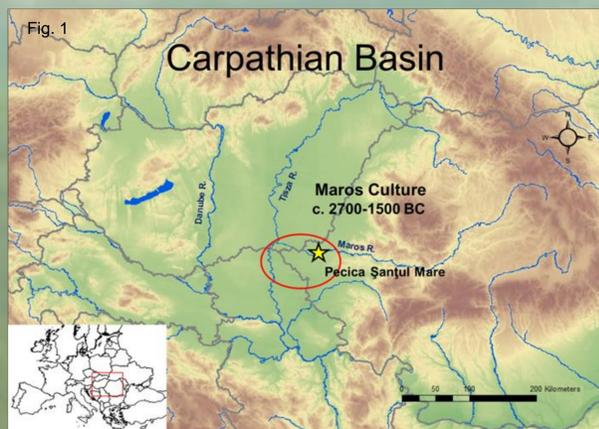


From the Bronze to Iron Age: Diachronic Faunal Investigations at Pecica Șanțul Mare, Romania

INTRODUCTION

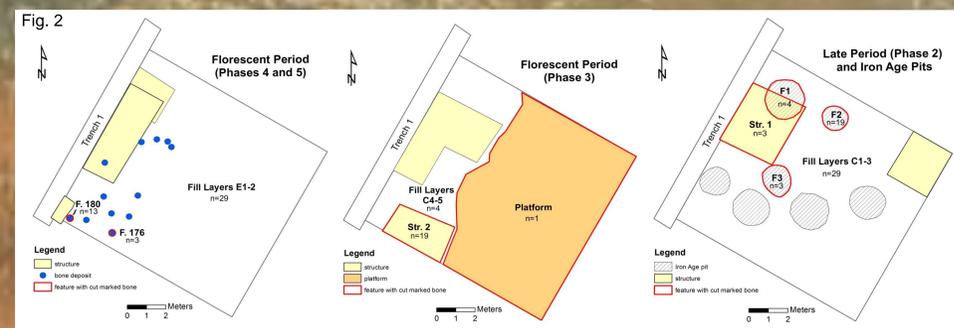
Pecica Șanțul Mare is a large, fortified tell settlement located along the Maros River in Arad County, Romania (Fig. 1). Most of the occupation belongs to the Maros/Mureș Culture, which spans the Early-Middle Bronze Ages. It also has significant Iron Age (Dacian) and Medieval components. Pecica has been the focus of systematic excavations since 2005 (O'Shea et al. 2012). Over 20,000 animal bones have been examined, with a focus on changes in pastoral systems related to the emergence of regional hierarchies (Nicodemus 2012, 2013). **New research combines analyses of animal husbandry and butchery practices to clarify social and technological changes occurring through the Bronze and Iron Ages.**



Pecica Period	Phase	Site Layers	Date (cal. BC)	
Iron Age	Dacian	intrusive pits	300-100	
Middle Bronze Age	Late Period	1	B1-3	1600-1500
		2	C1-3	1720-1600
	Florescent Period	3	C4-5/ D0-2	1770-1720
		4	D3, E1	1820-1770
		5a	E2-3	1850-1820
5b	E4-5	1900-1850		
Early Bronze Age	Early Period	6+	F+	Pre-1900

CHRONOLOGY

To date, 500 years of Bronze Age settlement has been examined, falling into three major periods (Tab. 1, Fig. 2). During the Florescent Period, Pecica emerged as a regional center. This period is marked by expansion in settlement size, increased occupation density, large-scale metal production, and high frequencies of imported goods. At this time, we also see the construction of unique features, including a central platform and a series of ritual animal bone deposits. The Late Period marks the settlement's collapse and eventual abandonment. Pecica was reoccupied during the Iron Age.



CUT MARK STUDY

Cutmarks were grouped into four classes: gashes, nicks, wedges, and slices (Lemke 2013) (Tab. 2, Fig. 3). The formal attributes of each cutmark class, as well as their distribution across different taxa, elements, and time periods were analyzed. Gashes and wedges are made with heavy duty tools (such as Iron or Bronze axes) and result during primary butchering/dismemberment activities. They are over-represented on high-medium utility elements¹. Slices and nicks, made with metal knives or stone blades, are the result of fine cutting (tendon/ligament detachment, filleting) and slices also are associated with skinning.

