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Upper Paleolithic Osseous Materials Artefacts from Piatra Neamț – Poiana Cireșului. 2010-2011 Excavation Campaigns

*Corneliu Beldiman**

* “Dimitrie Cantemir” Christian University, Faculty of History, Splaiul Unirii No. 176, 040042 Bucharest 53, Romania; e-mail: belcor@gmail.com.

Abstract. *Upper Paleolithic Osseous Materials Artefacts from Piatra Neamț – Poiana Cireșului. 2010-2011 Excavation Campaigns.* The 2010 and 2011 archaeological excavations from the well-known site from Piatra Neamț-Poiana Cireșului, Neamț County (dated from Upper Paleolithic – Gravettian culture) led by Professor Marin Cârțumaru (“Valahia” University, Târgoviște) offered the opportunity of recovering an assemblage of osseous materials artefacts comprising 11 pieces made of mammoth ivory and reindeer antler. They were recovered from S VIII/2010 and S XI/2011. The importance of this assemblage is underlined by their rarity in the Romanian Upper Paleolithic discoveries. The typological classification revealed the existence of followings categories (according to Beldiman 2007 Typological List): I. Tools; II. Weapons; V. Varia – Technical pieces, debris. The last category is predominant and it is represented by: segments of reindeer tines (5) and beam (1). They are followed by the finished objects (4): an ivory spear point; a reindeer spear point; an end scraper made of reindeer tine; an end scraper made of a fragment of reindeer beam. There is a single blank made of reindeer beam that probably was prepared to obtain an end scraper or a spear point. The analysis of the artefacts allowed us to observe some manufacturing schemes applied during the processing of reindeer antler or the manufacturing stages of certain types of pieces (ivory and reindeer spear points; end scrapers made of reindeer tine or beam). Also, we could reconstruct the technological environment in which those artefacts were used. Here we may mention: the *débitage* of the reindeer antler by direct percussion/chopping with a massive lithic piece; direct percussion/fracture with a lithic hammer; groove and splinter technique applied on the opposed surfaces of the reindeer beam with the purpose of detaching a segment or tine; this was followed by the direct percussion/chopping. The shaping stage is represented by two simple procedures: axial scraping and direct percussion, followed by chopping technique. The intense axial scraping is used in order to obtain smooth surfaces; this is the case of ivory and reindeer antler spear points. In order to obtain the active parts of the end scrapers the direct percussion/chopping, followed by the axial scraping were applied. There are no clear use-wear traces because the surfaces were affected by the taphonomic processes like the corrosion produced by the soil acids and the roots of the plants, fissures and exfoliations etc. The osseous materials industry from the site attests some economic activities. The archaeological contexts connect the artefacts with hunting/weaponry, with the processing of the reindeer carcasses/hides and with the process of transforming various raw materials. The artefact PNC/2010 5 offers an important clue regarding the season in which the site was inhabited. The piece is a base of a reindeer beam gathered in the autumn time (in October-November). This detail is added to the observations that were obtained during the archaeozoological analysis and it underlines the hypothesis according to which the site was inhabited during the autumn time. Even if the assemblage is composed of few artefacts, they offer important chrono-cultural and paleotechnological observations in terms of a complex and extensive approach of manifestations of civilisation and culture in the Paleolithic communities. The osseous materials industry analysed with this occasion is included in above mentioned context. In this respect, the general catalogue of discoveries was augmented with pieces that were used like spear armatures (made of mammoth ivory and reindeer antler) or with tools (reindeer end scrapers used for carcass processing and for hides working. These could have also been used like daggers.). We have to underline the importance of the mammoth ivory piece that increases the number of these artefacts at 5 in Piatra Neamț-Poiana Cireșului site. At the moment, this is the most important Romanian site with pieces made of ivory dated from the Upper Paleolithic.

Keywords: Epigravettian, Gravettian, mammoth ivory, osseous materials technology, Piatra Neamț-Poiana Cireșului, reindeer antler, Romania, Upper Paleolithic.

Context

The archaeological excavations carried out during 2010 – 2011 in the well-known and important Upper Paleolithic site from Piatra Neamț-Poiana Cireșului (PNC) by the team led by Professor Marin Cârciumar (Cârciumar *et alii* 2011) offered the opportunity of recovering – as in the previous years – some assemblages of artefacts that are highly important for the reconstruction of the technological environment specific for Upper Paleolithic communities (Gravettian, Epigravettian) that inhabited the East-Carpathian Basin, the Bistrița Valley.

