season. The upper portion of this structure was burned, preserving a range of architectural elements, including *in situ* posts and planks within narrow wall trenches. The lowest floor and fill layers were largely unburned. There are a series of three superimposed ovens within the structure as well as several small, informal hearths located outside of the structure.

¹ Note that the absolute date ranges for Pecica's periods have been updated using OxCal 4.2 and the new C14 calibration curve IntCal13: Northern Hemisphere (Reimer et al. 2013).

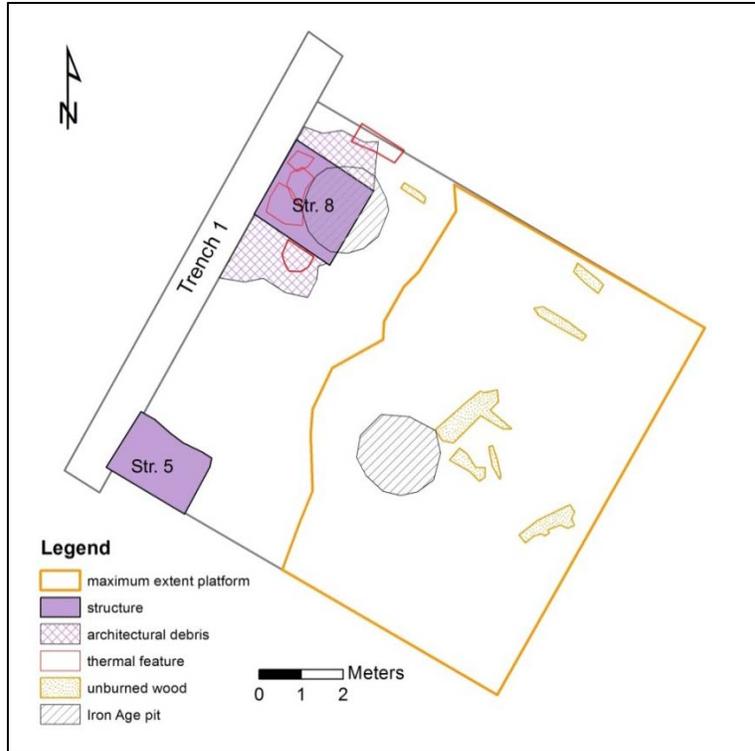


Figure 2: Major features Phase 5a



Figure 3: Major features Phase 5b

Structure 11 (Figure 3) was encountered under Structure 8, with a layer of fill separating them (Figure 4). Like Structure 8, the final (uppermost) occupation layers of Structure 11 are intensely burned with thick wall collapse (fired daub) and other architectural materials, including charred posts and wattle-work (Figure 5). Underlying deposits are unburned and a series of seven thin floor resurfacing layers abutting a small internal wall were removed as well as several internal hearths. Additional lower floor layers from Structure 11 remain unexcavated, extending well beyond the perimeter of burned debris. Two wall trenches were exposed along the north and east perimeter of the structure at the end of the season (see also Figure 7).

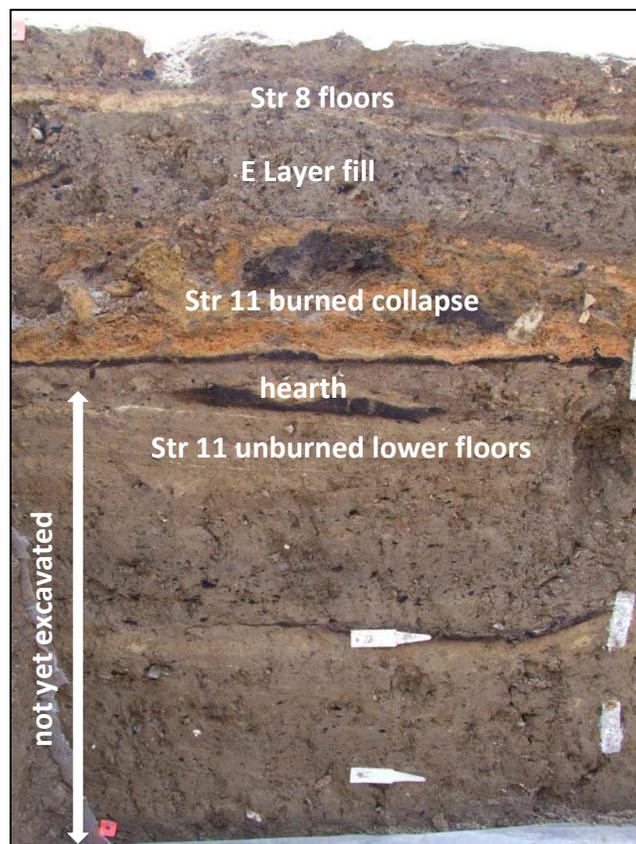


Figure 4: Trench 1 profile (N16 unit) with superimposed Structures 8 and 11



Figure 5: Wattle work in burned collapse layer, Structure 11

Work in the eastern half of the block focused on deposits underlying the burned platform (Layer D0), which was removed in 2008 (Figure 2). An important question was whether or not this area also served as a central, open area prior to the platform's construction. Excavations exposed the very thick fill deposit, Layer E, which covers the entire block. No houses or other *in situ* domestic features were found under the platform. It does appear that this area was in fact an open space during this phase of occupation, but lacks the formal platform construction of the subsequent period (Table 1).

