„ALEXANDRU IOAN CUZA" UNIVERSITY from IAŞI
Faculty of History
Doctoral School

THE CHIPPED STONE INDUSTRY OF THE PRECUCUTENI COMMUNITIES. CASE OF STUDY: THE SETTLEMENTS FROM ISAIIA AND TÂRGU FRUMOS

-Doctoral thesis-

-ABSTRACT-

PhD. candidate Diana-Măriuca VORNICU

Scientific advisors: PhD. prof. Nicolae URSULESCU

PhD. prof. Nelu ZUGRAVU

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TO _____

We hereby inform you that on **21.09.2012**, 10 o'clock, in H1 hall of „Alexandru Ioan Cuza" University, miss Diana-Măriuca VORNICU will defend, in public session, the PhD thesis „**THE CHIPPED STONE INDUSTRY OF THE PRECUCUTENI COMMUNITIES. CASE OF STUDY: THE SETTLEMENTS FROM ISAIIA AND TÂRGU FRUMOS"**

The evaluation comission has the following members:

President: Prof. univ. dr. Ion Lucreţiu Bîrliba, „Alexandru Ioan Cuza" University of Iaşi

Scientific coordinator: Prof. univ. dr. Nicolae Ursulescu, „ Alexandru Ioan Cuza" University of Iaşi

Prof. univ. dr. Nelu Zugravu, Universitatea „Alexandru Ioan Cuza" din Iaşi

Referents: Prof. univ. dr. Attila László, Universitatea „Alexandru Ioan Cuza" din Iaşi

Prof. univ. dr. Anne Louise van Gijn, Universitatea Leiden, Leiden, Olanda

Conf. univ. dr. Dumitru Boghian, Universitatea „Ştefan cel Mare" din Suceava

CONTENTS

I. INTRODUCTORY PROBLEMS

The research was structured in three main areas important for reconstitution of the *chaîne opératoire*: raw material supply, technology and typology of debitage products and the use of these products. As for the research methodology were combined traditional methods of research of the lithic assemblage, typical for the cultural-historical paradigm with new analysis methods specific to the interpretative and contextual archaeology.

Were chosen the second and the third phases of Precucuteni culture because, for this chronological level, there are no studies of the lithic industry. Since Precucuteni culture stretches and east of the Prut, we considered necessary to refer to the whole space Precucuteni-Tripolie A in order to have an overview of the chipped lithic assemblage. The two settlements-case study: Isaiia and Târgu Frumos are diachronic and could provide an insight into the evolution of the chipped lithic equipment, without neglecting the characteristics of each settlement separately. This work was supported by the European Social Fund in Romania, under the responsibility of the Managing Authority for the Sectoral Operational Programme for Human Resources Development 2007-2013 [grant POSDRU/88/1.5/S/47646].

II. FROM THE RAW MATERIAL TO THE ARTEFACT (*CHAÎNE OPÉRATOIRE*)

This chapter presents the specific methods of study for each element of the *chaîne opératoire*, from determining the raw material, the analysis of the technological markers that may suggest the use of certain techniques, tools typology up to use-wear analysis.

III. THE PRECUCUTENI CULTURE: EVOLUTION AND CHARACTERISTICS

In this chapter are presented the main contributions to the definition and division into phases and stages of evolution of the Precucuteni culture.

IV. THE CHIPPED STONE INDUSTRY FROM THE PRECUCUTENI II SETTLEMENT FROM ISAIIA – *BALTA POPII*

The settlement of Isaiia (Răducăneni com., Iasi County) was founded on a fragment of the first right terrace of the Jijia River, near the confluence with the Prut.

Ten dwellings were fully investigated and partly other two, to which are added a great number of pits, most with a domestic character. Judging from the pottery discovered is considered that the settlement was founded at the beginning of the second phase of the Precucuteni culture, ceasing its existence at the beginning of the next phase.

The lithic assemblage from Isaiia is formed mostly (72%) of a flint corresponding with the description of the *Prut flint.* In the case of 212 artefacts (representing 24% of total lithic equipment) was impossible to identify the raw materials because these artefacts have been subjected to high temperatures that have changed their original appearance. Other 33lithic items have the characteristics described in the literature for the Dniester flint. Thin section analysis of two such products showed that most likely it is quartz sandstone with very fine grain. One artefact has as raw material the Balkan flint. The community from Isaiah did not hesitate to use old tools (Palaeolithic) found accidentally and reintroduced into the technological flux.