Communities of hunters were establishing their seasonal camps in the basin of the above mentioned river for hunting reindeer. In the same time, the cynegetic exploitation of some other species of large herbivore as the aurochs, horse and bison is attested.

Nowadays, the Piatra Neamț-Poiana Cireșului site represents a national and international unique benchmark regarding the study of technologic and paleo-economic behaviour during the Upper Paleolithic together with some other sites form Central and East-Central Europe.

One of the components of the behaviour area above-mentioned, that can be studied from archaeological point of view and which can be quantified in good conditions within the site is related to osseous materials industry. It includes a large range of artefacts, starting from raw materials up to abandoned finite objects both in perfect functional condition and fragmentary pieces that could not have been used anymore.

The chance of *in situ* discovery of such type of pieces is very rare in Romanian area. These cases are highly important and bring essential contributions regarding the knowledge of the Upper Paleolithic communities' lifestyle.

Assemblage

With this occasion, we will present the first results of the analysis of the osseous materials artefacts discovered during 2010-2011 excavation campaigns at Piatra Neamț-Poiana Cireșului site. They were made available by Professor Marin Cârciumar for which we express once more our gratitude (Beldiman, Cârciumar *et alii* 2012; Cârciumar, Nițu *et alii*

2012). The studied assemblage comprises 11 artefacts, from which 9 were discovered during 2010 and two of them in 2011. They correspond to the level dated from the Epigravettian II (2010 assemblage) and the one dated from Gravettian I (2011 assemblage) (fig. 1-6).

The pieces are stored in the collection of “Valahia” University of Târgoviște, Centre for Pluridisciplinary Research. In order to have a proper image regarding the archaeological context for the 2010 assemblage, the research report may be consulted – Cârciumar *et alii* 2011. The state of conservation of the objects is generally good. Due to this, the specific observations of the complex study could have been done.

Professor's Marin Cârciumar constant interest for recovering and optimum treatment of the osteological material should be mention here. He manifested this interest during the entire period of the excavation but also during the complex laboratory treatment, operations being done and supervised by specialised personnel (PhD. Daniela Iamandi, chief restorer at the National Museum Complex “Princely Court” of Târgoviște). These aspects make Piatra Neamț-Poiana Cireșului to be one of the rare Prehistoric archaeological sites from Romania that benefits by the services of a specialized restorer on animal skeletal materials.

Regarding the context, we mention for 2010 campaign the excavation of the S VIII, with a surface of 4 sq, squares A1 and A2, depth 2.80 m. The pieces were recovered from an area in which they were associated with paleofaunistic materials and diverse lithic artefacts (end scrapers, burins, blades etc.). This indicates an area of manufacturing osseous materials artefacts (Cârciumar, Nițu *et alii* 2011). During 2011 campaign, the S IX was excavated, with a surface of 4 sq, squares A2-B1; at a depth of 2.05 m an agglomeration of various materials (chipped stone artefacts, palaeofaunistic materials and the analyzed pieces of osseous materials) was discovered (Cârciumar, Nițu *et alii* 2012).

Methodology

During the first stage of study, the typological classification was done. It was

**Upper Paleolithic Osseous Materials Artefacts from Piatra Neamț – Poiana Cireșului. 2010-2011
Excavation Campaigns**

followed by the elaboration of the catalogue comprising the pieces discovered during the two campaigns. Within this catalogue, each piece is identified by a provisional indicative made from the code of the site, year of discovery and the current number (example: PNC/2010 1; PNC/2011 2).

Each artefact was analysed according to a

standardised protocol containing several components, aiming the extending/exhaustive registration of data regarding the context of discovery and data revealed after the macroscopic and microscopic examination. These are synthetic presented in a table: indicative; culture; context; description; dimensions (Beldiman 2007).

