# POLISHED STONE OBJECTS AT TRESTENIC TELL SETTLEMENT (NALBANT, TULCEA COUNTY)

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Abstract: This paper analyzes the polished stone objects (35 in total) found in the Gulmenita culture settlement at Trestenic, Nalbant commune, Tulcea County. The site was found in 1988, during surface investigations and is situated on a low terrace, close to Techea Creek. In 1989, the only archaeological survey campaign was conducted. On this occasion, an area 25 m long and 5 m wide was incompletely set out and researched, down to 3.35 m. In this analysis, we approached several aspects that contribute to improving our understanding of an artifact's operational sequence from raw material block to discarded item.

Rezumat: În cadrul acestui articol sunt analizate piesele de piatră șlefuită (35 ex.) descoperite în așezarea gumelnițeană aflată pe teritoriul localității Trestenic, com. Nalbant, jud. Tulcea. Situl mai sus amintit a fost descoperit în anul 1988, pe parcursul unor cercetări de suprafață și este situat pe o terasă joasă, în apropierea pârâului Techea. În anul 1989, a fost organizată singura campanie de săpături arheologice. Cu această ocazie a fost trasată și cercetată, incomplet, până la adâncimea de 3,35 m, o suprafață cu lungimea de 25 m și lățimea maximă de 5 m. În cadrul analizei prezentate în această contribuție arheologică au fost tratate mai multe aspecte a căror cunoaștere și interpretare contribuie la o bună înțelegere a circuitului parcurs de un obiect, cuprins între stadiul de block de materie primă și cel de obiect abandonat: determinarea materiei primă, încadrarea tipologică precum și realizarea unor observații de ordin tehnologic și funcțional.

*Keywords:* Eneolithic, Gumelnița, Trestenic, polished stone, typology. *Cuvinte cheie:* Eneolitic, Gumelnița, Trestenic, piatră șlefuită, tipologie.

#### INTRODUCTION

This paper presents a detailed analysis of the polished stone objects found during the archaeological survey at the tell settlement at Trestenic (Nalbant, Tulcea County) (Fig. 1-2).

The above-mentioned site was found in 1988, during surface investigations<sup>1</sup>. Located on a low terrace, close to Techea Creek, at the time of discovery the site was approx 75 m wide and "successive depositions of approx 5 m"<sup>2</sup> were found.

In 1989, the first and only survey was conducted. On this occasion, an area 25 m long and 5 m wide was incompletely set out and researched, down to 3.35 m. The

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<sup>1</sup> Lăzurcă 1995.

<sup>&</sup>lt;sup>2</sup> Lăzurcă 1995, 7.

results of the survey at Trestenic are listed in a short report<sup>3</sup>, including brief mentions of the stratigraphy, structures and materials found at the site. Thus "four cultural layers"<sup>4</sup> were identified. In the description of layers I and II (the oldest), the author wrote that cultural ascription "was questionable"<sup>5</sup>. In the end, the pottery material was ascribed to the late "transition period from Boian culture to Gumelniţa culture and the early Gumelniţa culture"<sup>6</sup>.

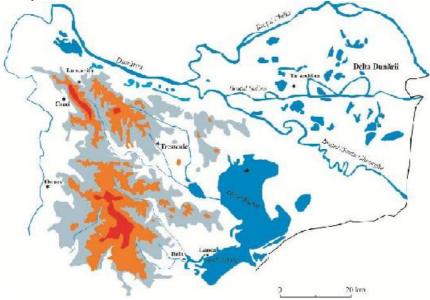


Fig. 1. Tulcea County. Tell settlements.

The report analyzes the lithics in a "general" chapter named "Tools", and the "place of origin" was mentioned whenever deemed "necessary". By functionality, a few categories were defined: querns, axes, hammersontes, whetstones, chisels, polishers. Though in the absence of rigorous methodology, the author still considered the general context of the find, state of preservation, shape (but, in the end, the morphology did not serve as base for more complex typology), size, processing techniques, raw materials, signs of usage. Closer attention was paid to the description of axes and querns, but fewer data was given for grinders, hammerstones, whetstones, chisels and polishers. The author also completed the artifacts' petrography.

<sup>3</sup> Lăzurcă 1995.

<sup>&</sup>lt;sup>4</sup> Lăzurcă 1995, 7.

<sup>&</sup>lt;sup>5</sup> Lăzurcă 1995, 7.

<sup>6</sup> Lăzurcă 1995, 20.

<sup>&</sup>lt;sup>7</sup> Lăzurcă 1995, 10.



Fig. 2. Trestenic, tell settlement.

#### METHODOLOGY

This study aims to identify as many stages as possible in a tool's *chaîne opératoire*<sup>8</sup>, from raw material block to discarded artifact. In our endeavour we identified information regarding the raw material sources, processing methods as well as usages of the finished product<sup>9</sup>.