Of particular interest are a number of large, unburned pieces of wood situated throughout this open area, which are either thin wood planks or bark sheets (Figures 2 and 6). Several of the pieces overlap at right angles while the others are scattered and unevenly oriented. Some had yellow clay adhering to their undersides. While these wood pieces likely originate from structures of some type, they do not appear to form a single, intact construction and are not associated with any other *in situ* architectural elements or domestic features. The fill in which the wood was found (upper E layer) contains a high density of large debris, especially animal bone and ceramics, suggesting that this area was used as a midden prior to the platform construction. Because these unburned wood pieces are rare and very fragile, special attention

was given to their preservation. A conservator from the Complexul Muzeal Arad stabilized the wood using paraloid B-72, which allowed for large sections to be removed intact. Additional samples were taken for botanical analysis and radiometric dating.



Figure 6: Unburned wood (Feature 192) and concretion pile in E layer under D0 platform (unit N14 E16)

Other features discovered in 2013 fall into a small number of classes: ash-filled depressions, bone and concretion concentrations, and posts. A series of small, shallow depressions filled with ash and charcoal were identified that appear to be oven cleaning deposits. They lack the high degree of burning and formal ceramic linings or clay domes found in other thermal features (ovens, hearths, etc.) that are in direct association with structures. Concentrations of large animal bones and carbonate concretions are ubiquitous throughout the thick E layer fill in open areas of the settlement (see also Figure 6 center). Some of the animal bone clusters represent localized refuse disposal, but others have been incorporated into more formal constructions, including those with concretions or large daub/ceramic pieces. These appear to have been used to brace large posts.



Figure 7: End of season block overview and Structure 11 exposure, view to grid east (see also Figure 3)



Figure 8: End of season block overview with protective plastic sheeting and backfill

Artifact classes recovered in 2013 in general mirror the range of finds from previous seasons. There are very large assemblages of ceramics and animal bone, as well as smaller collections of worked bone and antler tools, chipped and ground stone, and metal and metal working debris. Of note this year are several fine antler composite tools (harpoon head, metal tool handle), new types of groundstone items (pendant, small pestle), marine shell and amber beads, and a lump of raw amber (Figure 9).



Figure 9: Select special finds 2013 (left to right): harpoon head, groundstone pendant, raw amber

Summary

During the 2013 season we were able to answer a number of important questions concerning the developmental sequence and organization of settlement on the tell. Radiocarbon dates from new Phase 5 contexts confirm our previous periodization, which places this occupation from c. 2000 to 1850 cal. BC, representing the beginning of the Middle Bronze Age. During this time, there was a central open area around which houses were constructed. In the latter part of Phase 5, two contemporary structures existed, Structure 5 and Structure 8. Structure 5 is the earliest of a series of three distinct superimposed structures situated in the southwestern part of the excavation block (Structures 2, 3, and 5). To the north, Structure 8 immediately overlies Structure 11. These are part of a separate series of houses located in the northwest block, which include Structures 1, 4, 6, and 7 (see also O’Shea *et al.* 2012, Figure 3). While these two areas were maintained as discrete habitation areas over many generations, houses were periodically abandoned and new structures were built over old ones, often with slightly offset locations, opposing orientations, and different construction styles. For Structures

8 and 11, the final house occupations were burned. The northwestern house series are also associated with a large number of superimposed thermal features throughout the occupation sequence. In contrast, we have not found hearths or ovens within the southern house series, but it must be noted that only small portions have been excavated. It is clear that the basic organization of settlement was maintained for long periods, with distinct domestic and public areas.

Based on the range of features and artifacts recovered, day to day activities during the Phase 5 occupation were largely similar to later periods. A variety of plants and animals were being processed, consumed, and disposed of in and around the living areas. Most of these are domestic species, but a range of wild resources were also consumed, as is typical for this settlement (Nicodemus 2012). Compared to the subsequent period (Phase 4), however, there appears to be far less utilization of large animals, particularly horses. A variety of crafts were manufactured on site, including weaving and working of animal hides, bone/antler, stone, and wood. Metalworking is attested by crucibles and slags, although specific workshops were not identified in this area. The density of these materials is lower than in the subsequent periods (Phases 3 and 4) and it appears that metalworking was not as intense during this time. We also see changes in some imported goods. While *Columbella* beads are utilized throughout the occupation sequence, in Phase 5 we also find *Cardium* shell. Similarly, amber beads have been recovered from all major periods, but in Phase 5 a lump of raw amber was unearthed (Figure 9), which indicates that at least some of the beads were made locally. The presence of marine shell and amber also highlights the settlement's participation in extra-regional trade networks, spanning the Baltic coast to the Mediterranean. At a smaller scale, regional exchange is represented by a range of imported stone and metal resources from the greater Carpathian region.

Future Directions

The excavations this (and previous) seasons have laid a strong foundation for continued work in 2014. To date, we have a detailed record of the peak period of occupation at Pecica and its eventual collapse (Phases 4 through 1) (Nicodemus 2012; O'Shea, et al. 2012). We will continue to explore earlier phases to document how Pecica came to emerge as an important regional center and to establish the date of the settlement's founding. In order to answer these questions, in 2014 we plan to 1) continue excavation of the exposed structures, 2) further explore

E layer deposits and associated features throughout the excavation block, and 3) deepen the exploratory Trench 1 to guide excavations of lower site layers.

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(Reimer, et al. 2013)

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