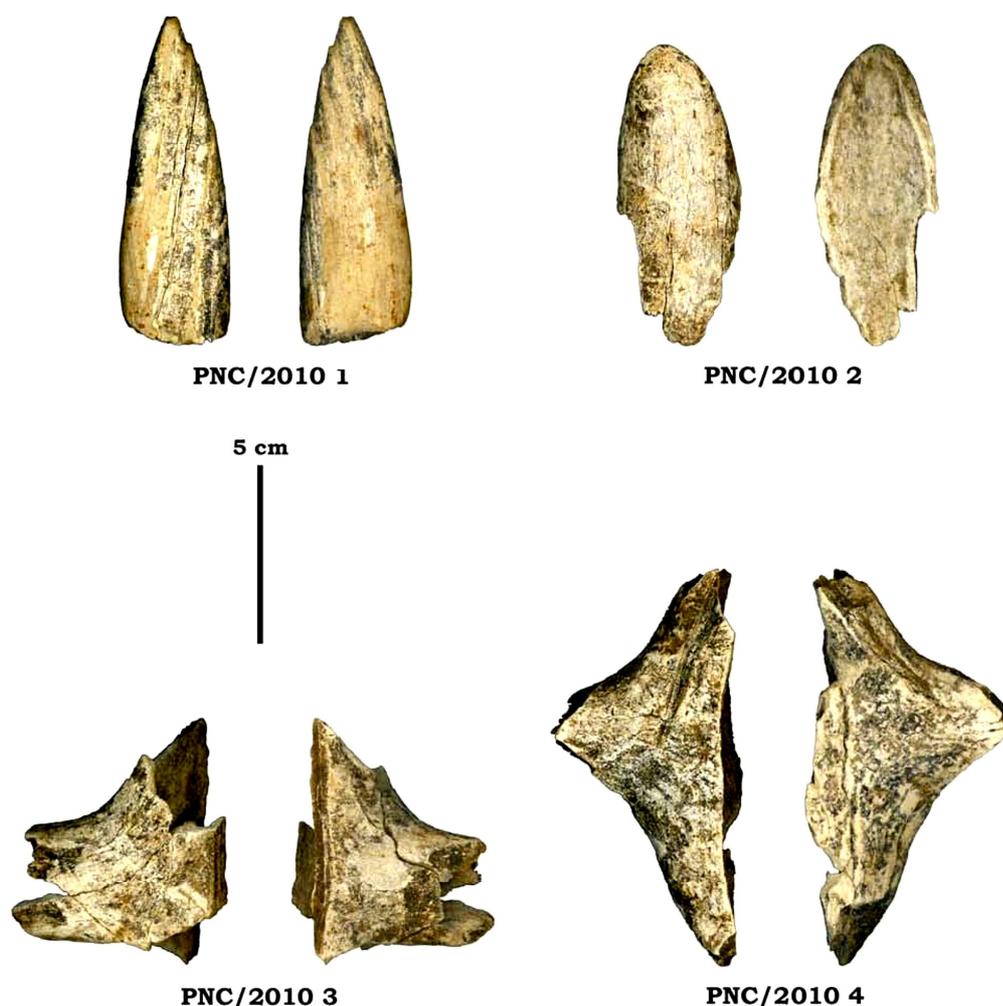


Fig. 1 – Piatra Neamț-Poiana Cireșului, Neamț County (2010).
Osseous materials artefacts: PNC/2010 1-4.

The attention is focused to highlight of specific aspects regarding: raw materials, status of conservation (pieces entirely preserved, fragmentary, fragments); typology; morphology; manufacturing traces; use-wear traces; hypotheses regarding the functionality; morphometry. A special mention should be done

regarding the microscopic analysis and the images (micrographs) that were taken with the digital microscope VHX-600 of the Centre for Pluridisciplinary Researches, the only centre form Romania that has this type of high-performance equipment (fig. 4-6).