In a settlement, raw materials are either directly exploited by the local community or acquired by trade, in the form of primary or advanced shaped blocks – *support*<sup>10</sup> or *préforme*<sup>11</sup>. The material would then undergo various technical operations to turn into a functional object. Such objects could be designed for single or multiple functions, could be altered to fulfil a different function, or could be *recycled* (to serve in a completely different context than initially designed)<sup>12</sup>. In this paper, we establish the functionality of the tools starting from the type of wear, operating method, blank morphology and position of the active part<sup>13</sup>.

All artifacts in the analyzed sample were determined their size: length, width, thickness, diameter (of the entire artefact and of the performations), accompanied by observations regarding technique, typology and functionality. The materials were analyzed both macro- and microscopically (Stereomicroscope Optika  $10SZR 10 - 7-65 \times$ ).

## **TYPOLOGY**

The main criterion for typology was the shape of the active part. The general shape or perforation of the artefict was considered to determine the components of the groups established in the first phase.

# I. Artifacts with linear active part

## I.A. Chisel

The only such artefact is made of limestone, is small-sized and has slightly irregular trapezoidal shape (L – 35 mm; Wap – 25 mm; Wm – 20 mm; T – 8 mm) $^{14}$  (Fig. 3/4; Fig. 11/4). Edges are straight, active part is oblique. The two sides and edges were shaped by oblique and transverse abrasion (Fig. 14/1a), while the active part was the

<sup>&</sup>lt;sup>3</sup> Inizan et alii 1995, 14; Tsoraki 2011, 13; Gurova et alii 2014, 48.

<sup>9</sup> Tsoraki 2012, 201.

<sup>&</sup>lt;sup>10</sup> Inizan *et alii* 1995, 161.

<sup>&</sup>lt;sup>11</sup> Inizan et alii 1995, 158.

<sup>&</sup>lt;sup>12</sup> Adams 1995, 46.

<sup>&</sup>lt;sup>13</sup> Donnart 2012, 450.

Size abbreviations: L – length; Lp. – preserved length; Wap – active part width; We – edge width; T – thickness; diam. – diameter; perf. diam. – perforation diameter; W1 and W2 apply to trapezoidal artifacts, where W1 is the lower side, and W2 is the upper side.

result of intense transverse abrasion. The edge is visibly blunt (Fig. 14/1b), altering the tool's initial form. The active part is also noticeably blunt (Fig. 14/1c). The uneven appearance of the active part and the different degrees of wear indicate that the cutting edge had been repaired.



Fig. 3. Trestenic, tell settlement. 1-3. Adzes; 4. Chisel.

# I.B. Adze

Three such artifacts were found. Two of them are of similar shape (trapezoidal) and size (1. L - 32 mm; W1 - 29 mm; W2 - 22 mm; T - 9 mm; 2. L - 30 mm; W1 - 33 mm; W2 - 26 mm; T - 10 mm) (Fig. 3/1-2; Fig. 11/1-2), and were made of basalt and sandstone, respectively. The edge is rectilinear and the active part is convex. Edges are even and oblique. The artifact was shaped by oblique abrasion on the edges and longitudinal abrasion on the sides. In the last stage of processing, the artifact was finely polished. The edge of both adzes is pronouncedly worn (Fig. 15/2a). One of the adze's cutting edge (Fig. 15/2b) is worn, with negatives left visible at both ends after small flakes detached. The active part of the other adze is less worn (Fig. 15/3a), and appears to have been repaired by intense abrasion.

The third adze is made of limestone and is bigger than the other two (L - 59 mm; W1 - 31 mm; W2 - 26 mm; T - 11 mm) (Fig. 3/3; Fig. 11/3). While it is also trapezoidal, the edge and cutting edge are convex, shaped by mixed abrasion (oblique and longitudinal on the sides, transverse and longitudinal on the edge) (Fig. 15/1a, c-d). The active part is significantly deteriorated, as many big fragments had come off (Fig. 15/b), while the edge is less worn.



Fig. 4. Trestenic, tell settlement. 1-4. Fragmented axes; 5. Axe fragmented during processing; 6. Axe reused as pestle; 7. Axe in course of processing.

## I.C. Axes

# I.C.1. Unperforated axe

Only one unperforated axe was found, made of basalt. It is fragmented, lacking the proximal extremity (l-49~mm; T-27~mm) (Fig. 4/3). The remaining fragment points to a rectangular shape, with slightly convex sides, edges and active part. The axe was also finely polished to remove the abrasion marks. Striations from the transverse abrasion are visible only on the distal extremity. The active part is rather blunt. The fragmented state of the artifact could be the result of strong impact during usage.

#### I.C.2. Perforated-axe

There are six such artifacts, of which four are made of basalt and two of sandstone. Three of them are fragmented at perforation level (Fig. 4/1-2, 4); two consist of distal fragments and one of proximal fragments. Perforated-axes are often documented to be found fragmented in settlements<sup>15</sup>.

