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REMARKS ON SOME NEO-AENEOLITHIC ADORNMENTS MADE OF OSSEOUS MATERIALS FROM TRANSYLVANIA, ROMANIA

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Abstract. Made of bone, antler, shells, stone or clay, the adornments represent an important part of the socio-symbolic human behaviour in Prehistory. In this paper, we present some osseous adornments coming from the Neo-Aeneolithic of Transylvania, dated from the Early Neolithic (Starčevo-Criş culture) to the Final Aeneolithic (Coţofeni culture). The artefacts were analyzed according to the Beldiman 2007 methodology and were included in the Database of the Transylvanian Neo-Aeneolithic osseous materials industry. Our approach takes into account all the characteristics of the pieces: typology, raw materials (skeletal elements and species), morphology and morphometry, manufacturing chain, use wear traces. Statistical data offered important clues regarding the cultural distribution of certain types of adornments, the preference of human communities for raw materials, the evolution of technologies. The artefacts presented could have been used as symbolic elements or as ornaments sewed on cloths or other textile/leather objects. The assemblage is made of various types of adornments such as: pendants, perforated teeth, perforated shells, discs, rings, bracelets. The registration of these pieces in the database offered the possibility of identifying and including new types of artefacts in the Typological List elaborated for Romania, such as the perforated plates.

Keywords: adornments, Neo-Aeneolithic, osseous materials industry, prehistoric technology, Romania, Transylvania, typology.

1. Introduction

Among others, economic human behaviour includes subsistence strategies, the species selection and human feeding. By studying the bone and antler industry in these contexts, we can establish the characteristics of the human behaviour in a precise cultural/chronological sequence, and define the innovations that appear at a certain moment.

The osseous materials industry is an important research domain of the Neo -Aeneolithic archaeology. The systematic study of this type of artefacts represents an important approach both in the analysis of prehistoric economy and technology as well as spiritual manifestations. This particular kind of industry is remarkably illustrated in Romania by the content of the inventories dating from the Upper Paleolithic to the Bronze Age.

The osseous materials industry represents the preconceived artefacts obtained after the application of well-defined operative schemes (these include the process of raw material acquisition, debitage and shaping stages, finishing) and the specific use-wear traces.

The adornments are a component of the symbolic manifestations and they offer important clues about the spiritual life of the communities that possessed these objects, specific for a certain culture or period.

2. Objectives

Starting from the idea that osseous materials artefacts are the result of the interaction between several elements like the species, skeletal elements, anatomic morphology and morphometry, the specific choice of the raw material, technical procedures applied during the manufacturing chain (adapted according to the way of using it) and functionality, our approach was focused on (1) establishing a typological code for each studied artefact according to the Beldiman 2007 Typological List, (2) identifying the species and the skeletal element used in order to obtain each artefact, (3) examining the morphology of the piece, (4) taking the specific morphometrical parameters for each artefact, (5) studying the artefacts’ surfaces in order to define the main technical procedures applied during the "manufacturing chain", (6) studying the artefacts’ surfaces in order to identify the main use-wear traces, and (7) applying a statistical analysis for each of the aspects revealed through the direct examination of the artefacts.

3. Materials and methods

Our approach aims to present some data issued from the analysis of the adornments made from osseous materials taking into account the coordinates of the recent methodology in the field. The methodology applied in order to study the Transylvanian Neo-Aeneolithic adornments is the one proposed by the
main author in his PhD thesis published in 2007 that also offers the Typological List for the osseous materials industry from our region. According to it, the studied artefacts are included in the 3rd typological category, entitled "Adornments" (Beldiman 2007).

<table>
<thead>
<tr>
<th>Type</th>
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<th>Culture</th>
</tr>
</thead>
<tbody>
<tr>
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<td>Starčevo-Crisă</td>
</tr>
<tr>
<td>III C2</td>
<td>1</td>
<td>Starčevo-Crisă</td>
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<tr>
<td>III C3</td>
<td>1</td>
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<tr>
<td>III E1 b1</td>
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<td>Starčevo-Crisă</td>
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<td>III F1</td>
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<td>III G1</td>
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<td>III G3 g</td>
<td>1</td>
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<tr>
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<td>III B3</td>
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</tr>
<tr>
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<td>1</td>
<td>Cucuteni-Ariuşd</td>
</tr>
<tr>
<td>III A2 c</td>
<td>1</td>
<td>Cucuteni-Ariuşd</td>
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<tr>
<td>III B1 b10</td>
<td>1</td>
<td>Cucuteni-Ariuşd</td>
</tr>
<tr>
<td>III B3</td>
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</tr>
<tr>
<td>III J1 b</td>
<td>6</td>
<td>Cucuteni-Ariuşd</td>
</tr>
<tr>
<td>III J2</td>
<td>2</td>
<td>Cucuteni-Ariuşd</td>
</tr>
<tr>
<td>III E4</td>
<td>1</td>
<td>Decea Mureșului</td>
</tr>
<tr>
<td>III A2 e</td>
<td>1</td>
<td>Coţofeni</td>
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<tr>
<td>III A2 h</td>
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<td>Coţofeni</td>
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<td>III A2 e</td>
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Figure 1. The quantitative and cultural distribution of the types.

