In memoriam Professor Mihai Irimia

A MODEL OF INTERNAL PRIMARY ORGANIZATION OF THE LARGEST GUMELNIŢA TELLS. STOENEŞTI *MĂGURA TANGÂRU*

Cătălin BEM[1], Andrei ASĂNDULESEI[2], Bogdan VENEDICT[3], Carmen BEM[4], Felix TENCARIU[5]

[1] catalinbem@yahoo.com, [2] andrei.asandulesei@yahoo.com, [3] bogdan.venedict@yahoo.com, [4] carmen@cimec.ro, [5] felixtenc@yahoo.com

[1] National History Museum of Romania (Bucharest), [2, 3, 5] Alexandru Ioan Cuza University (Iaşi), [4] Institute for Cultural Memory (Bucharest)

Abstract: *Firstly we tried to establish the criteria and dimensional categories where anthropic mounds can be found. A graph of the height (thickness of deposits) depending on the tells' diameter has led us to sketch several usable chronological intervals. Măgura Tangâru is also included in the large tells category, being our focal interest point.*
The used investigation methods have been briefly summarized. Following a complementary analysis, we consider that the tell from Stoeneşti developed on an extension of the Câlniştea River terrace, the difference between the upper parts of the terrace and, respectively, of the tell corresponding to the maximum amplitude revealed by previous archaeological research. Also, the aerial identification of two delineating ditches was confirmed by magnetometric scanning and partly by that with the GPR. Digging the ditch of the main tell at a level about 6m below the anthropogenic deposits at the base of the natural slope terrace, excludes any defense ambitions.
The situation from Tangâru seems to repeat within all large tells, developed on extensions of terraces – all similar stations investigated in the Chronos project, as well some studied with previous occasions, have delimitation ditches dug at the base of geomorphological element on which they have developed.

Keywords: *calcholitic, Gumelniţa, tell settlements, aerophotogrametry, laser 3D scanning, magnetometry, GPR, delimitation ditches.*

1. Introduction

The first reason considered at the beginning of our approach[1] was the necessity for Romanian archaeology to shape a non-intrusive research model of Gumelniţa *tells* . Archaeology, having a destructive character, inherently induces the damage of *tells* during the actual research, while post-excavation damages are caused by natural and, not infrequently in Romania, by anthropic causes.

In the absence of a coherent strategy for investigating the phenomenon, the researches have often been timely and targeted mainly to the discovery of remains of burned houses – very rich in archaeological inventory. Internal structure, the landscape, immediate contact of *tell* with its geomorphologic basis were often not quantified. So, our approach was also based on a description of these elements.
The second reason was to identify some possible patterns of the internal organization of the *tells*, but also for recognizing housing cores to each Gumelniţa community. We will limit here only to a series of common features of large sites.

[1] This study was achieved within the ***Chronos*** project financed through PNCDI 2 Partnerships, (92101/1.10.2008 contract). Two of its main objectives were the highlighting of spatial and temporal distribution of all Gumelniţa sites in the space given; involving the formation of tells (particular cases) and identifying possible patterns of housing.

2. Background and Sites description

Establishing of dimensional intervals is generally random, although often it is accompanied by scientific arguments. Gumelnița *tells'* natural dimensional classes must consider both anthropic mound surface (usually calculated from its current base, which in most cases does not correspond to the actual area occupied) and height (which also not always corresponds to anthropogenic deposition thickness). It should be noted that in most cases these two dimensions are only *estimative*; they are not the result of topographic surveys. Moreover, failure to identify natural foundation and not taking into account of the geomorphologic changes from the close proximity of the sites induced errors in both directions.

Tells' area. To create a possibility of comparison, the criterion should be the same in all cases. Therefore, one has to choose one of the next three types.
(1) *the area really inhabited* – representing an area more or less firmly defined by anthropical remains, with housing debris and occupational marginal areas. It is impossible to know if a site is not researched enough, or hard to say if the *tell* is largely destroyed or archaeological investigation had only a survey character (if it is a cross-section). We will not detail here our older discussion about the differences between *tells* with the continuity of occupation and multilevel settlements without stratigraphical continuity (Bem et al. 2002, 135 et seq.). In the first case, the *tell* is founded and inhabited by the same community (not important here whether or not it increased through the increase of population). In the second case, the *tell* was founded and inhabited by two or more different communities (especially when chronological differences corresponding to stratigraphic expressions have been there for centuries). Defining a real inhabited area is therefore directly influenced by archaeological interventions involving the degree of preservation of the remains, the type of the anthropic delimitation and the number of communities and stratigraphic accumulation period.

(2) *the total area of the anthropic mound* –a truncated cone surface (slopes of *tell*) and an area more or less circular (the upper part of *tell*, as the upper basis of the cone trunk). Although this type of size can be quantified without archaeological intervention, the very lack of it, especially for *tells* built on erosion remnant or extension of terraces, induces obvious error.
(3) *firm surface contour of the tell* – representing the horizontal topographic projection area of an anthropic mound. Even though colluvial deposits are included here, it remains the only way to characterize this point of view. It is practically the expression of the biggest enlargement in both the *tells* built on the banks, in the floodplain and those which are nearby medium and high terraces which end up exceeding their altimetry and consequently cover them stratigraphically. Also, making a horizontal projection of the maximum limits of topographical space for *tells* formed on extensions of terraces or erosion remnant is as easy as with those on the banks. If we choose this dimensional aspect it is essential to precisely identify the natural foundation and topographical features of the site's proximity (Figure 4-5).

The height of tells is the second essential element for a dimensional classification. As with the surface, to which is directly connected, *tells'* height can be translated by two expressions – the actual height of the anthropic mound and maximum thickness of archaeological deposits. A survey can often solve the equivalence of these two elements, highlighting the elevation difference corresponding to anthropic evolution mound.

Therefore, we took into consideration the calculation of projected horizontal diameter of maximum topographic limits and anthropic height of tells. Regarding situations where horizontal projection is an oval, having thus two diameters, we have considered their arithmetic mean, the surface of oval being calculated with the formula $\pi[(D1+D2)/2]^2/4$. We could identify a total of 60 *tells* to which key dimensions are known or have been corrected and / or completed in topographic surveys by us (table 1).