The two distal fragments are of different sizes (1. Lp. -97 mm; W -48 mm; T -46 mm; perf. diam. -20 mm; 2. Lp. -69 mm; W -36 mm; T -25 mm; perf. diam. -18 mm). While the overall shape is similar, elongated, the smaller perforated-axe has straight facets, while the bigger one's facets are arched. Both artifacts have circular perforations and convex cutting edges. The abrasion marks were smoothed out with fine polishing. The cutting edge of one of the axes is blunt and small flakes detached some places. Striations resulted from perforation were partially blotted after fastening the handle. The second axe exhibits visible striations in the interior of the perforation, but the cutting edge is not pronouncedly worn. This artifact was used only briefly, most likely due to design defects. The thickness of the walls around the perforation is identical (10-12 mm) to that of the small axe. For the latter, such thickness was sufficient to support its weight during usage, but it was not practical for the bigger axe.

The proximal fragment, made of sandstone, was also deteriorated around the perforation. Unlike the above-mentioned artifacts, this axe was robust, with more balanced length/width ratio. Edges are slightly convex. The perforation is circular and its body was smoothly polished in the last manufacturing stage. This tool was used as a hammer, making its surface uneven (Fig. 12/3)<sup>16</sup>. In the median area, small dimples appeared due to gradual dislocation of raw material. This type of wear is the result of well controlled, rather light percutions. Striations in the interior of the perforation are slightly visible, as the handle mostly smoothed it out.

The other three perforated-axes are specific cases.

One of them is made of basalt, preserved only as the distal extremity (Fig. 4/6). Except for a few small areas around the active part, where transverse striation is visible, the final polishing had removed any marks. The cutting edge is extremely blunt. The specificity of the artifact is due to the usage of the newly created extremity in a tribological activity. Therefore, the area where the artifact broke became blunt, and the initial perforation is preserved only in the lower part, as a small groove.

The second axe, made of sandstone, is also broken around the perforation. The artifact became fragmented during the perforation process (Fig. 14/2e) and not during usage, as noticed at previous artifacts (Fig. 4/5; Fig. 10/5). The attempted perforated

<sup>&</sup>lt;sup>15</sup> Raemaekers et alii 2010, 23.

<sup>&</sup>lt;sup>16</sup> An example in Raemaekers et alii 2010, 11/Fig. 6.

blank is rounded trapezoidal in shape. It is completely covered in transverse and oblique abrasion striations (Fig. 14/2a-d). The active part is extremely blunt, due to wear and detachment of several big flakes. Most of the proximal extremity is broken, and only few very small striated segments at the intersection with the smooth edges are preserved (Fig. 14/2f). These observations confirm that the artifact was discarded due to failed perforation of a used unperforated axe.

The fourth perforated-axe is made of basalt (Fig. 4/7; Fig. 10/4) and is entirely preserved (L – 88 mm; W – 34 mm; T – 31 mm; perf. diam. – 16 mm). It is rectangular in shape, slightly thicker around the perforation and rounded at the distal extremity. Its surface is partially evened due to abrasion applied to the edges and upper side. The lower side is uneven, with traces of primary shaping by direct percution. Perforation is circular, in the upper part, but was abandoned in the early stage of the process. This axe is an artifact discarded during an advanced processing stage.

## II. Artifacts where the active part is the partial or total surface of the artifact

## II.A. Grinder

# II.A.1. Oval grinder

Most of the grinders (14 artifacts) (Fig. 5-7; Fig. 11/5) are oval-shaped. Thirteen are made of sandstone and one of limestone, and are rather well preserved, with a few exceptions. Some concretions are noticeable on all artifacts, to various extents. Their size varies greatly, from 68 mm diameter to 128 mm, but all artifacts were evened out and smoothed by abrasion (Fig. 16/1a, 2a).

However, they were used to various extents: six artifacts have two used sides, four artifacts have three used sides, and in two instances the entire body of the grinder had been used. The poor state of the last two grinders could not permit such assessment in their cases. Mainly two usage procedures can be noticed among the small group of grinders found at Trestenic. One involved the use of an area until advanced wear set in (Fig. 16/1b, 2b), then the tool was turned upside down and used until final wear, becoming flat, losing more than half of the initial thickness (Fig. 2/1b). The second procedure involved the frequent change of the used side, turning the tool's shape irregular (Fig. 12/1a).



Fig. 5. Trestenic, tell settlement. Grinders.

# II.A.2 Rectangular grinder

The only such artifact is made of basalt and is in a fragmented state. The entire tool is well evened out, becoming thinner at one of the extremities, which is more deteriorated. This is not due to the natural shape of the raw material block, but to deliberately applied abrasion. Wear is visible on one of the sides and at the intact extremity, as they became flat. The shape of the preserved fragment, the processing operations and the chosen raw material seem to indicate that the grinder was *an accident*. Initially, another tool was intended to be made, probably a tool with a linear active part, but during processing, its initial purpose changed.



Fig. 6. Trestenic, tell settlement. Grinders.

## II.A.3 Polisher

There are three polishers, two of limestone and one of basalt (Fig. 8/1-3; Fig. X/6), without any similarities regarding their size: 1. L - 83 mm; W - 37 mm; T - 31 mm; 2. L - 58 mm; W - 24 mm; T - 21 mm; 3. L - 28 mm; W - 16 mm; T - 19 mm. All three polishers were used directly on the selected raw material block. The wear marks underline the efficient use of the tools' body, as striations are present on all sides (Fig. XVII/1a-d). The extent of the wear, given by the frequency and size of the striations, varies from one side to the other. The biggest grinder, for instance, has a blunt extremity, indicating it was used as a pestle (Fig. 18/2).