Were analysed in total, 866 chipped stone artefacts, of which 25 are core, 571 unretouched products and 270 retouched products.

From most of the 25 exhausted **cores** discovered were knapped flakes (14 in number) to the detriment of those from which were knapped blades (ten) or blades and flakes (one core). Most of the negatives indicate the knapping of narrow and short blades. Blades were knapped, usually unidirectional. In addition to cores, as witness for the knapping inside the settlement stand the many *entame* and decortication flakes (33.06% of total flakes) and various debris.

The **unretouched blades** are quite fragmentary. Besides the few blades that can be said with certainty that they were knapped with indirect percussion, there are many blades that have characteristics of pressure debitage.

The **endscrapers**' group has the highest representation among retouched products (49.62%). There is a preference for flakes as a support on which endscrapers were made. **Retouched blades** follow, as a proportion, the endscrapers (13.70%), followed in turn by **sidescrapers** and **retouched flakes** (about 12% each). **Burins** are quite common in the settlement of Isaiia (5.18% of products retouched). The three blades with **retouched truncation** have the truncation slightly oblique to the axis of the technological support. **Microlithic trapezes** only appear in levels IIA and IIB, whereas **arrowheads** and borers appear in one level. **Blades with polish** (14 in number in the settlement of Isaiia) are usually lamellar fragments (especially mesial) with and without retouches, of microlithic size.

The use-wear analysis of 20 debitage products from Isaiia revealed some of the daily activities of the inhabitants of this settlement. Nine endscrapers and sidescrapers were used in hide processing, adding to them a borer and a blade. The appearance, of an

endscraper used in hide processing with mineral additives should not be surprised because mineral additives can be used to clean leather having an abrasive role. Another aspect of the daily and economic life of the inhabitants of the settlement from Isaiia surprised by use-wear analysis is agriculture.

In most housing complexes from Isaiia were discovered debitage products and tools, but a gathering of a lot of lithic material can be seen in dwellings L8 and L8A.

V. THE CHIPPED STONE INDUSTRY FROM THE PRECUCUTENI II AREA

The **cores** from the settlements of the second phases have mainly the same forms. The distinguished forms of the blade cores are: prismatic, conical and slightly conical. These cores usually have one striking area and were not always knapped circular, some retaining cortical portions. Quite a few are the cores completed in flakes, usually amorphous. The sizes of the exhausted cores vary from one settlement to another.

Unretouched blades were discovered in large number in the Precucuteni settlements of the second phase. The degree of laminarity of the lithic assemblage differs between settlements.

In the category of the retouched lithic products from the settlements of the Precucuteni II phase, in almost all settlements for which we have numerical estimates, the **endscrapers** group dominates. Most of the endscrapers are made on flakes. The endscrapers discovered in Precucuteni II settlements are usually convex, but there are other types such as double, unguiforme, circular etc. The **retouched blades** have, numerically, the second place in the category of tools. Blades were retouched partially or along the entire length of the edge. The **sidescrapers** are present in the settlements of the two Precucuteni phases west of the Prut River only at Isaiia and Ghigoeşti, while east of the Prut are present in several settlements. **Retouched flakes** appear in most of the Precucuteni II settlements to the east and west of the Prut. The ***encoches*** were found in small quantities in the current Ukrainian settlements and in those of Isaiia and Larga Jijia. **Burins** have similar proportions in the settlements of Isaiia, Bernaševka and Okopy. Blades with **retouched truncation** are part of the lithic inventory of the Precucuteni II communities and were discovered at Isaiia and Bernaşevka. The **borers** are present in most settlements from east of the Prut, while west of the Prut was found in a single copy in Isaiia. **Microlithic trapezes** and **arrowheads** were discovered in the second Precucuteni phase on the Romanian territory only at Isaiia. East of the Prut two arrowheads were found in the settlement of Floreşti I.

The dimensions of the lithic assemblage of the second phase of the Precucuteni culture differ: if at Isaiia, Larga Jijia and Mândrişca the microliths prevail, to which are added, rarely medium and large pieces, at Bernaševka the microliths constitute a minority.

VI. THE CHIPPED STONE INDUSTRY FROM THE PRECUCUTENI III SETTLEMENT FROM TÂRGU FRUMOS – *BAZA PĂTULE*

With an estimated area of about 10 ha, the settlement from *Baza Pătule* was founded on a fragment of the cuesta of the right side of the Adâncata River. In the three habitation levels were discovered 14 dwellings and 52 pits, some with a ritual character.