In order to explore the information exhaustively, the methodology was adapted according to the rules proposed by the Commission de Nomenclature sur l'industrie préhistorique de l’os de l’U.I.S.P.P., France (Camps-Fabrer 1974). We also have to mention here the first synthesis on prehistoric osseous artefacts from Transylvania written by the co-author of this paper (Sztancs 2011).

The objective of our analysis is represented by an assemblage including 73 Neo-Aeneolithic adornments discovered in the intra-Carpathian sites which were entered into the database of Transylvanian Neo-Aeneolithic osseous materials industry (Sztancs et al., 2010). Their distribution across the Neo-Aeneolithic cultures is represented in Figure 2/1.

The study is focused on the registration and the analysis of all the essential data regarding: the artefacts’ identification using a code for each item, the creation of a catalogue which lays out the dataset regarding the code of the piece, the discovery context, the raw material, the conservation status, the type and subtype, and the complete description), morphometry, and manufacturing chain. In addition to this, there is an important part in our study regarding the digitization of information (pictures and database).

The methodological aspects regarding the complex study of osseous materials industry are: criteria and typology structure (categories, groups, types, subtypes, variants and sub-variants); the structure of the repertoire and individual form; coordinates of the analysis which follow the stages of the manufacturing chain; the catalogue and the interpretation of the manufacturing procedures and the use-wear traces.

The stages of the analysis are: the examination of the artefacts using macro- and microscopic instruments; setting the typological code; the identification of the morphometrical parameters; of the database with the catalogue and images; the completion of the descriptive repertoire.

An important part of our study is constituted by the computerised analysis: the input of data, the application of the queries, and the preparation of the reports (with structured data, charts and pictures).

The statistical approach, performed using an MS Access database, is the main part of our conclusions regarding the specificity of the investigated osseous materials industry. This allows us to establish the important aspects of a culture or of a cultural phase.

We may also distinguish the main characteristics for each culture; to identify the "chrono-cultural markers", to observe the diffusion of influences (Beldiman 2007).

4. Typological catalogue

According to the Beldiman 2007 Typological List, the adornments made from osseous materials are included in the 3rd typological category (Adornments). This is subdivided into ten typological groups, from which seven are present in our assemblage (Figure 2/2). The most frequent typological groups are the perforated plates, followed by pendants, perforated shell discs, beads, perforated teeth and their bone imitations, and by perforated shells and bracelets.
Figure 2. Distribution of Neo-Aeneolithic adornments across cultures (1); distribution of Neo-Aeneolithic adornments by types (2); distribution of Neo-Aeneolithic adornments by skeletal raw materials (3); distribution of Neo-Aeneolithic adornments by origin of raw materials – species (4); Neo-Aeneolithic adornments – manufacturing techniques (debitage) (5); Neo-Aeneolithic adornments – manufacturing techniques (shaping) (6); Neo-Aeneolithic adornments – use-wear traces (7).
From a cultural point of view (Figure 2/1), most of the analysed artefacts belong to the Cucuteni-Ariuşd culture, followed by the ones dating from the Starčevo-Criş and Coţofeni cultures. The adornments dating from the Vinča, Turdaş and Deceea Mureşului cultures are represented only by one artefact for each of the mentioned culture. For Vinča there is a III B3 type pendant made from wild-boar tusk. The same situation was observed in the case of the Turdaş culture. From the Deceea Mureşului cultural group there is only a finished object (III E4 type—perforated Unio shell disc—Figure 10), but there are also raw materials (Unio shells—Figure 10) that have traces of manufacturing, and which were included in the 5th typological category (Varia), as raw materials or debris from perforated shell discs.

The Starčevo-Criş assemblage contains the following types: a hook- pendant made of antler (type III B11), a perforated wolf canine (III A2 a)—Figure 3; two perforated shells (III C1, III C2); a disc made from a bone fragment (III E1b1); a bone ring (III F1); a bone bracelet (III G1); a shell bracelet (III G3 g).