Fig. 7. Trestenic, tell settlement. Grinders.

#### II.A.4 Whetstone

The only such artifact is made of shale and is well preserved. (Fig 8/4; Fig. 10/7). Except for small adjustments, the raw material block was used in its natural shape. The adjustments consisted of evening out the block's form by direct percution. The whetstone is lobed in the median area. Inside and outside the lobe striations resulted from usage are visible.

# II.A.5 Quern

There are five querns, of which one small and the rest rather massive.

The small quern is made of shale (L - 88 mm; W - 64 mm; T - 35 mm) (Fig. 8/5) and is of irregular rectangular shape. No signs of processing were identified. The upper side became concave due to usage, with visible traces of red minerals, probably

ocher (Fig. 17/2a-b). Similar situations were documented in other Gumelniţa culture sites<sup>17</sup>, as well as in other cultures<sup>18</sup>.

The other four querns are made of sandstone (Fig. 9). Two of them are fragmented, and appear to have been rectangular, with slightly rounded edges, shaped by direct percussion and light abrasion. The inferior side was shaped by more pronounced abrasion; being convex, the central area had to be made flat to better fasten the quern during usage. The upper side (the active part), is even and lobed, one of the lobes being significantly covered in a red substance (Fig. 18/1).



Fig. 8. Trestenic, tell settlement. 1-3. Polishers; 4. Whetstone; 5. Quern.

The other two artifacts are whole, of irregular oval shape. This is not the only difference from the querns presented above. Thickness reaches minimum and maximum (1. T1 - 70 mm; T2 - 30 mm; 2. T1 - 47 mm; T2 - 21 mm) at two opposite extremities. The edge of the thickest extremities is straight, so that the quern could be

<sup>&</sup>lt;sup>17</sup> Micu, Haită, Mihail 2005-2006, 15.

<sup>&</sup>lt;sup>18</sup> Tsoraki 2007, 293; Thirault 2009, 240.

stabilized by hand. Thus the movements on the active part would be inclined, from the thickest to the slimmest part (Fig. 12/2a). Due to this type of usage, the upper part became smooth but straight (Fig. 12/2b).

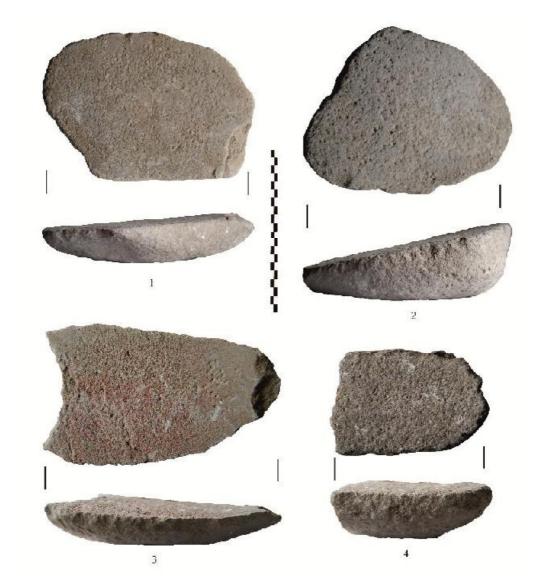


Fig. 9. Trestenic, tell settlement. Querns.

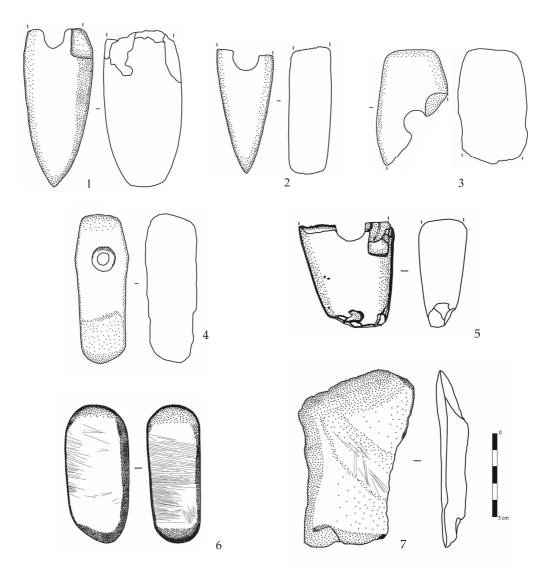


Fig. 10. 1-3. Fragmented perforated-axes; 4. Perforated-axe in course of processing; 5. Failed processing of perforated-axe; 6. Polisher; 7. Whetstone.

## RAW MATERIAL

The type of rock selected for processing doesn't vary much among the 35 artifacts: sandstone (20 artifacts), basalt (8 artifacts), limestone (5 artifacts) and shale (2 artifacts).