Over 80% of the chipped lithic assemblage was made of a flint the *Prut flint*, formed in Cretaceous deposits of the Middle Prut. Artefacts of fine quartz sandstone and *Balkan flint* have a similar proportion (about 5-6%). From Balkan flint were made 243 debitage products, with and without retouch. These products have reached the settlement from Târgu Frumos by contacts with Gumelniţa communities. A 1% of the assemblage was made from other raw materials such as sandstone, menilite, lydite, and other rocks that originated in flysch of the Carpathians. A special appearance in the assemblage from Târgu Frumos is a proximal fragment of an obsidian blade. The presence of this piece in the settlement can be understood only on the account of exchange. The rest of lithic material was subjected to strong burning that changed its initial appearance without being possible to identify the raw material.

Were analysed, a total number of 5,338 lithic artefacts, of which the cores represent less than 1%, chips and debris almost 43%, unretouched blades 31.94% and tools 25.12%.

Some of the 46 discovered **cores** are actually fragments and a core rejuvenation tablet refresh. Most cores were finished in blades (23 in number). The length of the blade cores is usually from 40 to 60 mm, sometimes exceeding this size. The form of the blade cores is prismatic, conical and slightly conical. Knapping blade was usually unidirectional, but there were also cores with two striking surfaces. Not all cores enabled the circular exploitation of the debitage surface and therefore in six cases, the debitage of the products was semi-circular. Flake cores (11 in number) are amorphous and globular, most times without a striking platform. Only four cores have traces of knapping blades and flakes from the same core. A large number of flakes were discovered in Târgu Frumos, of which most are secondary flakes.

The unretouched blades are usually truncated. Intact blades can be divided into three metric categories: bladelets, short blades (less than 50 mm in length and width or thickness greater than that of the bladelets) and blades (length over 50 mm). More

than half of the latter metric category of blades has a length between 50 and 60 mm, often mentioned in the literature as medium blades. Judging by the technological characteristics of the blades, it can be said that most were knapped by indirect percussion.

Between tools, the most common are the **endscrapers,** usually convex, and rarely double, straight, unguiforme, circular, ogivale, semi-circular etc. As support for the endscrapers, blades were preferred in the detriment of flakes. **The retouched blades** (about 15% of tools) have retouches disposed on one or both sides, without covering most or the entire length of the cutting edge. Retouched blades were knapped at various stages of debitajului (both cortical and *à plein debitage* blades). **Burins** discovered in the settlement of Târgu Frumos are quite a few in number (58 copies - 4.32% of total gears) and quite diverse: made on blades, the vast majority, on one side, dihedrals, double or on retouched truncation. Most of the **borers** were made on blades and only three on flakes and one on a core fragment. The 27 **sidescrapers** were retouched on blades and flakes, on the ventral and dorsal surface, on one or both edges. Blades with **retouched truncation** and ***encoches*** are part of the chipped lithic inventory of the settlement. **Geometric microliths** are represented in 32 cases of trapezes and in one case of a triangle were made on the mesial fragments of blades. A large number of **points**, representing 1.56% of the total assemblage were found in Târgu Frumos. Four composite tools can be attributed to the last two Precucuteni levels. Only two retouched flakes and a piece of *raclette* type were found in the settlement. The products with macroscopically polish are usually mesial fragments of blades that were transformed through retouch in the various tools: retouched blades, blades with retouched truncation, burin and even endscrapers.

There is an increased tendency to macrolithism the last two levels, the number of blades and retouched products of medium or large size being quite high. Unfortunately, the excessive fragmentation of blades does not allow us to draw conclusions about the actual dimensions of the lithic assemblage from Târgu Frumos.

The use-wear analysis of the pieces from the assemblage included products from all the level. Were analysed four tools that were probably used in woodworking. Four other analysis tools were used to process hard animal materials, specifically for cutting and scraping bone and antler. Blades with *sickle gloss* were used in grain processing (harvesting and threshing) but probably the endscrapers with polish had several uses and it is believed one can even speak of a "recycling" of these tools.

The analysis of the inventory of the assemblage from Târgu Frumos suggests that in most housing structures were arranged places where stone was knapped, such as in dwellings 12, 3, 4, 6, 2, 8 and 13.

VII. THE CHIPPED LITHIC INDUSTRY FROM THE PRECUCUTENI III AREA

The raw material of stone assemblages from the third phase of Precucuteni culture is quite diverse, with specific characteristics for each settlement in hand.

