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The Eneolithic settlements from Gumelniţa, Sultana and Căscioarele. An environment analysis

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Abstract: *There are many aspects regarding the analysis of the relation between human communities and landscape. One of them regards the way in which humans transform one location for habitation purposes. Another one regards the influence of several environment factors upon the habitation dynamic from a settlement or micro zone. Three cases of* tell *settlements were analyzed: Gumelniţa, Sultana and Căscioarele, each of them with specific patterns in their relation with the landscape. In summary people chose certain locations which they transformed for an optimum habitation and there are environment factors (e.g. floods) which had a direct impact upon the habitation dynamic from one specific area.*

Rezumat: *Analiza relaţiilor dintre mediu şi comunităţile umane implică mai multe aspecte. Unul dintre ele are în vedere modul în care omul acţionează asupra unui anume amplasament în vederea amenajării (transformării) unei aşezări. Un alt aspect îl reprezintă influenţa pe care diverşii factori de mediu o au asupra dinamicii locuirii dintr-o aşezare sau micro-zonă. Au fost analizate cazurile a trei aşezări de tip* tell*: Gumelniţa, Sultana şi Căscioarele, fiecare din aceste aşezări având anumite particularităţi în raport cu mediul. Concluziile ar fi că oamenii alegeau anumite amplasamente pe care le amenajau (transformau) în vederea unei locuirii optime şi că factorii de mediu (ex. inundaţiile) au avut un impact direct asupra dinamicii locuirii dintr-o anumită zonă.*

Keywords: *environment, transformation, habitation dynamic, environment factors.*

Cuvinte cheie: *mediu, amenajare, dinamica locuirii, factori de mediu.*

In the last years researchers had a special interest for the landscape in which the Neo-eneolithic settlements are located. There were especially the Eneolithic *tell* settlements that were subject to special papers regarding the relation between settlements and landscape (D. Bailey *et alii* 2002; C. Bem *et alii* 2002; R. Andreescu 2005; R. Andreescu, P. Mirea 2008).

The landscape analysis is an important direction for researches and has various aspects. One of them regards the reconstruction of natural environment, flora and fauna, a very important aspect for the paleo-economy of human communities. Another aspect regards the way in which people interact with the landscape in order to identify and construct their future settlements. Finally another aspect regards the influence of different environment factors (e.g. floods) upon the habitation dynamic from a settlement or micro zone.

This paper aims to analyse of the relation between the natural environment and three of the most famous Eneolithic sites: Sultana, Gumelniţa and Căscioarele, all belonging to Gumelniţa culture (5^{th}-4^{th} mill. BC). These sites from Danube Valley were chosen for both their importance for the research of Gumelniţa culture and because they represent each other a special case in their location and relation with the environment (pl. 1). The sites are analyzed especially according to the transformations made the human communities for living and the environment factors which influenced this habitation dynamic.

First of them is the eponym site – Gumelniţa, researched in 1925 by Vladimir Dumitrescu (Vl. Dumitrescu 1925, p. 325-342). The site is located at cca. 60 km South-East from Bucharest and 4 km East of Oltenita (pl. 2, 3). The site has a special location and shape. Gumelniţa site is an erosion remnant separated by the high terrace which borders the Danube Valley – in this area has a 5 km width. In 1924 Vladimir Dumitrescu wrote about its relative oval shape and approximated its surface about 15.000 ms and its height about 20 m. The site was surrounded by a step with a 2-4 m width on

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its South and West sides and on its other sides is much eroded (Vl. Dumitrescu 1925, p. 29). The site stratigraphy was established on the basis of 1925 and 1960 excavations: there is a 4 m thick deposition of cultural layers, the upper one belonging to Gumelniţa B1 phase, and the three inferior levels to Gumelniţa A2 phase (Vl. Dumitrescu 1925; 1966). Some Boian sherds could prove a habitation belonging to this culture, at least in some area of the site (Vl. Dumitrescu 1966).