Sandstone was preferred especially for the tribological tools (13 grinders and 4 querns, 1 adze and 2 axes). Basalt was used to make axes (5 artifacts) and some of the adzes, grinders and polishers (one artifact each). Two polishers, one chisel and one grinder are made of limestone, and one quern and one whetsone are made of shale.

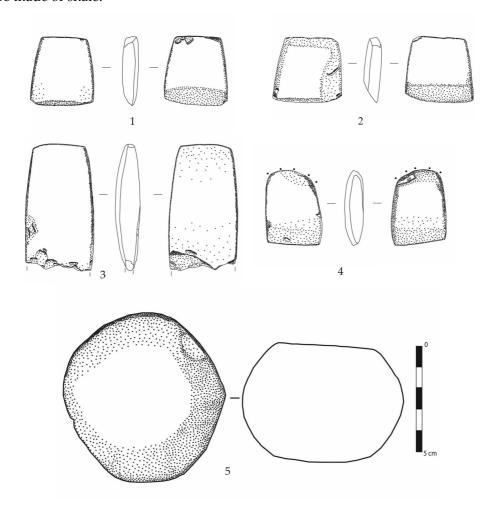


Fig. 11. Trestenic, tell settlement. 1-3. Adzes; 4. Chisel; 5. Grinder.

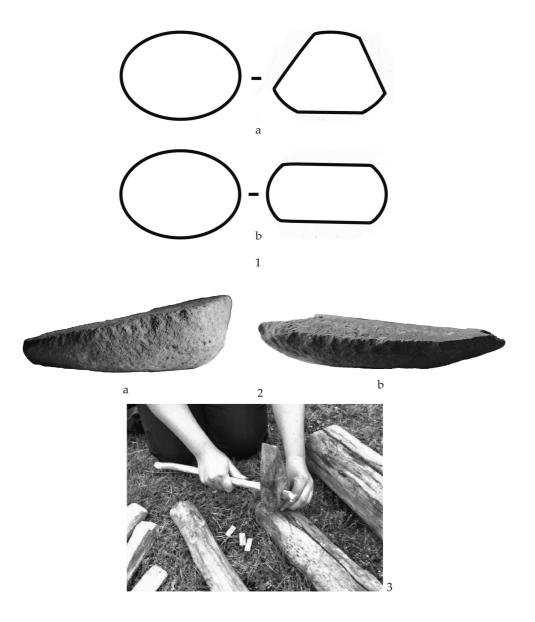


Fig. 12. 1. a-b. Changes to the grinders' shape due to usage; 2. a-b. The two usages of querns; 3. Utilization of the active part at the proximal extremity of perforated-axes (according to Raemaekers *et alii* 2010).

#### DISCUSSION

Though not numerous, the polished stone objects identified in the cultural layers of the tell settlement ascribed to Gumelniţa culture, on the territory of today's Trestenic village, provide relevant information regarding the technical and typological options and raw materials at local and regional level, by comparison to other Gumelniţa sites in northern Dobrudja.

In our opinion, the few types of rock chosen for processing are due to the good knowledge of their properties. Though it's small-scale, we noticed a close correlation between the type of rock and the processed tool: tools for tribological activities are made mainly from sandstone, while tools with linear active parts are made from basalt, to withstand stronger impacts. Shale and limestone are used too scarcely to be able to draw a conclusion.

|           | Limestone | Sandstone | Basalt | Shale | Total |
|-----------|-----------|-----------|--------|-------|-------|
| Axe       |           | 2         | 5      |       | 7     |
| Adze      | 1         | 1         | 1      |       | 3     |
| Chisel    | 1         |           |        |       | 1     |
| Grinder   | 1         | 13        | 1      |       | 15    |
| Polisher  | 2         |           | 1      |       | 3     |
| Quern     |           | 4         |        | 1     | 5     |
| Whetstone |           |           |        | 1     | 1     |
| Total     | 5         | 20        | 8      | 2     | 35    |

The raw materials used are locally sourced (Fig. 13). Sandstone deposits with argil inlay are found in Nalbant area, approx 4 km south of the site's location<sup>19</sup>. The source for magmatic rocks was situated NW, approx 10-15 km from the settlement (the diabase deposits around Niculițel – Valea Teilor – Dealul Consul<sup>20</sup>).

The processing is specific to the prehistoric technique for stone blocks. The analyzed series consists of artifacts finished or in the final processing stage, therefore we could make observations only regarding the final stages. Regardless of the type of the artifact, the shaping was made by abrasion, which smoothed out the surface. In the case of the linear active part artifacts, the active part is usually inclined and longitudinal on the sides and edges, and transverse at the distal extremities. The shaping of the grinders followed the tool's circular form, while the whetstone was shaped simply by slight direct percution. Artifacts with linear active parts involved an additional operation after shaping, consisting of fine polishing, meant to make the tool

<sup>19</sup> Haită 2011, 86.