The **cores** discovered in the settlements of the phase III of Precucuteni culture were exploited for knapping flakes and blades. Flake cores are fewer in number than the blade cores, and are usually amorphous with multiple knapping directions. Blade cores are usually prismatic (with one or two striking surfaces), conical and slightly conical.

The microlithic sizes of the **blades** from phase II of the Precucuteni culture is perpetuated and at this stage, but there is an increased tendency of macrolithisation, at Târgu Frumos and in some settlements on the Dniester, some blades are up to 12-15 cm in length. Typically, the size of the blades from Precucuteni III settlements is between 50-70 mm (i.e. medium blades).

Most of the retouched products are the **endscrapers**, their ratio among the tools being around 50% in most settlements. The endscrapers were made on flakes and blades, without a common preference in this regard. Morphological dominate the convex endscrapers followed, in number of double ones, circular, straight, unguiforme or ogivale. **Retouched blades** were discovered in all settlements Precucuteni III. The retouches from these blades are either direct, or inverse, either abruptly or alternating, usually partial and less time covering the entire length of the edge. **Burins**, made primarily on blades and less on flakes were discovered in Târgu Frumos, Luka-Vrubleveckaja, Sabatinovka II, Korman. The **borers** can be found in large numbers in Târgu Frumos, Luka-Vrubleveckaja, Bernovo-Luka, Gajvoron, Sabatinovka II, Korman and Lenkovcy. With a much smaller number are represented the **sidescrapers** (usually have a rate of less than 3% of all tools), although present in most settlements. The blades with **a retouched truncation** and ***encoches*** are also part of the lithic inventory of the third phase of Precucuteni culture. **Geometric microliths** are sporadic appearances in the settlements east of the Prut while at Târgu Frumos their number is much higher. **Arrowheads** meet an "explosion" in the third phase of Precucuteni culture and were discovered in settlements in Târgu Frumos, Târpeşti, Solonceni I Holercani Bernovo-Luka Luka-Vrubleveckaja, Lenkovcy. The points from Precucuteni phase III are usually triangular, with the base concave, convex or straight and invading retouches. Various flakes with retouches on one edge were discovered in Târgu Frumos and other settlements from Precucuteni III. Composite tools were found at Târgu Frumos and Luka Vrubleveckaja in the form of borer-endscraper and endscraper-burin. The products with macroscopic polish appear in most settlement Precucuteni III, in relatively small percentage, nowhere greater than 7%.

It can be seen that the lithic technology from phase III of Precucuteni culture is quite consistent with regional differences more faded from the phase II. As a whole, the chipped lithic assemblage from the two phases of Precucuteni culture is quite uniform. The difference is given by an increased tendency to macrolithism and laminarity, visible especially in the third phase of the culture.

In the first phase of the Cucuteni culture the chipped lithic industry continues the Precucuteni tradition.

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VIII. FINAL CONSIDERATIONS

Analysing the data from the settlements investigated on larger areas one can observe some constants. Retouched lithic assemblage is quite uniform: in all settlements (excepting Okopy) the endscrapers prevails, followed by retouched blades, sidescrapers, borers, burins, geometric microlits, *encoche* products and flakes with various retouches. To these, arrowheads/spearheads and double tools can be added, arising from the second, respectively the third phase of culture. All these types are the basis of the lithic inventory which will be characteristic for the Cucuteni culture.

The differences in the chipped lithic inventory from the settlements of the second phase fades into the next phase of the Precucuteni culture, lithic assemblage having a unitary character in terms of technology, morphology and typology, sign of belonging to a cultural environment already well defined.

Use-wear analysis of some endscrapers shown that these pieces were used mainly in hide (in some cases with mineral additives), wood and antler processing. Blades usually were used for cutting, but in the case of some retouched blades or with a large edge angle one can observe their use in several ways, both for cutting and scraping. Thicker blades were preferred for wood and hard animal materials processing. The borers had a role in hides and wood processing. One can speak of a reuse of tools in both of the studied settlements, basically recycling and use of a single product on different materials and in different ways.

Following on this, it is necessary to point out that only analysing all the constituent stages of the technological chain one can have an insight into the technological behaviour of the inhabitants, and also into the economy of these settlements. In this respect, we consider necessary the development of research directions involving complex databases: analysis of raw materials, testing various debitage techniques and use-wear analysis.

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