

THE 2001 CAMPAIGN IN THE EARLY IRON AGE SETTLEMENT AT POPEȘTI – A ZOOARCHAEOLOGICAL ANALYSIS

VALENTIN DUMITRAȘCU

I. INTRODUCTION

During the archaeological campaign in 2001, 885 animal remains were excavated from the Hallstatt layers.¹ The dry sediment was sieved (loop diameter: 2 mm); therefore small and very small fragments represent the majority of the remains. These small fragments (667) could not be specifically determined (all of them belong to mammals) but they indicate a high degree of fragmentation. Thus, only 218 bone fragments could be identified with certitude.

All the remains have the expected characteristics of a kitchen midden deposit: breaking and cutting traces, intense burn. The majority of the bone fragments have carnivores' teeth traces, most probably made by dogs.

The animal remains were studied for each cultural level: Hallstatt I 1 (Pre-Basarabi of Novaci type), Hallstatt I 2 (Pre-Basarabi of Popești type) and Hallstatt II (Basarabi).

II. DESCRIPTION OF THE ANIMAL REMAINS FROM EACH HALLSTATT LAYER

II.1. Hallstatt I 1

56 bone fragments were determined (table 1).

Tab. 1 - The species frequencies for the Hallstatt I.1 layer (Pre-Basarabi of Novaci type) by number of remains (NR) and minimum number of individuals (MNI)

TAXON	NR	NR %	MNI	MNI %
<i>Bos taurus</i>	15	26	2	15
<i>Ovis/Capra</i>	19	33	3	23
<i>Sus domesticus</i>	11	20	2	15
<i>Canis familiaris</i>	2	4	1	8
Total domestics	47	83	8	61
<i>Cervus elaphus</i>	1	2	1	8
<i>Bos primigenius</i>	2	4	2	15
<i>Lepus europaeus</i>	1	2	1	8
Pisces indet.	5	9	1	8
Total wild	9	17	5	39
TOTAL	56	100	13	100

The slaughtering ages of domestic mammals were estimated on the basis of dental eruption, teeth wear degree and the fusion of the epiphysis.²

As number of remains (NR) and minimum number of individuals (MNI), ovicaprines are predominant (fig. 1). Because of the high degree of bone fragmentation and the morphological

¹ The term "Hallstatt" in Romanian archaeological usage spans approximately the central-European Ha A – D.
² Schmid, E., 1972, *Atlas of Animal Bones, for Prehistorians, Archaeologists and Quaternary Geologists*, Elsevier Publishing Company, 160.

resemblance at the skeleton level, the two species – *Ovis aries* and *Capra hircus* – were studied as the ovicaprines. Three individuals were estimated: an infant, a sub-adult aged between one and one and a half years old, and a more than two years old adult. Among the remains there is also a broken ovicaprine astragalus with wear traces on the lateral and medial faces; it might have been a smoothing tool.

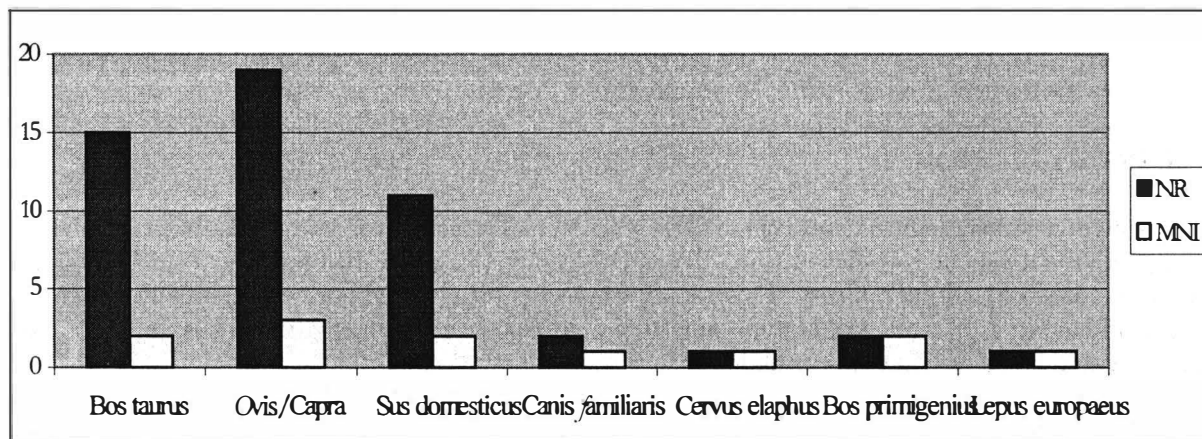


Fig. 1. Hallstat I.1 layer. Mammals frequencies on NR and MNI.