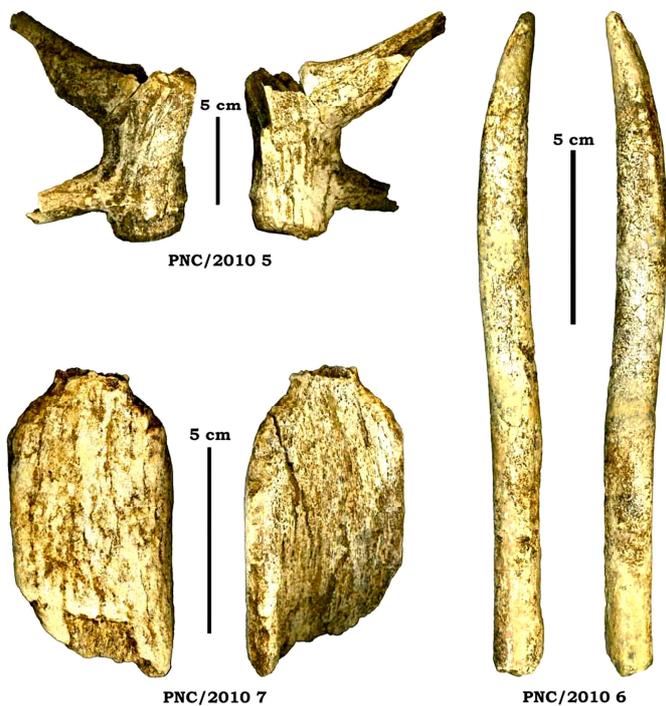
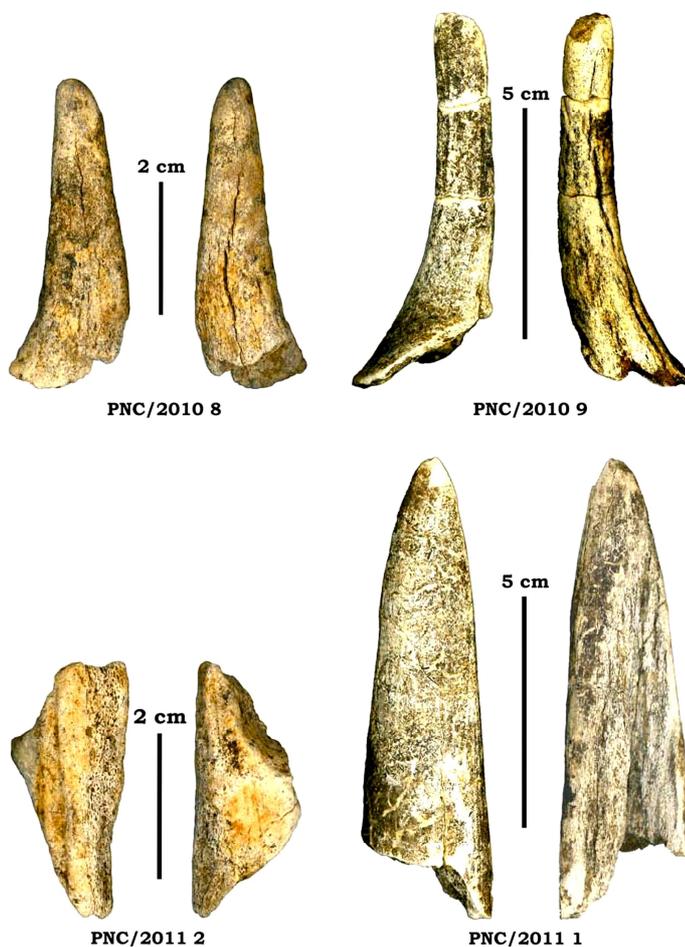


Fig. 2 – Piatra Neamț-Poiana Cireșului, Neamț County (2010). Osseous materials artefacts: PNC/2010 5-7.

Fig. 3 – Piatra Neamț-Poiana Cireșului, Neamț County (2010-2011). Osseous materials artefacts: PNC/2010 8-9; PNC/2011 1-2.



Upper Paleolithic Osseous Materials Artefacts from Piatra Neamț – Poiana Cireșului. 2010-2011
Excavation Campaigns