Seen from ground floor or terrace the site has a prolong oval shape. The aerial survey and satellite images showed that the site is actually rectangular, an unusual shape for a *tell* settlement (pl. 2/1, 2). Another special feature which stands out is that terrace, terrace step with a 2-4 m width which seems to surround the whole settlement, but now visible on only 3 sides (pl. 2/2; pl. 3/1, 3, 4). The terrace seems wider on the North-Eastern side. It is less probable that the terrace step is natural, as it seems too regular and practically surrounds the whole settlement. We thought that this step was recently cut, taking into consideration that all its surface was covered with vinery. A detail from the old excavation seems to point out to something else. During 1925 excavations Vladimir Dumitrescu made a small sondage (S III) of 10x2 m on the North-Eastern side where the terrace step was wider. In this sondage (1.40 m deep) there were discovered at -0.60-0.80 m some building materials and artefacts similar with those discovered in the upper level. Between -0.80 m and -1.40 m the archaeological materials are few and they are located under the upper level basis (Vl. Dumitrescu 1925, p. 38). These details could prove an initial transformation of the erosion remnant for living. On this step there were found materials belonging to the last habitation phase, Gumelniţa B1, suggesting that the step is not recent. Otherwise the archaeological materials should belong to Gumelniţa A2 phase, also taking into consideration that the step is placed lower than the rest of the settlement. The step was realized before Gumelniţa B1 phase, possibly within a complex procedure of transforming the erosion remnant for living. In the last habitation level, this feature was covered by constructions. It is difficult to think how this terrace or terrace step might look like and how it was used. It is possible that the settlement was surrounded by a protection system (fence, palisade) placed on this step. This hypothesis should be verified by archaeological researches made in different points of this step in order to prove such features.

Sultana *Malu Roşu* is the second analyzed site (pl. 4; 5). It was excavated since 1923 by prof. Ioan Andrieşescu and Vladimir Dumitrescu, assistant at the National Museum of Antiquities (I. Andrieşescu 1924, p. 51-107). The site was excavated in several periods; rescue excavations have been carried out between 1974-1983 but unfortunately not much of their results was published (C. Isăcescu 1984a, 1984b; C. Hălcescu 1995). The little information about the site stratigraphy and contexts of the archaeological finds was the reason for new excavation at Sultana *Malu Roşu* starting with 2001 (R. Andreescu *et alli* 2007-2008).

The site was located at about 65 km South-East from Bucharest and less than 15 km from the Danube. The location of Sultana site is unusual for the settlements belonging to Gumelniţa culture. The site is placed on the right shore of Iezerul Mostiştei Lake, on a terrace extension in the lake waters (pl. 4/1, 2; 5/2). It is separated by the rest of the terrace by a deep valley on South-East / South-West and by a little valley on North-West (pl. 4/2). The settlement and its surroundings suffered important transformations during time. Much of the settlement collapsed in the lake because of erosion and other natural processes - rainfalls, freezing etc. What still remained measures 35-40 m on the North-East – South-West axis and 25-30 m on the short axis South-East – North-West (I. Andrieşescu was estimating the long axis at 71 m back in 1923). The cultural level has a 4 m thickness in the Eastern side of the settlement and only 2.50-2.60 m in the Western side (C. Isăcescu 1984b, p. 11). The settlement was protected by a deep ditch of 6 m. The earth taken out of the ditch was used to make a bank on the interior side of the ditch. The bank seemed to continue on the Western and Eastern sides. The bank had initially 1 m height and 3-4 m width; it was raised twice with 0.40 m and respectively 0.20 m. These earthen works were made in Gumelniţa A2 phase and in the next phase Gumelniţa B1 they were abandoned and covered by habitation levels (C. Isăcescu 1984b, p. 12).