The cattle (*Bos taurus*) come next, represented by at least two individuals: a juvenile and an adult. A metapodial fragment with longitudinal wear traces is also present, suggesting an unfinished tool. It probably broke while being processed, and consequently abandoned.

The domestic pig (*Sus domesticus*) follows as number of remains. The MNI is two: an infant of a few months and an individual of about one year and a half.

An adult dog (*Canis familiaris*) was identified on the basis of a phalanx and an upper second molar.

Among the wild mammals, the aurochs (*Bos primigenius*), the red stag (*Cervus elaphus*) and the hare (*Lepus europaeus*) are present.

The aurochs is represented by an unfused metatarsus from a young individual less than two years old and a maxillary fragment with two molars in their sockets; considering their dimensions and the wear degree, they must have belonged to an adult female.

The hare was determined on the basis of an adult tibia, with rodent teeth marks.

A fragment of an adult scapula, with carnivores' teeth marks, belongs to a red stag.

The fish bones, even if in small amount, certify the practicing of fishing; however this was not an important source of food.

II.2. Hallstatt I 2

114 fragments were determined from this layer (table 2).

Among them cattle are predominant as NR, but as MNI they are equal with the ovicaprines (fig. 2). *Bos taurus* is represented by four individuals: one younger than one year, one aged between one and a half-two years, an adult of more than two years and an old individual. The last one was determined on the basis of a metatarsus that presents an enlargement of the proximal articulation surface, surrounded by exostosis (fig.4 and 5). This change of bone morphology can only be explained by the use of this animal for traction.

The next as NR is the pig, with minimum three individuals: a juvenile, a sub-adult and an adult aged more than two years.³

³ In a ritual pit excavated in 1954 (N. Palincaş, in this volume, *p1* and *p2* on fig. 5) there were two complete skeletons of small pigs, determined by Dr. Adrian Bălăşescu as being four-six weeks old. The Early Iron Age layers from Popeşti correspond to Ha B – layers Ha I 1 and Ha I 2 (with Pre-Basarabi pottery) –, and Ha C – layer Ha II (with Basarabi pottery). For the designation of the strata in the settlement at Popeşti see A. Vulpe, Cercetări arheologice MNIR 10, 1997, p. 165.

Tab. 2. The species frequencies for the Hallstatt I.2 layer (Pre-Basarabi of Popești type) by number of remains (NR) and minimum number of individuals (MNI)

TAXON	NR	%	MNI	%
<i>Bos taurus</i>	41	35	4	17
<i>Ovis/Capra</i>	24	21	4	17
<i>Sus domesticus</i>	27	24	5	22
<i>Canis familiaris</i>	4	4	2	8
<i>Equus caballus</i>	1	1	1	4
Total domestics	97	85	16	78
<i>Sus scrofa</i>	1	1	1	4
<i>Cervus elaphus</i>	5	4	1	4
<i>Capreolus capreolus</i>	1	1	1	4
<i>Lepus europaeus</i>	1	1	1	4
Aves indet.	2	2	1	4
<i>Testudo</i> sp.	1	1	1	4
Pisces indet.	5	4	1	4
<i>Unio</i> sp.	1	1	1	4
Total wild	17	15	8	32
TOTAL	114	100	24	100