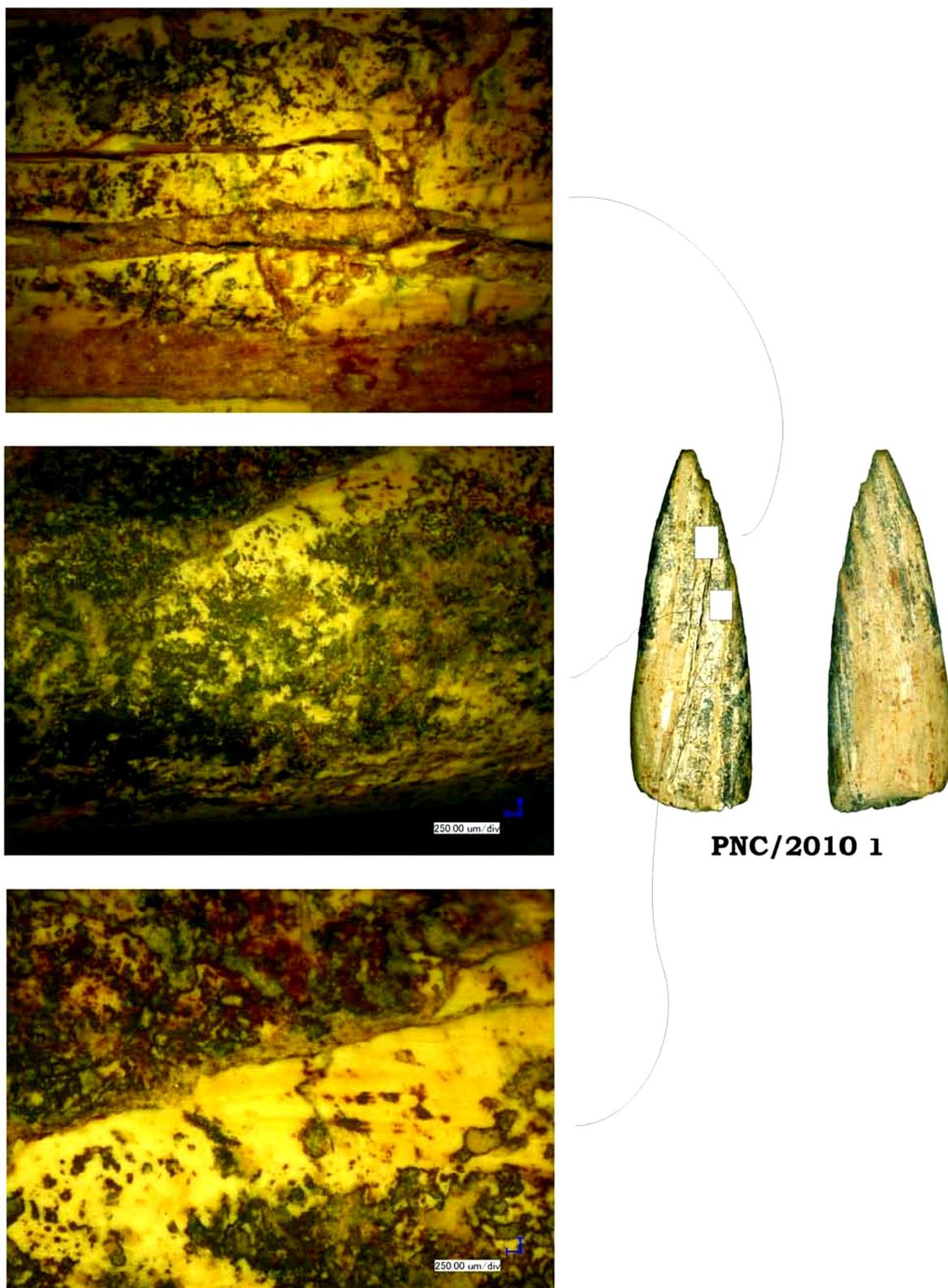


Fig. 4 – Piatra Neamț-Poiana Cireșului, Neamț County (2010). Osseous materials artefacts:
microscopic views: PNC/2010 1.