The location is unusual for *tell* settlements which are usually placed at the terraces bottoms and not on their top (pl. 5/1). Most *tell* settlements are protected and hidden by terraces, but Sultana overlooks the lake from its location on top of the terrace. Even though the researches are not yet finished, we would like to point out some details observed so far. The South-Western side of the settlement descends in slope to the terrace from which is separated by a lower area (pl. 5/3, 4). On this side C. Isăcescu identified a ditch and a bank, without any illustration for this situation (C. Isăcescu 1984b, p. 12). A more complex situation was revealed when researching an old trench (pl. 5/4). The inhabitants that successively occupied the site made many transformations of the initial

place, which are quite difficult to trace and correlate with the occupation phases because of the site erosion and the old researches. It is much possible that the inhabitants to have initially dug in the terrace which was surrounded by a fence (a pit of a wooden post is visible at the base of the West profile). In the next phases the habitation levels overlap these features, reaching the slope edge. The slope was also worked many times; an oblique cut is visible on the Eastern profile, as well as the traces of two ditches dug at different times.

The geophysical measurement made on the slope and on the valley which separates the settlement from the terrace identified three possible ditches located in this area, situation which will be verified by excavations. Another detail was noticed at the North-Western edge of the settlement towards the little valley which separates the settlement from the terrace. Here it seems as well that the site was transformed by cutting a step into the terrace (pl. 5/2). Besides C. Isăcescu noticed that the so called bank also continued on the West and East sides, making more clearly that the site suffered several transformations in different periods (C. Isăcescu 1984b, p. 12).

The third analysed site is Căscioarele – *Ostrovel* (pl. 6, 7), excavated since 1925 by Gheorghe Ştefan (1925, p. 138-197). Extended researches have been carried out in the years 1962-1968[1] by a team directed by Vladimir Dumitrescu. The last habitation level was entirely researched, together with large area from the levels situated up to 5 m depth, during the eight campaigns of researches (Vl. Dumitrescu 1965; 1984, p.73).

The site from Căscioarele is located at about 50 km South-East from Bucharest, about 8 km distance from the Danube and 15 km East from the eponym site of Gumelniţa. The site location is different from Sultana and Gumelniţa. The site called *Ostrovel* is a little island of relative oval shape placed in the Northern side of former Greaca Lake (pl. 6/1, 2). The site is surrounded and protected from three sides by high terraces (pl. 6/2; 7/1). In 1925 Gh. Ştefan approximated the site diameters of about 65x70 m, the site was separated by the Northern terrace by 40 m of waters which sometimes was dried (Gh. Ştefan 1925, p. 138). Vl. Dumitrescu wrote in 1963 that *Ostrovel* had a 80 m diameter, raising up upon the dry lake from that period with about 5 m. Usually the surface of *Ostrovel* was 2-3 m above the waters, but when the waters were high they almost flooded the whole site. The extended excavations on *Ostrovel* made possible some interesting observations regarding the relation between the habitation dynamic and the environment.

A 107 m sondage (S. I) was cut in order to reconstruct the site stratigraphy. The cultural levels shown in the profile were bent from the middle of the site to its edges; there were not uniform and continuous deposits (Vl. Dumitrescu 1984, p. 73). The researches revealed three habitation levels which covered the whole settlement, described in the order established by Vladimir Dumitrescu.

The 1st level (I) has its lower part between -4.20 m and -5 m and it was made of remains of powerfully burnt houses, massive (the remains thickness has 1 m) and much wood used for their construction. This level belonging to Boian Spanţov phase was disturbed by the pits dug by the inhabitants of the next habitation level and by possible floods. The second level (II) has it lower part between -2.60 m and -3 m and it was also made of burnt building material (with a thickness of 0.30-0.40 m, even 0.60 m). The materials discovered in this level belong to Gumelniţa A2 phase. The third level (III) covered all the surface of *Ostrovel* and it comprises 16 houses. The lower part of the burnt houses was between -0.40 m and -0.60/0.70 m, sometimes even deeper. The materials discovered in this level belong to Gumelniţa B1 phase (Vl. Dumitrescu 1984, p. 73-74).

The three habitation levels were individualized by building material remains from houses, some quite massive, raised on a wooden structure covered with clay and powerfully burnt. Vladimir Dumitrescu place between these three levels some intermediary levels which are not so well individualized.