<sup>&</sup>lt;sup>20</sup> Mirăuță *et alii* 1968; Mihăilescu 1969, 126; Haită 2011, 83.

very smooth and nice-looking. The only incompletely processed artifact, the perforated-axe, provides information regarding the order of operations for such tool. The axe had only undergone preliminary shaping, and was amid the perforation stage. Its surface is uneven due to shaping by direct percution, and is superficially brushed in some parts. It thus looks that perforation was performed prior to shaping and fine polishing, as noticed at the finished tools. However, the upper part was better polished, probably to provide optimal conditions for perforation.



Fig. 13. Location of raw material sources used by Gumelniţa culture communities in Trestenic settlement.

It should also be mentioned the usage of blocks in their natural form. Capable of making practical and aesthetically pleasing artifacts (such as most of the artifacts with linear active part), the Gumelniţa culture community living in the tell settlement at Trestenic did not hesitate to use natural features and skip processing stages.

We don't have concrete evidence for possible processing in the settlement, as no processing scrap was found for the analyzed series, however we can demonstrate that several technological activities were conducted there. The chisel and two of the adzes exhibit clear differences between the advanced wear of the edge and the barely noticeable wear of the active part, which is abruptly oblique. Such association of features leads to the conclusion that the repairs of worn or deteriorated tools took place inside or around the settlement. Such repairs are not accidental. Studies on various prehistoric series of polished lithics have proven that most time and effort were spent to maintain and sharpen the artifacts with linear active parts. This makes

sense, since the processing of such tools or weapons is the most complex<sup>21</sup>. The failed perforation attempt on the flat axe is another instance of operations performed in the settlement. Nevertheless, the exploitation of raw material sources near the site makes it plausible that the processing actually took place at least around the settlement, if not inside it.



Fig. 14. 1. Chisel: a. abrasion marks; b. edge wear; c. active part wear; 2. Axe: a, c. edge abrasion; b. active part abrasion; d. abrasion on one of the sides; e. perforation striations; f. edge fragment.

<sup>&</sup>lt;sup>21</sup> Tsoraki 2007, 291.



Fig. 15. 1. Adze: a, c-d. abrasion marks; b. active part detail; 2. Adze: a. edge wear; b. active part wear; 3. Adze: a. active part wear.

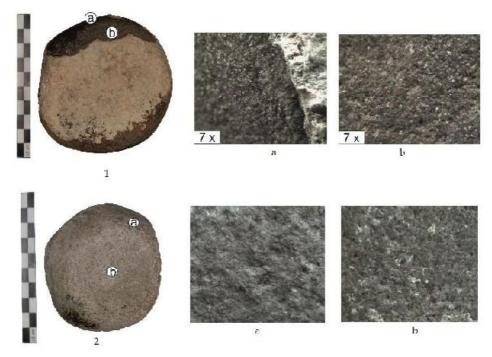


Fig. 16. 1-2. Grinders: 1a-2a. shaping by abrasion; 1b-2b. active part wear.

The typology inventory underscores the predominance of artifacts involved in tribological activities, against artifacts used to work on raw materials (24 to 11 ratio). Grinders are 3 times more numerous than querns, but this is explicable due to the latter's longer life cycle. Regarding the artifacts with linear active parts, it is interesting the almost complete absence of unperforated axes. This is unusual, even for such small series. The analyses of other polished lithics series from other sites ascribed to Gumelniţa culture in northern Dobrudja (Luncaviţa, Carcaliu) have underlined the quantitative predominance of unperforated axes<sup>22</sup>.

Most of the analyzed material shows signs of wear, in various stages. The linear active part artifacts are worn at the two extremities, and in some cases flakes of variable sizes had come off. In some instances, the repairs to the active part removed the signs of usage. The perforated artifacts show a specific type of wear in the form of fragmentation around the perforation and blunted striations inside the perforation. The grinders are in various states of degradation, from superficial to complete wear. The querns, the whetstone and the polishers bear characteristic signs: lobed active part (the former two types of artifacts) and striations (the polishers).

<sup>&</sup>lt;sup>22</sup> Micu, Maille, Mihail 2005, 226-228; Micu, Haită, Mihail 2005-2006, 12-13.

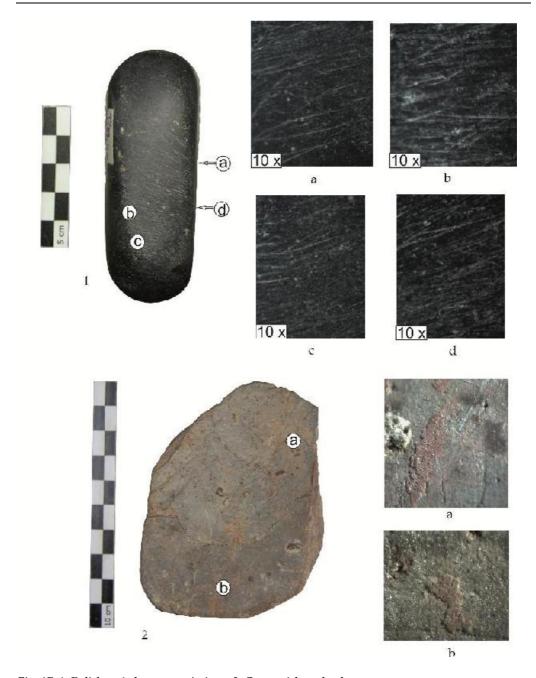


Fig. 17. 1. Polisher: 1-d. usage striations; 2. Quern: 1-b. red substance traces.