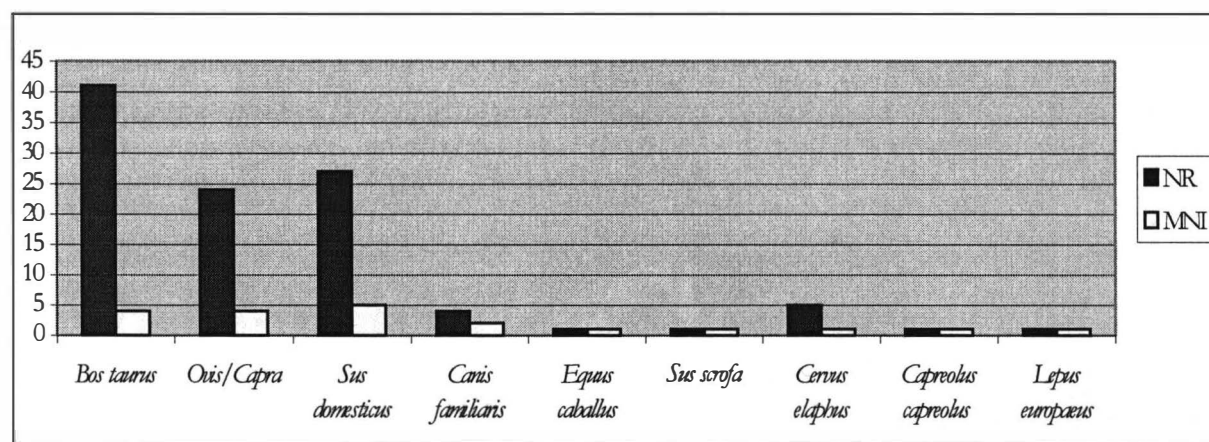


Fig. 2. Hallstat I.2 layer. Mammals frequencies on NR and MNI.

A juvenile, a sub-adult and an old individual represent the ovicaprines.

Two adult dogs were identified; an upper second molar, extremely used, shows that one of them was old. But the big number of remains with evident gnawing and teeth traces proves that the dog must have been more present in the prehistoric settlement than it is in its osteological remains.

The horse (*Equus caballus*) was identified on the basis of a mandible fragment, from a young individual. Flesh removal traces on the external face of the mandible fragment show that the horse must have been consumed.

Among the wild species, the red stag remains are predominant; all of them belong to an old male.

The wild boar (*Sus scrofa*) was identified on the basis of a canine fragment, stemming from an adult individual.

The roebuck (*Capreolus capreolus*) and the hare (*Lepus europaeus*) are each represented by a fragment, both of them adult individuals.

This level also revealed two bird bones, belonging to medium size species. I could not determine them specifically.

Only five remains attest the *Pisces* class, all from small size species. Further determination was not possible.

I also identified two fragments of tortoise (*Testudo* sp.) and freshwater mussel (*Unio* sp.), which might have been used in alimentation.

II.3. Hallstatt II (Basarabi)

Only 39 bone fragments could be determined from this layer (table 3). The specific diversity is reduced in comparison to the other layers:

Tab. 3. The species frequencies for the Hallstatt II layer (Basarabi) by number of remains (NR) and minimum number of individuals (MNI)

TAXON	NR	%	NMI	%
<i>Bos taurus</i>	10	25	2	18
<i>Ovis/Capra</i>	8	21	3	28
<i>Sus domesticus</i>	15	37	2	18
<i>Canis familiaris</i>	3	8	1	9
Total domestics	36	91	8	73
<i>Sus scrofa</i>	1	3	1	9
<i>Cervus elaphus</i>	1	3	1	9
Pisces indet.	1	3	1	9
Total wild	3	9	3	27
TOTAL	39	100	11	100

The domestic pig prevails as number of remains, with a minimum number of two individuals, one aged less than one and a half years, the other approximately two years old.

The domestic cattle are represented by two individuals, a young one under one and a half years and another one over three and a half years.

The ovicaprines occupies the first place as number of individuals (three): a juvenile and two adults (fig. 3).