The situation seems more complex above the second level marked by the burnt dwellings belonging to Gumelniţa A2 culture. At about 10 cm above the building material level there is a thin layer of greenish material due to floods, covered by another thin layer of burnt material. This last layer is not an intermediary level; it was formed during the degradation of the upper part of the building material level which was washed by the waters after it was abandoned (Vl. Dumitrescu 1984, p. 77). In the North-Western area a black thin horizontal layer cuts the building material suggesting an intentionally levelling and then short period of living.

The archaeological depositions are few between level II and I. In some areas, between -3 m and -3.2 m there was sediment with yellow-greenish colour suggesting a flood and with many shells

[1] The research team was also made by: Hortensia Dumitrescu, Silvia Marinescu-Bîlcu, Ersilia Tudor and Barbu Ionescu.

on top of it, probably brought by the waters. Above level I there are in some areas remains of building material and of burnt material and even remains of burnt wooden beams. These remains are separated by a 10 cm layer of clay from the houses belonging to level I, suggesting an intermediary level. It seems there was another level under level I but the sterile soil could not be reached because of ground waters level (Vl. Dumitrescu 1984, p. 79).

The researches on the *Ostrovel* revealed the existence of complex habitation dynamic during centuries. The first habitation level on the *Ostrovel* is dated in Boian Spanţov phase (1st half of the 5th mill. BC). It is much possible that the *Ostrovel* was inhabited earlier, maybe in the phase Vidra of Boian culture.

The Boian Spanţov level is well individualized by massive remains of houses destroyed by a powerful fire. After this event the settlement seems to be abandoned but not for a long time as some sporadic materials seem to show at least a short time and limited habitation.

After this short time habitation it is possible that the settlement was abandoned because of intensive alluvial activity which might have flooded the settlement as the yellow-greenish sediment (about -3 m) covered with shells seems to prove. The archaeological materials are few in this episode, in some area they are missing at all. The lack of a Gumelniţa A1 phase habitation, which is to be found on the nearest terrace, seems to confirm the existence of a period less favourable for living on the *Ostrovel.*

The second level (between -3 m and -2 m) is also well individualized by the remains of massive burnt houses. Immediately after the destruction of this level by fire it seems we have another episode of intense alluvial activity traced in the remains found above the building material remains. It is followed by another habitation sequence probably in a stable environment, proved by many traces (hearths, burnt material remains, building material, archaeological complexes). The habitation sequence stops with the destruction by the last habitation level belonging to Gumelniţa B1 phase.

The analysis of the three sites in their relation with the environment suggests that it was a complex interaction between the environment and the human communities. The first conclusion is that their inhabitants were not only choosing favourable locations for living but they were also transforming these locations by rather complex works. It is well known within Gumelniţa culture that the inhabitants made ditches and fences enclosing the settlement. The settlements from Vidra and Teiu are well known for their enclosures. The settlement from Vidra is located on a terrace extension which goes in the flood plains of Sabar River. The researches revealed that two ditches were dug in the area which separates this extension from the terrace (S. Morintz 1962, p. 275-278). This situation is close to that from Sultana *Malu Roşu* settlement where successive works were done in the area which separates the site from the terrace. The site from Măgurele has a similar location and works; here the ditch separating the settlement from the terrace was rebuilt many times (P. Roman 1962, p. 260-262). The two settlements from Teiu, placed in the flood plain of Mozacu river, were surrounded by a small ditch and a bank (S. Morintz 1962, p. 278-280).

In some cases these works are more complex as it is the case at Alexandria - Gorgan on Vedea river valley. Initially the inhabitant of Gorgan dug some kind of steps in the terrace extension in the flood plain where the site is located. This area was enclosed with a wooden fence. Later these steps are overlapped by late habitation levels (R. Andreescu *et alii* 2003, p. 37-38). There are also other cases when the initially works usually done in Gumelniţa A1 or A2 phases are abandoned and overlapped by later habitation levels. In the case of Teiu settlement the last habitation level overlap the inner side of the earthen bank which was surrounding the settlement in its early phases (S. Morintz 1962, p. 279). The same observation is made for the settlement from Sultana, where the earthen bank belonging to Gumelniţa A2 phase is abandoned and covered by Gumelniţa B1 habitation level (C. Isăcescu 1984b, p. 12).