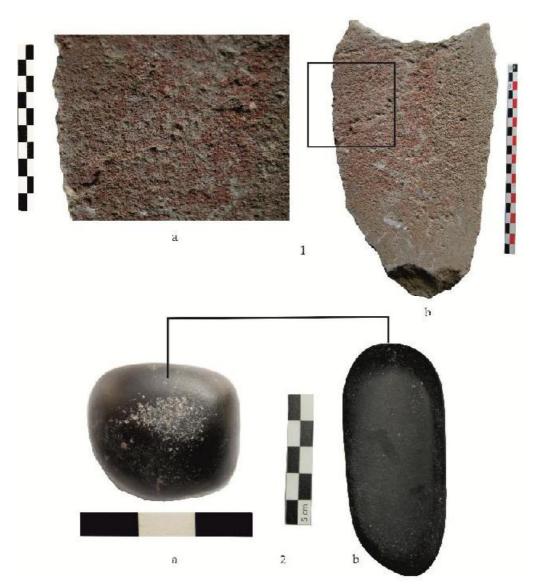


Fig. 18. 1. Quern: a. whole artifact, b. active part detail; 2. Polisher: a. whole artifact, b. detail of the area re-used as pestle.

Though raw materials were handy, the site's inhabitants did not waste it. In this respect we mention reutilization after deterioration of a perforated axe and of a polisher as pestles, or the use of a raw material block – whose probable processing into an axe had failed – into a grinder, or the attempted perforation of a worn flat axe.

Table. 2. Inventory of polished lithics found in the tell settlement at Trestenic (Nalbant).

| No. | Name      | Context           | Size                                                        | Inventory no.<br>ICEM Tulcea |
|-----|-----------|-------------------|-------------------------------------------------------------|------------------------------|
| 1   | Chisel    | 1989; - 0.30 m    | L 35 mm; W 1-25 mm; l2-20 mm; T 8 mm.                       | 42331                        |
| 2   | Adze      | 1989; -0.50 m     | L 32 mm; W 1-29 mm; l2-22 mm; T 9 mm.                       | 42330                        |
| 3   | Adze      | 1989              | L 59 mm; W 1-31 mm; l2-26 mm; T 11 mm.                      | 42328                        |
| 4   | Adze      | 1989              | L 30 mm; W 1-33 mm; l2-26 mm; T 10 mm.                      | 42329                        |
| 5   | Axe       | 1989; L1; -0.20 m | W 49 mm; T 27 mm.                                           | 42600                        |
| 6   | Axe       | 1989; L2          | Wap 36 mm; W median area 54 mm; T 27 mm; perf. diam. 16 mm. | 42332                        |
| 7   | Axe       | 1989              | W-36 mm; gr28 mm.                                           | 42325                        |
| 8   | Axe       | 1989              | Lp 97 mm; l-48 mm; T 46 mm; perf. diam.<br>20 mm.           | 42326                        |
| 9   | Axe       | 1989              | Lp. 69 mm; W 36 mm; T 25 mm; perf. diam. 1 and 2-18 mm.     | 42342                        |
| 10  | Axe       | 1989              | W 46 mm.                                                    | 42601                        |
| 11  | Axe       | 1989              | L 88 mm; l-34 mm; T 31 mm; perf. diam.<br>16 mm.            | 42324                        |
| 12  | Grinder   | 1989              | W 55 mm; T 38 mm.                                           | 42602                        |
| 13  | Grinder   | 1989              | diam. 84 mm.                                                | 42585                        |
| 14  | Grinder   | 1989              | diam. 70 mm.                                                | 42576                        |
| 15  | Grinder   | 1989              | diam. 74 mm.                                                | 42573                        |
| 16  | Grinder   | 1989              | diam. 1-79 mm.                                              | 42577                        |
| 17  | Grinder   | 1989              | diam. 78 mm.                                                | 42575                        |
| 18  | Grinder   | 1989              | diam. 1-68 mm.                                              | 42574                        |
| 19  | Grinder   | 1989              | diam. 90 mm.                                                | 42572                        |
| 20  | Grinder   | 1989              | diam. 90 mm.                                                | 42584                        |
| 21  | Grinder   | 1989              | Indeterminable.                                             | 42582                        |
| 22  | Grinder   | 1989              | diam. 89 mm.                                                | 42583                        |
| 23  | Grinder   | 1989; L2; -1.20 m | diam. 128 mm.                                               | 42579                        |
| 24  | Grinder   | 1989; L2; -1.30 m | diam. 97 mm.                                                | 42580                        |
| 25  | Grinder   | 1989              | Indeterminable.                                             | 42578                        |
| 26  | Grinder   | 1989              | diam. 1-105 mm.                                             | 42581                        |
| 27  | Quern     | 1989; -0.80 m     | L 88 mm; W 64 mm; T 35 mm.                                  | 42599                        |
| 28  | Quern     | 1989              | W 120 mm; T 57 mm.                                          | 42588                        |
| 29  | Quern     | 1989; L2; -1.20 m | diam. 208 mm;T 1-70 mm.                                     | 42586                        |
| 30  | Quern     | 1989; L2; -1.20 m | L 241 mm; W 178 mm; T 47 mm.                                | 42589                        |
| 31  | Quern     | 1989; L2; -1.20 m | W 163 mm; T 60 mm.                                          | 42587                        |
| 32  | Polisher  | 1989              | L 83 mm; W 37 mm; T 31 mm.                                  | 42604                        |
| 33  | Polisher  | 1989              | L 58 mm; W 24 mm; T 21 mm.                                  | 42333                        |
| 34  | Polisher  | 1989              | L 28 mm; W 16 mm; T 19 mm.                                  | 42334                        |
| 35  | Whetstone | 1989              | L 105 mm; W 62 mm; T 14 mm.                                 | 42598                        |

