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DOMENIUL ARHEOLOGIE

ABSTRACT OF THE DOCTORAL THESIS

Thesis supervisor
Prof.univ.dr. Mihai Gligor

PhD Candidate
Anamaria Raluca Cârstea (Elekes)

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CULTIC VERSUS DOMESTIC IN NEOLITHIC AND ENEOLITHIC CERAMICS FROM SIVANIA BASIN

Thesis supervisor
Prof.univ.dr. Mihai Gligor

PhD Candidate
Anamaria Raluca Cârstea (Elekes)

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INTRODUCTION

In this study our aim is to gain as much knowledge as possible about the Neolithic and Eneolithic communities in the Silvania Basin area by studying ceramic pieces discovered in certain stratigraphic situations, dwellings/graves or places considered ritual. Through technical descriptions, observations on the way these types of pieces were made, their shapes, and their decoration, the aim is to identify the function they had, the purpose for which they were created and in what purposes were they used.

Information regarding the typology, manufacturing technique, decoration, household or common ceramics compared to ritual ceramics, deposited as funerary inventory, but especially their interpretation will come in an attempt to unravel some aspects related to funeral rites and rituals but also to social life revealed by the discoveries in this geographical area.

There are researches on the ceramics discovered during the archaeological excavations carried out in this area, which aimed to present the objectives and stratigraphy in general, the type of habitat, the material and spiritual culture, without interpreting, analyzing and comparing them through the point of view of the archaeological context and their functionality. In this sense, we believe that this approach can be considered a step forward in bringing to light the civilization created by the human communities that lived in this area, the Silvania depression, benefiting from research with important results for the Neolithic and Eneolithic periods.

OBJECTIVES AND STRUCTURE

The objective of the research is to gain knowledge about the Neolithic and Eneolithic communities in the Silvania depression area by studying ceramic pieces discovered in certain stratigraphic situations, dwellings/graves or places considered ritual. Through technical descriptions, observations on the way these types of pieces were made, their shapes, and their decoration, the aim is to identify the function they had, the purpose for which they were created and used.

In attempting to formally and functionally assign the ceramics from the domestic complexes or funerary/ritual complexes identified within the analyzed sites, we started from several principles stated in the specialized literature

- each vessel has a unique "life" cycle determined by function, manufacturing method, context of use, cost. In this way, we can talk about use, reuse, recycling, primary contexts (e.g. cooking), secondary contexts (funeral inventory).

-a distinction must be made between intention and use, the assumed or potential function does not show how the vessel was used, the intention, the technical choice being the attribute of the potter (functionality is given by the form), the "beneficiary" is the one who determines the use in relation to necessity.

-form is one of the factors considered in the context of discussions about function - capacity, stability, access to content, sustainability in transportation, are just a few examples.

-metric parameters, volume, height, diameter are useful in comparative analyses between complexes or typologies. Formal and morphological attributes, the attention paid to manufacturing (degreaser, wall thickness/thickness, firing) considered clear indicators of function, are the most present in the descriptions of ceramic vessels, elements with which one can operate in carrying out exhaustive studies.

-chemical analyses of residues, traces of wear, etc., give the best indications about the use of a vessel, at least at a given time.

Information regarding the manufacturing technique, decoration, household or common ceramics compared to ritual ceramics, deposited as funerary inventory, but especially their interpretation will come in an attempt to unravel aspects related to funeral rites and rituals but also to social life revealed by the discoveries in this geographical area.

All these results were complemented with results of archaeometric analyses to identify the materials used in the ceramic production process to provide scientifically proven information regarding the profile of the studied materials.