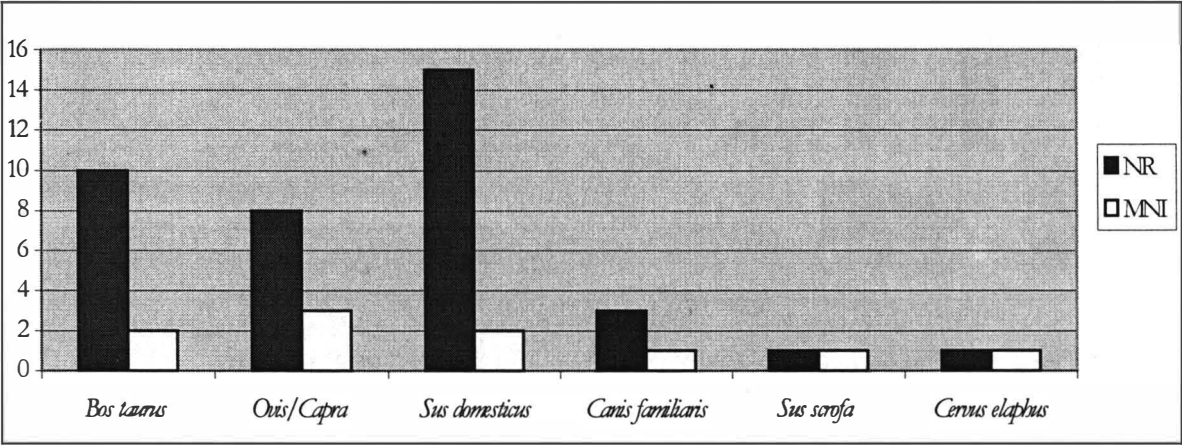


Fig. 3. Hallstat II layer. Mammals frequencies on NR and MNI.

The presence of the dog was determined on the basis of two metapodials and one astragalus, belonging to an adult. There are cutting traces on the astragalus, which could very well be skinning traces, but this has to be confirmed by further observations.

The wild species identified include the red stag, represented by an axis, and the wild boar, the determination of which is based on an adult's calcaneus of a relatively large size, possibly belonging to a male.

A single fish remain was found, though sufficient to certify fishing in the settlement.

III. CONCLUDING REMARKS

III. 1. Palaeoeconomical considerations

The predominance of domestic mammals suggests the existence of an economy based on their exploitation for primary and secondary products, hunting and fishing having a minor importance.

For the animal economy, the most important species are the domestic cattle, the pig and the ovicaprines. Regarding the representation of these three categories of animals, there are some noticeable differences among the layers under discussion.

As has been shown, in the layer Hallstatt I 1 (Pre-Basarabi of Novaci type), the ovicaprines are predominant, followed by cattle and pigs. The first two categories are also important for their secondary products, not just for meat, as pigs are.

In the layer Ha I 2 (Pre-Basarabi of Popești type), the distribution of the domestic species differs; the cattle (used for traction as well) predominate in number of remains. The pigs are also well represented, occupying the first place as number of individuals. As minimum number of individuals the ovicaprines are at the same level as the domestic cattle, but inferior to them as number of remains.

For the layer Ha II (attributed to the Basarabi culture) the percentage of the three categories is reversed in comparison with the Ha I 1 layer. Pigs are the most numerous; domestic cattle come next, shortly followed by ovicaprines, both of the latter being bred especially for their secondary products (the majority are adults).

All layers are poor in bird and fish remains. Bird and fish bones being more friable than those of mammals are generally less well preserved in the prehistoric deposits. The presence of dogs in the settlement reduces even more the representation of this category of bones, because they are easy to consume and their digestion is almost complete. Thus, these vertebrate classes are generally poorly represented in the bone assemblages that we have studied comparatively to their importance in the economy of the ancient community.

III.2. Palaeoecological considerations

The reduced number of wild mammals' remains does not allow a detailed analysis. Thus, pertinent conclusions regarding the landscape at that period cannot be drawn. Some remarks are possible, though.

The main wild mammal species hunted (the red stag, the aurochs and the wild boar) are more or less associated to forest ecosystems. The settlement at Popești is situated in the Argeș river meadow; therefore it is part of a wetland system. We can assume, considering the presence of the above-mentioned wild mammals, that in the past the landscape represented predominantly wide forest ecosystems. The discovery of the oak (*Quercus* sp.) in the Hallstatt levels also stands for the consistency of this hypothesis.⁴

Strangely enough, the beaver is absent from the assemblage, a quite curious thing, because the area is part of a wetland complex. The beaver was identified by Sergiu Haimovici in his study of a Late Bronze Age settlement (that at Novaci) located only 1 km away, in the same area.⁵ This does not necessarily mean that the beaver was not present in the area in the Hallstatt period; it could only indicate that probably it was not among the species hunted by men or its remains were not discovered in the excavated surface.

Further studies are necessary in order to confirm the characteristics from above. The analysis of the rest of the bone remains (1988-1996 campaigns) is in progress at this time.

⁴ See M.-M. Stavrescu-Bedivan, in this volume.

⁵ S. Haimovici, *Analele Științifice ale Universității din Iași*, s. II, IX, 1, 1963, p. 154.