The Coţofeni assemblage contains two perforated canines (III A2), a perforated wild-boar tusk (III A2 c), a perforated dog canine (III A2 h—Figure 5), two pendants made from a wild-boar tusk fragment (III B3), and a perforated fossil of an entire Gastropoda shell (III C1) (for all see also Figure 2/2).

5. Manufacturing chain. Utilisation

The process of raw material acquisition and the technical procedures applied in order to obtain the artefacts constitute what is called the "manufacturing chain" (Camps-Fabrer 1974; Beldiman 2007).
Figure 5. Păuleni-Ciuc–Dâmbul Cetăţii, Harghita County: pendant made from a fragment of wild boar tusk (1); pendant made from a red deer antler tine (2); pendants made of bone—imitations of perforated red deer canines (3–4); pendant made from a sheep/goat astragal (5); pendant made from a bovid phalanx (6); bone beads (7) (various scales). Cucuteni-Ariuşd culture (after Sztancs 2011, 880, pl. 147).

The first segment of the manufacturing chain refers to the process of raw material acquisition that consists of a series of specific stages that succeed each other in a short period of time: (1) hunting a wild animal or slaughtering a domestic one from the livestock, (2) processing the carcass, (3) consuming/storing the meat, processing the hide, etc., and (4) recovering the skeletal material.

The second segment refers to the order in which the techniques were applied with the purpose of transforming the raw materials into artefacts. The stages of the technical scheme are (1) the debitage and (2) the shaping, which includes the planning and the execution of various morpho-functional details.

With respect to the acquisition segment, we should note the fact that it is less complex when dealing with antler. In this case, the acquisition only refers to the gathering of the antlers in the period of shedding (bois de chute), or to the hunting of stags and the detachment of the antlers from the skull of the animal (bois de massacre) (Beldiman 2007; Beldiman et al., 2005).

In the case of the acquisition of shells, there are several patterns that can be followed, according to the origin of the raw material. For example, the freshwater shells were much readily available for the human communities, and therefore their acquisition process consist of their gathering, followed by their use as food, and the eventual recovery of the shells, the actual raw material. In the case of the Mediterranean shells, the most suitable method of acquisition involves trade with communities from around the Mediterranean basin, while for the fossil snails’ shells, the acquisition refers to their simple harvesting from fossil deposits.

The manufacturing chain is followed by another very important part – the utilisation of the artefact. It can develop according to two schemes. The first one consists of using of the artefact until it is broken and discarded. The second one supposes the use of the artefact, followed by its reshaping and, after a new cycle of use, it's discarding.

For the investigated assemblage, the repartition of the osseous materials used as raw materials is represented in Figure 2/2–3. This takes into account both the species and the skeletal elements.

Figure 6. Ariuşd (Erôsd), Covasna County. Perforated red deer canines discovered in 1910 in a deposit of prestige goods. Cucuteni-Ariuşd culture (after Sztancs 2011, 877, pl. 144).
Regarding the species, we observed that the raw materials obtained from *Spondylus* shells are predominant, followed by those obtained from *Unio* shells. Mammalian bones constituted a high percentage of the total raw material used for creating the analysed artefacts. A large number of artefacts were made from bone (12% unidentified mammals, probably large herbivores, and 12% wild boar). The bovines and red deer are also present in our statistics, with 3% of the total raw material. The osseous material from dogs represent 4% of the total, and 1% is represented by a fossil *Conus* shell.

The technical operations that were applied during the "manufacturing chain" were analysed for each stage (debitage, shaping). In order to identify precisely the traces of the operations, microscopic analyses were performed on the artefacts. The data obtained was introduced into the database and then analysed from a statistical point of view.

The quantitative distribution of the traces of manufacturing identified for the debitage stage, are presented in Figure 2/5. According to it, most of the artefacts preserve traces of grooving procedure 38 artefacts). This is followed by percussion and fracture which were used in combination with groove and splinter technique, percussion or chopping. The latter technique was detected in 15 cases. Traces of transversal cutting and abrasion are found in a small number of cases, on 3 and 2 artefacts, respectively.