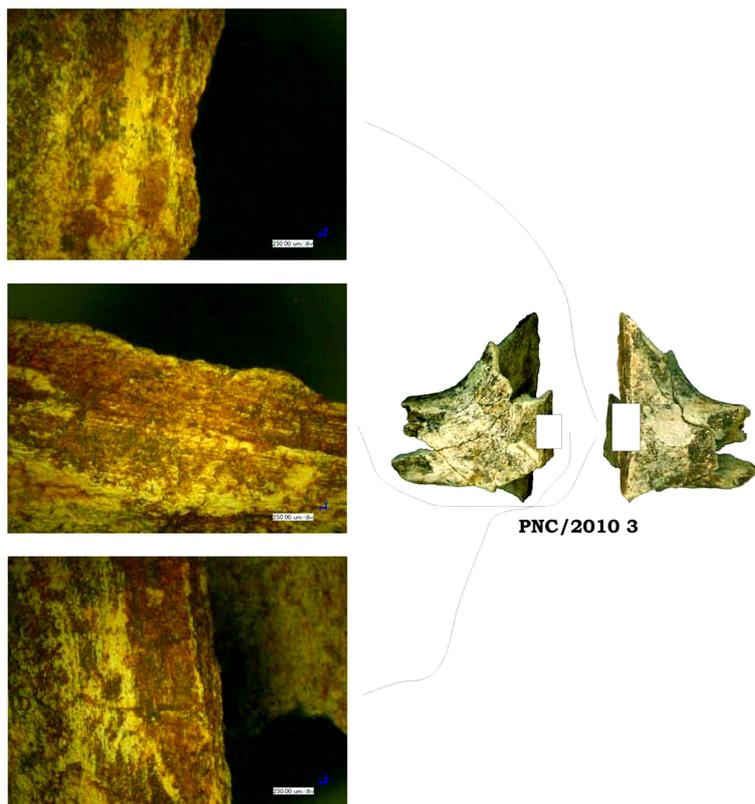
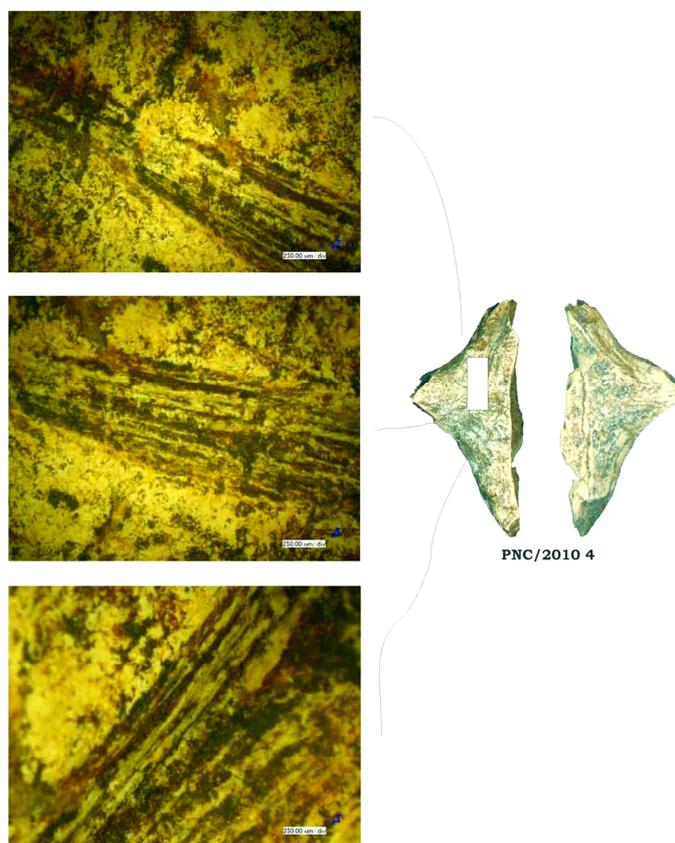


Fig. 5 – Piatra Neamţ-Poiana
Cireşului, Neamţ County
(2010). Osseous materials
artefacts: microscopic views:
PNC/2010 3.

Fig. 6 – Piatra Neamţ-Poiana
Cireşului, Neamţ County (2010).
Osseous materials artefacts:
microscopic views: PNC/2010 4.



Upper Paleolithic Osseous Materials Artefacts from Piatra Neamț – Poiana Cireșului. 2010-2011 Excavation Campaigns

Results

The typological categories of the osseous materials artefacts were established according to Beldiman 2007 Typological List: I Tools; II Weapons; V Varia – Technical pieces (wastes of débitage) (Beldiman 2007, p. 71).

The quantitative repartition according to typological criteria is the following:

- the most pieces are included in the V Varia – Technical pieces, respectively, wastes of débitage: segments of reindeer tines (5) and of beam (1);

- finite objects (4), a point (spear?) made of mammoth ivory; a point (spear?) made of reindeer antler; an end scraper made from a reindeer tine; another end scraper made from a reindeer beam;

- there is only a blank made from a fragment of reindeer beam, being probably used to make an end scraper or a spear point.

The analysis of the artefacts discovered during 2010-2011 campaigns allowed us to trace some elements of “manufacturing chain” applied in order to process the reindeer antler and to manufacture pieces like: spear points, end scrapers made from reindeer tine or beam as well as the technological ambiance in which they were used.