Amy Nicodemus and Ashley K. Lemke

Tab. 2

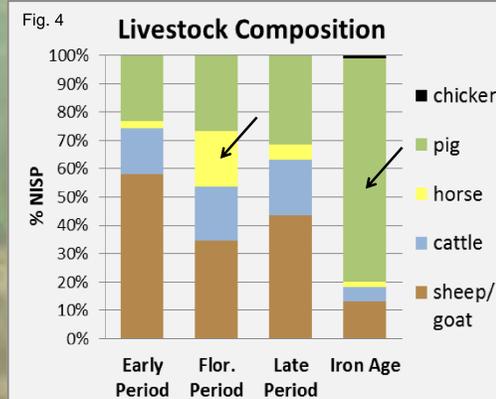
Cutmark Type	Definition	Early Per.	Flor. Per.	Late Per.	Iron Age	Total
Nick	angled, short (<6.4mm), parallel to long axis	13	42	14	5	74
Slice	angled, long (>6.5mm), perpendicular to long axis	7	25	19	2	53
Wedge	broad, wide, v-shaped cross-section	4	0	1	3	8
Gash	wide, u-shaped cross-section, deep or through bone	1	1	0	16	18
Total		25	68	34	26	153



EARLY PERIOD (EBA)

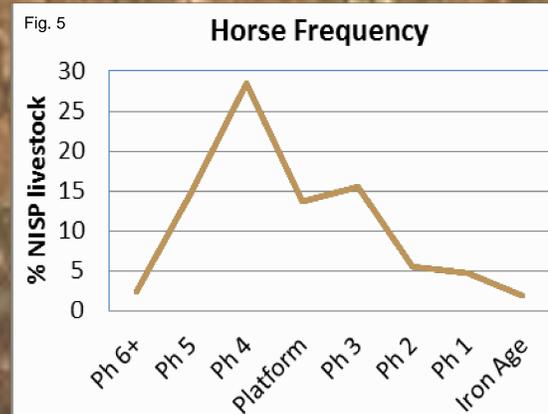
- Animal management practices small-scale and risk-averse
- Smaller-bodied livestock dominant, particularly sheep (Tab. 3, Fig. 4).
- Generalized husbandry systems, balancing production of meat and secondary products
- Frequent gash and wedge cutmarks indicate primary butchery on the central tell.

	Early Period	Flor. Period	Late Period	Bronze Age Total	Iron Age
NISP	1247	8084	7281	16612	2863
wild vs. domesticates					
domesticates	90.9%	85.3%	76.9%	82.7%	83.0%
wild mammal	7.9%	12.6%	18.9%	14.5%	5.7%
other wild vertebrates	1.1%	2.1%	4.3%	3.1%	11.3%
livestock					
sheep/goat	57.9%	34.7%	43.4%	41.3%	12.9%
pig	23.4%	26.7%	31.5%	27.9%	78.8%
cattle	16.3%	18.9%	19.8%	18.8%	5.2%
horse	2.4%	19.7%	5.4%	11.9%	1.9%
chicken					1.1%



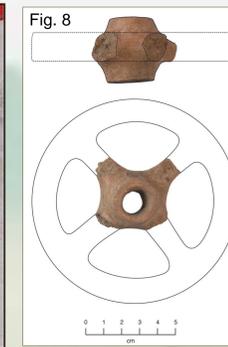
FLORESCENT PERIOD (MBA I)

- Husbandry systems reoriented towards meat production
- Limited evidence for primary butchery on-tell²
- More specialized meat production and distribution systems, possible provisioning of on-tell population
- Adoption of large-scale horse breeding; Phase 4 horses 30% of livestock (Fig. 5), highest frequency in Carpathian Basin
- Construction of ritualized bone deposits (Fig. 7), containing primarily prime-aged female horses; cutmarks demonstrate meat removal (Fig. 6).
- First evidence of chariotry at Pecica, models of 4-spoked wheels (Fig. 8).



LATE PERIOD (MBA II)

- Similar husbandry practices for ovicaprids, pigs, and cattle
- Horse breeding drops significantly (5% of livestock); more horses maintained into old age (25% vs. 8%)
- Greater use of low-utility skeletal elements and low-ranked wild fauna
- Frequent slice cutmarks indicate continued consumption of horses and skinning of red deer and cattle²



IRON AGE

- Pigs dominate Iron Age fauna (80% of livestock)
- Domestic chickens adopted, fishing more important
- Up to 25% more low-utility skeletal elements than in the Bronze Age
- Animals are dismembered on-tell using heavy iron tools; fine cutting and processing is extremely limited.²

CONCLUSIONS

From the Early to Middle Bronze Ages, animal husbandry at Pecica shifts from generalized, small-scale herding to more intensive, meat-focused production systems. Concurrently, much of the primary butchery activities move off the tell. Both of these patterns reflect increasing specialization in meat production and distribution. Within the Florescent Period of the MBA, horse breeding becomes a central component of husbandry systems. At this time, horses were critical for transportation, trade, warfare, and display, and were consumed in ritual events. Iron Age animal economies differ greatly, especially in their preference for pigs. New butchery practices relate largely to the adoption of heavy iron tools, and as in the EBA, primary processing took place on the tell.

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¹ $\chi^2=26.948$, $df=6$, $p<.001$

² MBA I: gashes under-represented, wedges absent; MBA II: slices over-represented; Iron Age: gashes and wedges over-represented. $\chi^2=80.020$, $df=9$, $p<.001$