The quantitative distribution of the traces of identified shaping technical procedures is presented in Figure 2/6. It reveals that the abrasion procedure was the most employed for shaping the adornments. The multi-directional one was used in most of the cases (52). In some cases it appears in combination with transversal cutting, but most of the time it was the sole procedure used for shaping the artefacts. Transversal, axial and blique abrasions are the other variants of the abrasion technique attested in this assemblage of adornments. Transversal cutting was present in 10 cases. The percussion technique is present only in two cases where it was used in order to perforate the shells. The scraping operation was observed only on the surface of an imitation of a red-deer canine made of antler, discovered at Păuleni-Ciuc–Dâmbul Cetății (belonging to the Cucuteni-Ariuşd culture). The grooving technique is also rarely used (2 artefacts). In order to perforate the adornments made of antler, the operation of carving was used.
The quantitative distribution of the use-wear traces identified in the investigated assemblage is presented in Figure 2/7. Firstly, the use-wear analysis revealed the fact that an important part of the artefacts does not display traces of use (17%). On the other hand, 37% of the analysed artefacts have traces of use-wear polish. The bluntness is present on the surfaces of 33% of the artefacts. Use-wear fractures were identified on 13% of adornments; in most of the cases we have identified them at the suspension wholes.

6. Conclusion

The studied assemblage is composed of 73 adornments. The typological distribution across the different archaeological cultures is illustrated in Figure 1.

The large number of artefacts belonging to the Cucuteni-Ariuşd culture (Transylvanian variant) offered us the opportunity to perform the first analysis of this particular type of artefacts.

The systematic study of the adornments assemblage that we presented in this paper lead us to identify some new types of artefacts made from osseous materials. They were included in the Beldiman 2007 Typological List.

The newly identified types are: pendant made from an astragal (III B11); perforated shell discs used as beads (III E4); shell plates (III J1 a, b); and wild-boar tusk plates (III J2).

In what concerns the osseous materials used in order to obtain the adornments, we can conclude that during the Neo-Aeneolithic period Spondylus shells were used as raw material for beads, bracelets and plates that were probably sewed on garments or on other textile/leather articles; that red-deer canines and their imitations were used as pendants or as ornaments probably sewed on garments or on other textile/leather articles; that the plates made of Spondylus and Unio shells and from wild-boar tusks, with perforated extremities, were probably used as adornments sewed on the cloths of the Cucuteni-Ariuşd people; and that in the Coţofeni culture (Final Aeneolithic), fossil shells of Gastropoda were used as pendants.

The perforated Unio shell discs were used as elements of more complex adornments, such as necklaces, bracelets or belts. A large number of them were discovered in the necropolis from Decea Mureşului (about 1817 pieces). In our assemblage, the perforated discs made from Unio shells come from pits (Şeuşa–Gorgan and Ariuşd–Dealul Tyisz).
Their surfaces present traces of burning. Raw materials and debris were likewise discovered at Şeuşa–Gorgan. They were very important for the study, since they helped us to reconstruct the manufacturing chain (Sztancs and Beldiman 2011a; 2011b). Several hypotheses regarding the technological aspects and the succession of operations have been formulated. Experimental archaeology offered important answers in this respect. Percussion was the main operation used in order to extract a fragment of the shell. The shaping stage had two or three sequences. The first sequence is focused on the perforation of the shells, starting from the concave surfaces of the blank, using a bow drill and finishing it on the other surface. During the second sequence the edges were shaped using direct or indirect percussion in order to obtain the slightly circular or oval outline of the bead. In the third sequence the edges were abraded in order to make them smooth. The last phase of the shaping stage has not been observed in any of the studied pieces. The identified use-wear traces consist of intense functional abrasion irregularly distributed on the surfaces of the objects. This could indicate a long period of wearing the necklaces (perhaps for more than one generation, thus suggesting the possibility that these objects were inherited).

The technical procedures applied during the "manufacturing chain" are adapted to the parameters of the raw materials, and they illustrate a good knowledge of the physical and morphological characteristics of the osseous materials.

The *Unio* shell discs were identified in a large number of Neo-Aeneolithic funerary contexts. The pieces were used as elements of necklaces, bracelets or belts. As analogies for this type of artefacts, we can mention: Mâgura – Romania (Starčevo-Criş culture) (Beldiman and Sztancs 2009); Dispilio, Late Neolithic – Greece (Veropoulidou and Ifantidis 2005, 171, fig. 7); necropolises from the Lower Don and Azov-Dniepr cultures (Kotova 2010, 168, 171); Polgár, Budakalász – Hungary (Choyke and Bartosiewicz 2000, fig. 4/22; Sümegi 2010, pl. CXLVII; Bánffy and Bognár-Kutzián 2007, fig. 130/5). English version by Diana-Maria Sztancs and Andreea Ioana Tătăreșu.

References