The paper is structured in 6 chapters, each containing 3 to 4 subchapters. The first part describes the geographical layout and the history of the research, followed by a description of the habitat of the settlements researched for the main cultures and cultural groups in the area. In Chapter V, the ceramics from the presented sites are described and analyzed from a typological, technological and decorative point of view, and a comparative typological analysis is carried out and the metric parameters of the pieces from the 3 analyzed sites are established. The last part of the study presents the results of archaeometric analyses carried out on batches of ceramic fragments and clay samples from the same three sites Zăuan - Dâmbul Spânzuraților, Porț - Corău and Pericei - Keller Tag, samples that were selected from complexes with different characters. Analyses carried out by optical microscopy, SEM-EDS,

ATR-FTIR, ICP-MS, OM, GC-MS resulted in the identification of the elemental composition and the technological process of making the ceramics.

For each culture considered in the paper, only the main archeological sites that have have been described. For each site considered in the paper, the history and current state of research are presented without describing in detail each research campaign, a subject that is not the subject of our study and is not relevant to the results of the investigations proposed in the study. The current state and history of research are only referred to in the specialized literature.

All the archaeological remains presented in this work come from settlements. The study of the settlements was done by following the following elements: the location of the sites, the research campaigns, the archaeological features, artifacts discovered in certain features. Most archaeological investigations were limited to surface research, sometimes followed by surveys, preventive excavations and in fewer cases, systematic excavations. In the absence of systematic excavations, a concrete and correct image cannot be formed regarding the internal organization of the settlements, the layout of the residential complexes, the relationship between the dwellings and the annexed buildings, the possible existence of well-defined areas within the settlements, with a distinct role: religious, economic, therefore in this study we took into analysis only the sites that benefited from extensive research.

The main criteria for analyzing the ceramics were, first of all, the certainty of the features of the archaeological material, that was assigned from the excavation documentation. Only the typologically and stylistically identifiable pieces were analyzed, of which a sufficient percentage was preserved to be able to determine metric parameters. At this stage, the ceramic inventory was analyzed macroscopically, in order to establish the morphological, structural properties and the evaluations of the dimensions of the pieces for three of the most important sites as a result of the research but also in terms of scale, those from Zăuan – „Dâmbul Spânzurații", Porț - „Corău" and Pericei – „Keller Tag". Based on the dimensions of the vessels, their capacities were calculated, which, together with the structural characteristics, shape, decoration, help us interpret their functionality.

We considered it necessary to mention the pieces identified in the studied complexes and their characteristics: type, paste, category, decoration, even if metric parameters could not be established for them, not having preserved a complete profile, this information helping us to create a more complex and faithful picture of reality.

For complexes where the ceramic material could not be completed and dimensions could not be calculated, a statistical analysis was performed by material type.

Because shapes are also a real indicator of the use of the piece, capacity, stability, access to content, sustainability in transport, are just a few examples. Metric parameters, volume, height, diameter are useful in comparative analyses between complexes or typologies. Formal and morphological attributes are considered clear indicators of function, which is why all pieces whose dimensions could be appreciated were analyzed from this point of view.

As for the particularly elegant decoration, meticulously made by painting and present on most ceramic categories and shapes, it is an intervention on the vessel that does not influence the basic shape of the object nor its functionality, but most of the time it is made in accordance with its practical function and these pieces certainly had an important aesthetic function, a decoration that was described and analyzed in the paper in relation to the typology of the pieces but also to the context of the discovery.

Physical characteristics: hardness, external appearance, density, firing characteristics and non-plastic inclusions, these constitute the most reliable method for distinguishing different types of paste. The attention paid to paste inclusions is justified by the fact that their type, frequency, size and degree of sorting constitute indicators of the degree of specialization of the ceramic manufacturing process and of the possible use of the vessel.

For all cultural phenomena present in the area under consideration, we present the typological, stylistic, technological characteristics and specific decorations for the ceramics from the identified sites. We did not make a detailed description of the stratigraphy of the habitat description, but only of the complexes from which the materials subjected to analysis come.