#### CONCLUSIONS

Though small, the group of polished stone objects found at Gumelniţa culture site at Trestenic is still able to provide interesting information. This group include artifacts of local raw materials processed by various techniques. On the whole, the lithics hereby analyzed are in an advanced state of wear; only one out of 35 artifacts was not processed up to becoming functional. The identified tehcnical, typological and functional features fit into the specificity of Gumelniţa culture.

#### REFERENCES

- Adams, J.L. 1995, The ground stone assemblage: The development of a prehistoric grinding technology in the Eastern Tonto Basin, in Elson, M.D., Clark, J.J. (eds.), The Roosevelt community development study: Vol. 1. Stone and Shell artifacts, 43-114, Anthropological Papers No. 14. Center for Desert Archaeology, Tucson.
- Donnart, K. 2012, *Le macro-outillage lithique*, in Joussaume, R. (dir.), *L'enceinte néolithique de Champ Durand à Nieul-sur-l'Autise (Vendée)*, Ed. Association des Publications Chauvinoises, Mém. XLIV, Chauvigny, 443-482.
- Gurova, M., Anastassova, A., Bonsall, C., Bradley, B., Cura, P. 2014, Experimental approach to prehistoric drilling and bead manufacturing, in Cura, S., Cerezer, J., Gurova, M., Santander, B., Oosterbeek, L., Cristóvão, J., Technology and experimentation in Archaeology, 47-56, BAR-IS 2657.
- Haită, C. 2011, Esquisse géographique et géologique de Dobroudja. Les zones-sources du matériel lithique, in Carozza, L., Bem, C., Micu, C. (eds.), Société et environment dans la zone Bas Danube durant le 5ème millénaire avant notre ère, Iași, 79-88.
- Inizan, M.-L., Reduron-Ballinger, M., Roche, H., Tixier, J. 1995, *Technologie de la pierre taillée*, Paris.
- Micu, C., Maille, M., Mihail, F. 2005, Outils en pierre portant des traces de façonnage et/ou d'utilisation decouverts à Luncavita (dep. de Tulcea), CCDJ 22, 223-252, Călărasi.
- Micu, C., Haită, C., Mihail, F. 2005-2006, Quelques observations sur les pieces en pierre polie decouvertes dans l'etablissement eneolithique de Carcaliu (dep. de Tulcea), Peuce, SN 3-4, 9-40, Tulcea.
- Mihăilescu, V. 1969, Geografia fizică a României, București.

- Mirăuță, O., Mutihac, V., Bandrabur, T., Drăgulescu, A. 1968, *Harta geologică*, scara 1:200000, Foaia Tulcea, Nota explicativă, Comitetul de Stat al Geologiei, Institutul Geologic, Bucuresti, 32 p.
- Raemaekers, D.C.M., Geuverink, J., Schepers, M., Tuin, B.P., Lagemaat van der, E., Wal van der, M. 2010, *A biography in stone. Typology, age, function and meaning of Early Neolithic perforated wedges in the Netherlands*, Groningen.
- Thirault, É. 2009, Le mobilier lithique non taillé des couches 61 à 47, in Voruz, J.-L. (dir.), La Grotte du Gardon (Ain) Volume I. Le site et la séquence néolithique des couches 60 à 47, Toulouse, 231-254.
- Tsoraki, C. 2007, Unravelling ground stone life histories: the spatial organization of stone tools and human activities at LN Makriyalos, Greece, Documenta Praehistorica 34, Ljublijana, 289-297.
- Tsoraki, C. 2011, Disentangling Neolithic networks. Ground stone technology, material engagements and networks of action, în Brysbaert, A. (ed.), Tracing prehistoric social network through technology. A diachronic perspective on the Aegean, Routledge, 12-29.
- Tsoraki, C. 2012, Ground stone technologies at the Bronze Age settlement of Sissi, in Excavations at Sissi III. Preliminary report on the 2011 campaign, Presses Universitaire de Louvain, 201-222.