In this respect, we can mention: reindeer débitage by applying direct percussion/chopping with a massive lithic chopped piece; direct percussion/fracture with a lithic hammer; axial grooving applied on the opposed sides of the reindeer beam with the purpose of precise detachment of a segment, followed by direct percussion/fracture (*groove and splinter technique* or *débitage par extraction*).

The shaping was done by two simple procedures: axial scraping and direct percussion/chopping. Simple, precisely and efficient, widely spread during the Upper Paleolithic technical solutions of osseous materials processing, the intense axial scraping generates smooth surfaces and dense and fine striations grouped axially; this is the case of spear points made of mammoth ivory and reindeer antler; the artefacts present integral shaping. In the case of shaping of the active parts of the end scrapers, direct percussion/chopping is used. It is followed by axial scraping – partially shaping.

There are no clear use-wear traces due to the different state of conservation of the surfaces that

are affected by the taphonomic processes as corrosion of the soil acids and of the roots, fissures, exfoliations etc.

All the situations and the observations mentioned above prove the regular manufacture within the site of osseous materials artefacts (reindeer antler; mammoth ivory) in the context of reindeer carcasses processing or the use of raw materials gathered from the site vicinity, but also the procurement and manufacture of mammoth ivory in conditions that cannot be clearly established.

The piece PNC/2010 5 provides a special case of estimation the season in which the site was inhabited. The artefact is made from the base of a shed reindeer beam, which was gathered during the autumn, in October-November. This detail is added to the anterior observations done after the analysis of osteological materials, underlying the hypothesis according to which the site was inhabited during the autumn time (Dumitrașcu 2008, p. 31, 77-79).

Conclusions

Even if they are less numerous, the pieces of the analysed assemblage offer chrono-cultural and paleotechnological markers important for a complex approach of the civilisation and culture manifestations of the Upper Paleolithic communities from Eastern Romania – Moldova Region.

The general catalogue of the discoveries from this site was enriched with pieces used as spear points (made from mammoth ivory and reindeer antler) and tools (end scrapers made from reindeer antler used for carcasses and hide processing – skinning) that also could have been used as weapons (daggers).

The discovery of a new piece of mammoth ivory is also very important. It increases the number of these at five within the Piatra Neamț-Poiana Cireșului site. The site is now the most important in the country regarding the use of this type of raw material which is relative rarely during the Upper Paleolithic from Romania.

The study continuation of osseous materials industry that soon will be expanded by analysing the pieces discovered during the campaigns anterior to 2010 will bring new valuable data regarding the complex technologic phenomenon of osseous materials processing during the Upper Paleolithic in the Romanian area.

Catalogue

The analysis was done according to a standardised protocol with several stages and components that aim the extensive/exhaustive registration of data regarding the context of discovery and the ones that were obtained after the macroscopic and microscopic study. These are presented in the catalogue at the following sections: indicative, culture, context, description, dimensions (in mm).

PNC/2010 1 • Epigravettian (figs. 1; 4)

Piatra Neamț-Poiana Cireșului 2010, S VIII, Square A1, Record no. 2.

Massive spear point of mammoth ivory; shaping by intense axial scraping.

L 93.8; EP 29/16.2; PM 28.3/16.6; ED 8.7/4.4; CD 14.4/13.

PNC/2010 2 • Epigravettian (fig. 1)

Piatra Neamț-Poiana Cireșului 2010, S VIII, Square A1, Record no. 3.

End scraper made from reindeer antler; fragmentary; débitage by axial grooving, shaping by direct percussion/chopping and intense axial scraping.

L 85.6; EP 11/3.5; PM 34.5/13.8; CD 19.6/5.4; mesio-distal part 44.2; width of grooves 1.

PNC/2010 3 • Epigravettian (figs. 1; 5)

Piatra Neamț-Poiana Cireșului, 2010, S VIII, Square A1, Record no. 2.

Waste of débitage – base of reindeer tine; débitage by bilateral axial grooving and direct percussion/chopping, direct percussion/fracture.

L 70.3; width 59.9; diam. tine base 38.1/23.5; L area 1 with grooving traces 68.1; groove width 7; grooving stage 1 3.3; grooving stage 2 3.7; L area 2 with grooving traces 25.4; groove width 6; stage 1 of grooving 3.7; stage 2 of grooving 2.3.