The last part of the study presents the results of archaeometric analyses carried out on batches of ceramic fragments and clay samples from the same three archeological sites Zăuan „Dâmbul Spânzurații”, Porț „Corău” and Pericei „Keller Tag”, samples that were selected from complexes with different characters. Analyses carried out by optical microscopy, SEM-EDS, ATR-FTIR, ICP-MS, OM, GC-MS resulted in the identification of the elemental composition and the technological process of making the ceramics. The results proved the local origin of the raw material used in the making of the vessels.

Following the comparison of the results of the archeometric analyses, no major differences can be observed between the ceramics designated as funerary inventory and the everyday vessels of the communities whitin the same sites approached, but differences were noted between the materials from different sites.

CONCLUSIONS

Looking at the material evidence of the studied communities as a whole, and I am referring here to ceramics, the production technique: degreaser, paste, technique, decoration, firing, we can state that there is a strong connection between the quality of the material and the geomorphological conditions of the area.

Thus, in addition to the usual degreaser that appears in all settlements in the area, sand, crushed shards, there are also elements specific to the area such as crushed limestone, at Bocșa, a lime-burning area, which gives a specific appearance to the vessels. At Pericei and especially at Porț, pieces of mica appear in the ceramic paste. Also, as it resulted from the analyses carried out not only for the ceramic material but also for the decorative elements, local soil materials (Fe-Mn) were used, indigenous clay and mineral pigments or bitumen that can be found in the area.

In the last part of the study we present the results of the archaeometric analyses carried out on batches of ceramic fragments and clay samples from three sites Zăuan – "Dâmbul Spânzuraților", Porț - "Corău" and Pericei – "Keller Tag", samples that were selected from complexes with different characters and that are specific to the period to which they belong.

Analyses carried out by optical microscopy, SEM-EDS (energy dispersive spectroscopy coupled with scanning electron microscopy), ATR-FTIR (Fourier transform infrared spectroscopy - attenuated total reflection), ICP-MS (inductively coupled plasma mass spectrometry), GC-MS (gas chromatography coupled with mass spectrometry) resulted in detailed knowledge of the technology of making and decorating ceramics. Results that complement the information from the latest research carried out on the same type of ceramics.

Although a small procentage, in relation to the ceramic material from the researched sites, the number of complete ceramic forms can provide some preliminary data on the functionality of the vessels. Thus, starting from the assumption that the vessels in the funerary context are most intimately related to the person, and should be suitable for individual consumption, we compared the type of vessel and their capacity, the conclusion being that the vessels deposited in the graves, even if of different types, cups, bowls, footed vessels, pots, forms that are also found in domestic contexts, pits, dwellings have dimensions and volumes.

Most of the pieces collected from the utilitarian complexes indicate bowls with hemispherical, truncated conical bodies or pots of various sizes, even "amphorae" with slightly larger capacities than what we find in the funerary complexes. In both types of complexes, cups are found in a higher proportion than other types.

From a structural point of view of elemental composition, firing temperature or decoration, no differences can be observed between the ceramics designated as funerary inventory and the everyday vessels of the communities within the same site. Also, the results of archaeometric analyses have proven the local origin of the raw materials used.

The analyzed ceramic fragments compared with the clay samples taken from the site, are concrete and clear evidence that the ceramics are local, the communities here use the raw material from the area both for making the vessels and for their decoration. An observation that we also find for the Neolithic ceramics from other studied sites in the country. Regarding the technological flow practiced by the potters, we have reliable data that they knew closely the qualities of the clay, the modeling and firing methods in order to be able to make quality objects that correspond to daily needs and not only, a fact proven by the special aesthetic characteristics present on the studied ceramics.

Firing temperatures determined by FTIR indicated representative absorption bands for the analyzed ceramic samples as follows: <800℃, up to 950℃, for ceramics from the settlements at Porţ and Pericei while for the Herpály-type communities at Zăuan this was below 600°C for both categories of ceramics designated ritual or domestic. There were no differences in firing temperatures for samples from the same site. The ceramics are unitary from this point of view for complexes designated with different roles.