Complex works with ditches, banks, palisades were found in many sites from Bulgaria: Ovčarovo, Goljamo-Delčevo, Radingrad, Poljanica sau Tărgovište (H. Todorova 1982).

The three analysed sites revealed each of them a special aspect of the relation between the environment and the human communities. Gumelniţa site seems to have suffered certain transformations of its initial location for protecting it and making it proper for living, also taking into consideration the size and importance of the settlement. Unfortunately the excavations were made on a small scale (sondages). The site of Sultana *Malu Roşu* was and it is still excavated but the site is much destroyed and the results of old big scale excavations are summary published. Recent researches revealed successive works made especially in the access area from the terrace but also on

the settlement edges. Despite the defensive aspect of the banks and ditches we think that the existence of features as fences to prevent accidents it's quite logical in the case of settlements placed on erosion remnants or terraces extensions at a relative high location with inclined slopes (for example Sultana *Malu Roşu* site raises up with more than 30 m above the lake waters level).

Căscioarele site has another special situation as here there weren't made any observations regarding protection systems because the edges of *Ostrovel* were constantly eroded by waters so if they existed were destroyed by the waters. In exchange the site brings important information concerning the influence of the environment factors upon the habitation dynamic. The situation is even more interesting as very close on the North there is another site known as *D-aia parte*, with a habitation level belonging to Gumelniţa A1 phase which misses from the *Ostrovel* (pl. 6/2; 7/2). It is much probable that during this phase (and maybe even on Gumelniţa A2 phase in short periods of time) the *Ostrovel* wasn't inhabited because of the environment unfavourable conditions, respectively the intensification of alluvial activity associated with frequent floods.

It is also very much probable that future locations of Gumelniţa site were chosen according to certain criteria which including various works for optimising and protecting these locations. In the same time the habitation dynamic in a certain area was influenced by environment factors because of which in some cases it happened even that the initial location was abandoned. The three analysed cases reveal the importance of the environment analysis upon the reconstruction of the daily life of Gumelniţa communities. Large scale excavations are needed for revealing the complex relations between environment and human communities.

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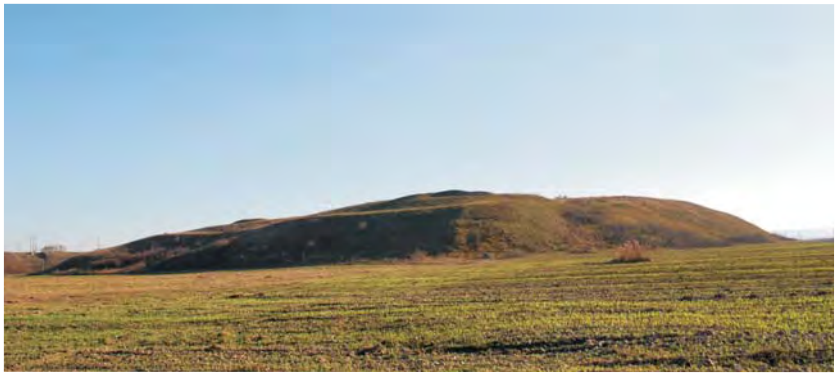
Pl. 1. Map with the sites from Căscioarele, Gumelniţa şi Sultana.
Harta cu siturile de la Căscioarele, Gumelniţa şi Sultana.

1

2

Pl.2. Gumelniţa. 1. View from South; 2. View from East. Detail with the step from the North-Eastern sides.
Gumelniţa. 1. Vedere dinspre sud; 2. Vedere dinspre est. Detaliu cu treapta de pe laturile de nord şi est.

1



2

3

4

Pl. 3. Gumelniţa. 1. View from North 2. View from North-West 3. View from East 4. Detail with the step from the Western side.
Gumelniţa. 1. Vedere dinspre nord 2. Vedere dinspre nord-vest 3. Vedere dinspre est. 4. Detaliu al treptei de pe latura de vest.