PNC/2010 4 • Epigravettian (figs. 1; 6)

Piatra Neamț-Poiana Cireșului, 2010, S VIII, Square A1, Record no. 2.

Waste of débitage – base of reindeer tine; débitage by bilateral axial grooving and direct percussion/chopping; direct percussion/fracture.

L 118; width max. 57; diam. tine base 43.9/22.4; depth of the groove beam 5.7.

PNC/2010 5 • Epigravettian (fig. 2)

Piatra Neamț-Poiana Cireșului, 2010, S VIII, Tome XIV, Numéro 2, 2012

Square A1, Record no. 2.

Waste of débitage – base of shed reindeer beam; débitage by direct percussion/chopping, direct percussion/fracture.

L beam 113; diam. beam base 40/33.7; diam. tine 1 base 31.2/26; diam. tine 2 base 40.7/26.5; L tine 1 50; L tine 2 88.

PNC/2010 6 • Epigravettian (fig. 2)

Piatra Neamț-Poiana Cireșului, 2010, S VIII, Square A1; Record no. 2.

End scraper made from a reindeer beam; débitage by direct percussion/chopping, direct percussion/fracture; shaping by direct percussion/chopping and intense axial grooving.

L 196; EP 13.9/14.2; PM 14.4/12.9; ED 4.7/4.2; LPA 68; CD 9.6/7.5.

PNC/2010 7 • Epigravettian (fig. 2)

Piatra Neamț-Poiana Cireșului, 2010, S VIII, Square A1; Record no. 2.

Blank of spear point or end scraper made from a fragment of reindeer beam; débitage by direct percussion/chopping, direct percussion/fracture.

L 86; fractured extremity 38.7/16.3; PM 45/18.6; chopped extremity 18.6/8.3.

PNC/2010 8 • Epigravettian (fig. 3)

Piatra Neamț-Poiana Cireșului, 2010, S VIII, Profil.

Segment of reindeer tine; waste of débitage; débitage by direct percussion/fracture.

L tot. 51.6; diam. base 15.9/9.9; PM 12.9/8.7; ED 5.8/4.8.

PNC/2010 9 • Epigravettian (fig. 3)

Piatra Neamț-Poiana Cireșului, 2010, S VIII, Square A2, Record no. 4.

Segment of reindeer tine; waste of débitage; débitage by direct percussion/fracture.

L 83; diam. base 16/12.7; PM 12.6/10.4.

PNC/2011 1 • Gravettian (fig. 3)

Piatra Neamț-Poiana Cireșului, 2011, S IX, Square A2, F4, Depth -205 cm. Gravettian I level – square with a high density of lithic materials; on the entire surface of the square, the fauna is very abundant; between 194-196 cm depth, entire square is covered with large quantities of ochre, the ochre is conserved on the surfaces of the pieces recovered.

Upper Paleolithic Osseous Materials Artefacts from Piatra Neamț – Poiana Cireșului. 2010-2011
Excavation Campaigns

Spear point made from reindeer antler; fragmentary; shaping by intense axial scraping.

L 102; EP 28.4/14.6; PM 23.8/13.4; ED 4/3.2.

PNC/2011 2 • Gravettian (fig. 3)

Piatra Neamț-Poiana Cireșului, 2011, S IX, Square B1, F.

Gravettian I level – the most part of lithic materials were discovered in this square; at -194-195 cm depth an area with large quantities of ochre was identified; -200 cm depth: the ochre is still present; a high agglomeration of fauna (among which two reindeer mandibles). Fauna is very abundant on the entire surface; a piece of marl, a piece of limestone with ochre and charcoal on it, some other rocks seem to delimit a complex.

Base of reindeer tine, waste of débitage; débitage by axial grooving and direct percussion/fracture.

L 35.4; PM 15.2/14.1; width of groove 6.5; depth of groove cca. 3.3.

Abbreviations

CD – Distal caliber (diameter) • Diam – Diameter • ED – Distal end • EP – Proximal end • L – Length • L tot – Total length • LPA – Length of the active part • PM – Mesial part • PNC – Piatra Neamț-Poiana Cireșului • S – Section • Sq – Square.

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