Although the same IR absorption bands, corresponding to the ester groups of aldehydes and ketones in birch tar, were not identified in the color pigment samples investigated on the painted pottery from Porț "Corău" and Zăuan "Dâmbul Spânzuraților", they are present on the painted pottery from the Pericei "Keller Tag" site, a presence also proven by a quantitative GC-MS analysis where specific biomarkers of birch tar triterpenes such as: betulin, lupeol, betulinic acid and behenic acid were highlighted without observing the existence of biomarkers characteristic of several types of petroleum: terpanes, steranes, which led to the conclusion that natural bitumen is not found in the material analyzed on this batch of samples, as it does not contain substances of petroleum origin. A fact also found and confirmed in the specialized literature for the investigations carried out on the ceramics from Porţ, and from neolitic archaeological sites from abroad.

We conclude, therefore, that in the case of the material used in the decoration of the vessels, the analyses identified common elements for the ceramics from Zăuan and Port, namely a high content of iron and manganese (determined by ICP-MS), results which prove that the painted ornaments were applied to the vessels using local soils and these being

characterized by a high content of these elements (Mn-Fe), a situation that was also found in previous research on Eneolithic ceramics from Alba Iulia.

Regarding the morpho-physiographic and elemental composition characteristics, the results of the analyses performed on the ceramic samples revealed uniform compositions for the Neolithic ceramics from this area. No major differences were detected between them in terms of the elemental composition of the raw material used in the manufacturing process, justifying once again the constancy and invariability of the types of ceramics from the Neolithic period.

There are also no differences in the functionality of the vessels from the same settlements, the types of vessels are the same in all types of contexts. However, there are differences in the way of making and decorating between the communities studied from the three Neolithic sites in the Silvania basin. These practices prove once again the knowledge and skills that the communities had, the level of adaptation to the environment.

The results of the analyses performed on the ceramic samples revealed for the Neolithic ceramics from this area the unitary morpho-physiographic and elemental composition characteristics. No major differences were detected between them in terms of the elemental composition of the raw material used in the manufacturing process, justifying once again the constancy and invariability of the types of ceramics from the Neolithic period.

There are also no differences in the functionality of the vessels from the same settlements, the types of vessels are the same in all types of contexts. However, there are differences in the way of making and decorating between the communities studied from the three Neolithic sites in the Silvania depression. These practices prove once again the knowledge and skills, the level of knowledge that the communities had, the level of adaptation to the environment and the stage of evolution for the period in question.

The scientific contribution of this study consists in the realization and interpretation of scietific results results. Interpretations that have a scientific basis and are not just intuited or interpreted to reveal aspects of the daily life of Neolithic communities. Also, the fact that in the technological process of making and decorating ceramics, materials and methods were used that we had no knowledge of for the communities in the Silvania depression is the element of novelty, thus for the community from Port the black material with which the ceramics were decorated proved to be made also from pigments from local soils, and not only from birch bark tar or bitumen as previous analyses in the specialized literature proved. For the sites from Zăuan and Pericea, these analyses are a premiere for the ceramics here, having so far no information related to composition, firing temperature, origin of the material.

In this case, the limits of the research are certainly the fact that only a small part of the pottery batch to which we refer is taken into account, however, the analysis undertaken provides us with significant information based on concrete evidence and scientific results related to the behavioral patterns of the Neolithic community from the Silvania depression and indicates that ceramic vessels must be viewed and examined as multifunctional objects, especially for a period such as prehistory in which a specific utilitarian specialization was not a reality or a priority.

In the future, certainly by expanding the research, by investigating a larger batch of ceramic pieces, it will be possible to know in more detail the aspects related to the life of the Neolithic communities behind these objects.

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The analysis carried out, even if only a small part of the pottery batch we are referring to is taken into account, provides us with significant information related to the behavioral patterns of the Neolithic community in the Silvanian Basin and shows us that ceramic vessels must be viewed and examined as multifunctional objects, especially for a period such as prehistory in which a specific utilitarian specialization was not a reality or a priority.