1

2

Pl. 4. Sultana "Malu-Roşu". 1. View from South; 2. View from North-East.
Sultana "Malu-Roşu". 1. Vedere dinspre sud; 2. Vedere dinspre nord-est.

1

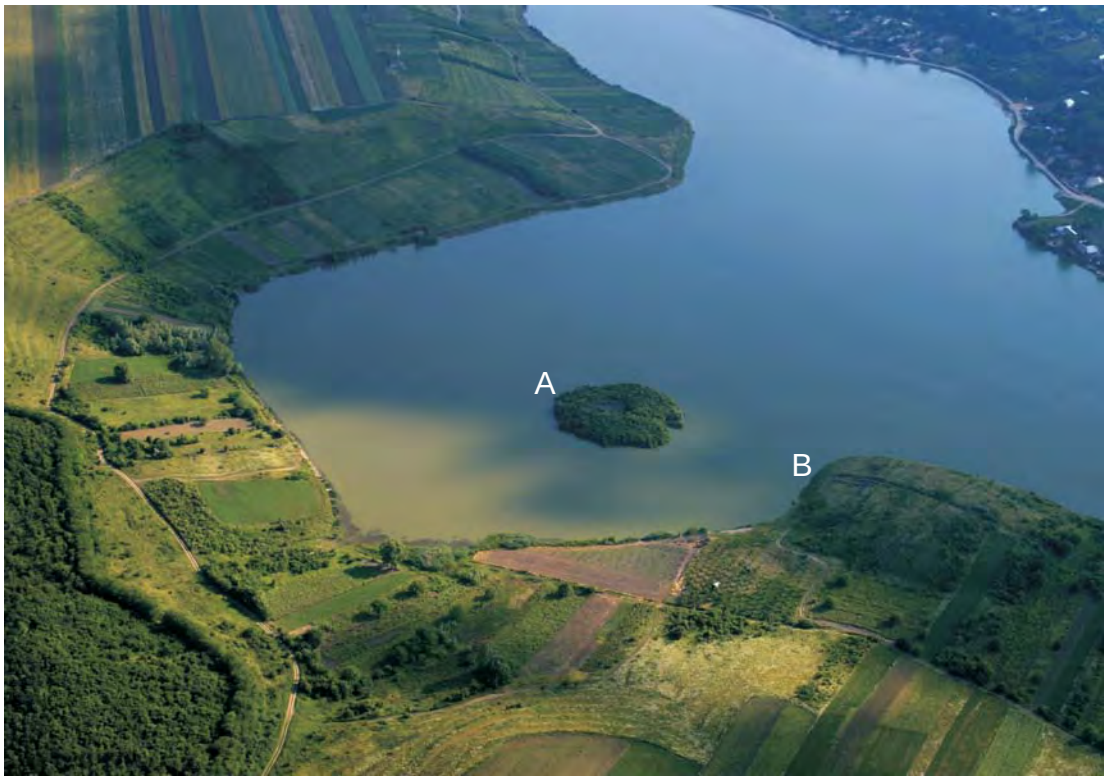
2

3

4

Pl. 5. Sultana "Malu-Roşu". 1. View from North; 2. View from North-West; 3. View from South; 4. View from South-West.
Sultana "Malu-Roşu". 1. Vedere dinspre nord 2. Vedere dinspre nord-vest. 3. Vedere dinspre sud. 4. Vedere dinspre sud-vest.

1



2

Pl. 6. Căscioarele "Ostrovel". 1. View from South; 2. Căscioarele "Ostrovel" (A) and "D-aia parte" (B), view from North.
Căscioarele "Ostrovel". 1. Vedere dinspre sud; 2. Căscioarele "Ostrovel" (A) şi "D-aia parte" (B), vedere dinspre nord.

1

2

Pl. 7. Căscioarele. 1. "Ostrovel", view from North; 2. "Ostrovel" (A) and "D-aia parte" (B), view from South.
Căscioarele. 1. "Ostrovel", vedere dinspre nord; 2. "Ostrovel" (A) şi "D-aia parte" (B) vedere dinspre sud.